

HOME SCIENCE

CLASS - XII



BOARD OF SECONDARY EDUCATION, RAJASTHAN, AJMER

TEXT BOOK TRANSLATION COMMITTEE

Book : Home Science (Hindi)

Class : 12

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Book : Home Science

Class : 12

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PREFACE

Home Science is an extremely useful and important subject. It is a practical education which is being studied and taught in all the schools of India. This subject includes understanding of activities of daily life, their usefulness and scientific solutions to the problems related to these activities. Also, from this the students learn the skill to display their artistic expression. The book makes an effort to conjoin the theoretical as well as the practical subject-matter in the Indian perspective.

The book has five units. The first unit deals with development of human being and problems faced by individual at different stage of life. Second unit includes the nutrition require to maintain good health for all span of life. Third and fourth unit depicted the chapter related to clothing and textile and family resource management respectively. Last unit related to Home Science Education and vocations. Illustrations and drawings are also presented to make the subject intresting and conceivable. On the whole book has two sections : first section constitute with theory part and second section contains all practicals related to Theory. A summary is given at the end of each chapter. Each chapter has different level of questions at the end such as objective type, fill in the blanks, short-answer questions, and essay-type questions. To develop the quality of 'learn by doing', subject-matter related practical works with instructions to perform them are given in simple language.

Efforts have been made by Miss Sunita Chouhan to keep the language and phraseology lucid and understandable and helped in translation and proof reading of the chapters. I would like to mention name of Dr. Reema Rathore for her cooperation. We hope and believe that this book will be useful to not only the students of class XII but also to the homemakers. We expect the constructive feedback and suggestions from the teachers and students of Home Science who will remain our guiding light and will be beneficial in making this book more advantageous.

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SYLLABUS

Time 3.15 Hours

Total Marks : 56
Sessional Marks : 14

S.No.	Learning Area	Marks Weightage
1.	Human Development and Family Studies	15
2.	Food and Nutrition	20
3.	Clothing and Textile	09
4.	Family Resource Management	09
5.	Home Science Extension Education	03
	Total	56

S.No.	Unit	Theory	Marks
1.	I	Human development and Family Studies (i) Development in adolescence-I : Physical, motor and sexual development (ii) Development in Adolescence-II : Social, emotional and cognitive development (iii) Problems of adolescents and their management (iv) Preparation of marriage and career (v) Reproductive health and sexually transmitted diseases (vi) Adulthood and old age (vii) Population control (viii) Special children	15
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		(i) Clothing and personality	
		(ii) Selection of clothes	
		(iii) Stitching of garments	
		(iv) Readymade garments	
		(v) Stain removal	
		(vi) Cleansing material	
		(vii) Storage of clothes	
4.	IV	Family Resource Management	9
		(i) Family income	
		(ii) Household account	
		(iii) Saving and investment -I	
		(iv) Saving and investment- II	
		(v) Consumer problems	
		(vi) Consumer protection and aid	
		(vii) Consumer protection act	
		(viii) Consumer protection Act-1986	
5.	V	Home Science Extension Education	3
		(i) Home Science - Family and vocational education	
		Home Science Practical	

Time : 4.00 Hours

Total Marks : 30

S.No.	Learning Area	Marks
1.	Human Development and Family Studies	04
2.	Food and Nutrition	10
3.	Clothing and Textile	06
4.	Family Resource Management	04
5.	Records + Oral	04+02

S.No.	Unit	Practical	Mark
1.	I	Human development and Family Studies	04
		(i) Strength and weakness of adolescents	
		(ii) Prepare a case study performa for adolescents	
		(iii) Old age problems and suggestions	
2.	II	Food and Nutrition	08+02
		(i) Reference unit of food groups	
		(ii) Meal planning during childhood	

		(iii) Meal planning during adolescence	
		(iv) Meal planning during adulthood	
		(v) Meal planning during old age	
		(vi) Meal planning during pregnancy	
		(vii) Meal planning during lactation	
		(viii) Meal planning for diarrhoea and fever patient	
		(ix) Test for detection of food adulteration	
3.	III	Clothing and Textile	03+03
		(i) Basic stitches and apron making	
		(ii) Evaluation of readymade garments	
		(iii) Methods of stain removal	
		(iv) Effect of water temperature on clothes	
		(v) Methods of soap and detergent preparation	
4.	IV	Family Resource Management	02+02
		(i) Practical related to bank	
		(ii) Preparation and evaluation of label	
5.		Records	04
6.		Oral	02
			Total marks 30

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UNIT I - HUMAN DEVELOPMENT AND FAMILY STUDIES

DEVELOPMENT IN ADOLESCENCE I :

PHYSICAL, MOTOR AND SEXUAL DEVELOPMENT

Introduction :

The word 'adolescent' is derived from the Latin word 'adolescere' meaning 'to grow' or 'to go to maturity'. In other words, the child as a whole undergoes a complex series of changes in the growth and development, namely physical, social, emotional, psychological and moral. Adolescence is usually associated with the teenage years, but its physical, psychological or cultural expressions may begin earlier and end later. Many psychologists use the term synonymously with "pubescence" or "reproductive maturation". Some of them define it as the transitional period of life during which the child experiences a number of changes - physiological, emotional and intellectual. This period runs between childhood and adulthood, sometimes-called "the period of storm and stress". Piaget has defined adolescence from a psychological viewpoint. According to him "psychologically, Adolescence is the age when the individual becomes integrated into the society of adults, the age when the child no longer feels that he is below the level of his elders but equal, at least in rights". Some psychologists consider it as a period between 13 to 18 years, whereas according to others it lasts upto 24 years.

According to L.Carmichael (1968) "Adolescence is a period of life when immature person's physical and mental development reaches to its peak. Adolescence can be defined biologically, as the physical transition marked with the onset of puberty and the termination of physical growth; behaviour changes occur when the individual becomes sexually mature and is capable of producing offsprings.

Major pubertal and biological changes include changes to the sex organs, height, weight, and muscle mass, as well as major changes in brain structure and organization.

According to A.T. Jersild, "Adolescence is a span of years during which boys and girls move from childhood to adulthood mentally, emotionally, socially and physically".

Adolescent period is divided into 2 stages :
(i) Early adolescent (ii) Late adolescent

It is customary to regard adolescence as the beginning when children become sexually mature and ending when they reach the age of legal maturity. However, studies regarding changes in the behaviour, attitudes and values throughout adolescence have revealed that these changes are more rapid in the early than in the later part of adolescence. Besides the behaviour attitudes and values in the early part of the period have marked difference from those in the later part. As a result, it has been widely accepted to divide adolescence into two subdivisions, early and late adolescence.

- (1) **Early adolescence :** This is the period from 13-14 years to 16 or 17 years. In girls, this period is from age 13 to 16 years and starts after one year in boys.
- (2) **Late adolescence :** This stage in girls is from 16 or 17 years to 20-21 years and in boys between 18-21 years. Transition period between early and late adolescence is the 17th year. Normally girls and boys of this age study in 11th or 12th standard. Parents acknowledge

them as adults and they are ready to enter in work area of adults, college or vocational training.

Characteristics of adolescence :

- 1. Adolescence is an important period :** It is important for both psychological and physical effects because of its immediate effects on attitude and behavior. Along with the rapid physical development, adolescents undergo rapid mental development as well. These give rise to the need for mental adjustments and necessity for establishing new attitudes, values and interests.
- 2. Adolescence is a transitional period :** The individual's status is vague during transitional period and there is confusion about the roles that the individual is expected to play. The adolescent, at this time, is neither a child nor an adult. If they behave like children, they are told to "act their age". If they try to act like adults, they are often accused of being "too big for their age".
- 3. Adolescence is a period of change :** When physical changes are rapid during early adolescence, changes in attitude and behavior are also rapid. They have feelings of instability due to sexual maturity which is often intensified by the ambiguous treatment they receive from parents and teachers. The changes in their bodies, interests, social group expectations give birth to new problems. Their values change as interest and behaviour pattern change. They try to act independently.
- 4. Adolescence is a problem age :** Their problem and needs are taken care of by parents and teachers throughout childhood. Suddenly, adolescent starts feeling that they are independent and try to do everything on their own and end up in frustration.
- 5. Adolescence is a time to search for identity:** Adolescents want to look like as their gang-mates in dress, speech and behavior as possible. They use status symbols in the form of clothes, vehicles and other observable material possessions.

6. Adolescence is a time of unrealism : They have a lot of unrealistic aspirations, desires and goals not only for themselves but also for their families and friends. They get angry and disappointed when they feel that others have let them down or that they have not lived up to their set goals.

7. Adolescence is a threshold of adulthood : They want to create an impression that they are close to adults which they show in their dressing and behaviour, associated with the adult status like smoking, drinking, using drugs, engaging in sex etc.

I Physical development :

"A healthy mind resides in a healthy body." Physical development is considered to be the most important development in the entire process of development. Other developments tend to be good when physical development is good. This rate of growth and development varies in different stages of life. The rate of growth and development is fastest in adolescence after pregnancy and infancy. It is also called the growth spurt; the growth spurt typically lasts about two years; soon after it ends, the young person reaches sexual maturity. Since girl's growth spurt usually occurs earlier than that of boys, girls between ages 11 and 13 are taller, heavier and stronger than the boys of same age. Muscular growth peaks at age 12.5 for girls and 14.5 for boys. After their growth spurt, boys are again larger than girls, as before. Both boys and girls reach virtually their full height by the age of 18. The physical changes of adolescence are as follows:

- 1. Height :** The height of boys and girls remains same between the age of nine to ten years. After that, rapid growth is found between 10-14 years and steady at 16-18 years. . The fastest growth rate of boys is between 12th and 15th year on an average, which slows down in the 16th year and stop between the age 20-22 years. Thus, girls reach their maturity in the 18th year and boys between 20-22 years. The early mature teenager's height increases after the maturity.
- 2. Weight :** The increase in weight in adolescence is not only with the increase of fat but also by the

growth of bone and muscle tissue during puberty. Bones not only increase in size but also change in shape, ratio and internal structure. The bones of the girls mature in terms of size and development by the age of seventeen. The development of bones in boys is completed almost two years later. The increase in weight among girls occurs just before and immediately after the first menstrual cycle. This time interval is 11-15 years. Similarly, maximum weight gain among boys is seen between 13th to 16th year. For this reason, girls have more weight between 10-15 years than boys of their own age, but there is reversal pattern after fifteen.

3. Changes in body proportions : The body grows when the puberty begins, however all the organs of the body do not grow at the same pace. Consequently remains the childish status of childhood. This is especially visible in the nose, legs and hands. After sexual maturity, only five percent growth in the periphery of the parts remain. Due to proportional growth of the face, the forehead starts to be high and chaotic and the nose elongate and broad, but gradually. The face of the boy becomes slightly high and sharp and the girl's face becomes round like egg when the maturation occurs. The legs are much longer than the torso just before the puberty and remains the same until 15 years of age. The sequence of arms growth is very much the same. The length of the arms increases before growth of the torso which makes them look very long. The long and thin upper body of the older teenager starts to crack on the hips and shoulders and the waistline becomes clear. Thus, boys' shoulders proportionately become broader than hips and hips of girls become broader than shoulders. The proportion of the body is similar to the youth by the second half of adolescence.

4. Other physical changes : The growth started during the puberty and in early adolescence, observed decreasing rate and stops gradually in late adolescence. Therefore, any increase in weight during adolescence usually happens due

to the increase of fat in those parts which did not have the first fat or had less fat. Consequently, the late adolescent body looks like full rather than the leanness of early adolescent. The growth of the skeleton stops at an average age of 18 years. Even after attaining the mature size of bone, other types of tissues continue to grow. For example the eruption of the teeth of the wisdom starts after twenty years. Extra activation of oil-producing glands during puberty increases excess lubrication of the skin's, causing the problem of acne. This problem is normal in adolescence.

5. Development of internal organs : There is proportional growth and development of the internal organs of adolescents, which occurs in early teens. The stomach develops in the digestive tract of the child increases its capacitance. Intestinal length and thickness increases. The muscles of the nerves become powerful and thick. The weight of the liver increases. The size and thickness of heart and blood veins increases in the circulatory system. Along with the increase in the width of the chest, there is an increase in the weight and volume of the lungs, but this increase is more among the girls than the boys. There is a temporary imbalance in the whole endocrine system due to increase in the activity of gonadal glands. The glands which were predominant in childhood, is now reduced and the primacy of the other glands (adrenal gland, thyroid gland, gonad gland etc) increases, which also increases the rate of minimum metabolism.

II Motor development :

Muscle growth is also at a rapid pace along with physical development in adolescence. The maximum increase in the strength of boy's muscles starts at the age of 14 and it lasts upto 20-21 years. However, this growth reaches its peak for girls up to the age of 14 and slows down till 17 years of age. Muscle strength in boys at any stage is more than girls. This is because of the soft muscles of the girls. The muscle strength is not attained with the increase in the size of the muscles. A person should be trained to learn the skills

and opportunities be provided for the practice. Least of environmental constraints and strong motivation are needed for learning skills. Motivation to practice various skills in adolescence and to practice as long as they do not become trained is very strong. Apart from this, the adolescent also has the convenience that he/she always has one to teach skills, whether it be a teacher, a parent, or other teenager who has attained proficiency in those skills, whom he/she wants to learn. In this way, they get the path and the strong motivation of learning. Teenager by this way not only learns the skills but learns so well that they become expert of youth skills.

Increase in the ability to perform motion activities increase in girls at the age of 14 and in boys at the age of 17. The tests that are performed for measuring the ability, control strength and static equilibrium show the highest increase in the ability of the boys in the age of thirty. Upgradation takes place among girls up to the age of 14 years, and after that there is lack of ability/capacity due to change of interest. Most teenagers are extremely interested in active participation in sports, competitions and exercise skills, while others are interested in watching others participation in these skills. Adolescent girls dance in an complicated way, dive and enjoy in other sports, in which muscle coordination is more important. If they have to take part in sports competitions, then they compete with other girls because they are equal to the qualifications of other girls than boys.

III Sexual development :

Sexual development in childhood begins with physical development as well. Changes in sexual organs begin in puberty stage and are completed during adolescence. Changes in adolescence can be divided into two parts :

- 1. Primary sex characteristics :** The genitals are small and immature in childhood in terms of work, so they do not have the ability to reproduce. The genitals grow larger in size during adolescence and mature in terms of work.

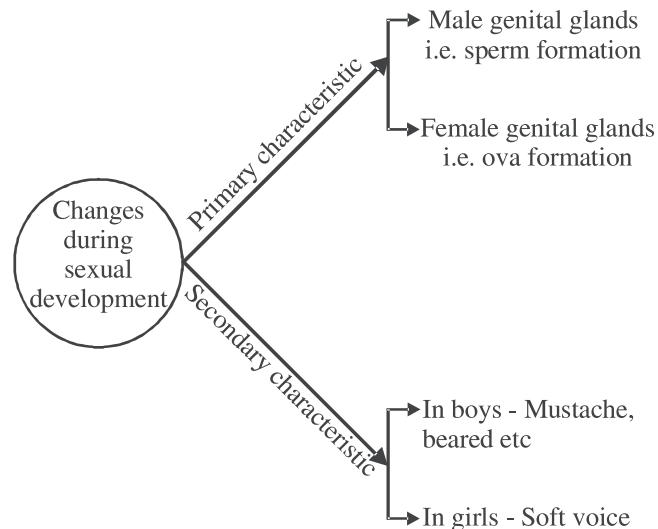


Fig. 1.1 : Changes during sexual development

Male genitalia that reside inside the scrotum, achieves only 10 percent of its maturity at the age of fourteen, gets mature size in 20-21 years. These glands produce sperm, as well as produce hormones which control the physical and mental adjustments require for child reproduction. The intensity of the penis increases shortly after the rapid growth of testes. Penis grows in length first and then in thickness. On an average it often starts nocturnal emissions, at the age of 14-15 years when the genitalia matures for its action. This is the natural way to extract extra amount of semen. Nocturnal emissions often occur when dreams of sexual arousal occur, bladder is full, due to convulsion in the intestines, tightness of pajamas or tilting is quite common. It is normal upto 4 times in a week. Many boys have no idea until they see spots on beds or pajamas.

Female genitalia mostly reside in the body, so their growth is not known by anything other than the growth of the abdomen. At the age of 12, the weight of the ovary is 40 percent of mature weight which gets mature size and weight between 20 to 21 years, although they mature for their work around the mid of the puberty period. The main function of the ovary is to produce ovum, for childbirth. Apart from this, it also produces regulatory hormone-progesterone, estrogen hormone, corpus luteum etc. The composition and function of female genital organs develops due to female hormones, menstrual cycle starts and the secondary sex characteristics develop. The first true

indicator of maturing of female genitalia is the first menstrual cycle. In this, there is a fixed amount of blood, mucus and broken-cellular tissues discharges from the uterus in every 28-30 days with regularity till menopause. Menopause can occur between 45 and 55 years at any time. On the start of the menstrual cycle from the first 6 months to 1 year, the discharge is rare and sometimes in excessive amounts on an estimated period. In this condition, ovum growth (i.e., the maturation of the ovum) and ovary follicles do not lead to the release of ovum; in fact the girl cannot be pregnant and is called sterile. In the early menstrual, stage, girls often have headache, back pain, convulsions and abdominal pain accompanied by dizziness, nausea, dermatitis and even leg and ankle inflammation. These symptoms gradually decrease.

2. Secondary sex characteristics : In addition to progressing the early stage of adolescence, boys and girls become uneven in shape due to the development of the primary sex characteristics along with the secondary sex characteristics. The gradual development of secondary sexual symptoms in boys and girls are as follows :

In boys :

1. The hair grows over the genitals about 1 year after the increase in the size of the testicular glands and penis.
2. Beard and mustache on the side and face.
3. Hair growth on arms, legs, shoulders and chest.
4. All types of hair are light in color and slightly soft in the beginning and then become dense, stiff, dark and curved.

5. Skin becomes rigid, thick and yellowish rough.
6. Excessive acne from activation of oil glands.
7. Activation of armpit sweat glands causes sweating in the vicinity and a special odour emerges.
8. First tone of sound is soft then become heavy.
9. Cyst around the milk glands develop during the age of 12-14 years and automatically disappears after few weeks. Similarly, milk glands increase for a short period of time and then flatten like childhood.

In girls :

1. Increase in the width of the buttocks due to the growth of pelvic bone and the development of adrenal glands.
2. Enlargement of breast and chest along with the deposition of fat, due to which the breast lifts from the thoracic surface to cone shape.
3. The breasts are big and round due to the growth of the milk glands.
4. Growth of black and thick hair on the genitals after the development of hip and breasts.
5. Hair growth and swelling of sweat glands of armpit.
6. Growth of the upper lip, cheeks, face edges and the lower edge of the chin.
7. Activation of skin oil glands causes face acne.
8. Voice becomes soft and harmonious.

Thus, with the completion of the development of primary and secondary sex characteristics, a teenager becomes a young man or woman.

Girls		Boys	
Characteristics	Age	Characteristics	Age
Breast development	8-13 years	Egg and Testicles	10-13 years
Hair growth on genitals	8-14 years	Hair growth on genitals	10-15 years
Physical growth	9.5-14.5 years	Physical growth	10.5-16 years
Menarche	10-16 years	Genital growth	11-14 years
Hair growth in under arms	Within 2 years of genital hairs	Voice change	Same at the time of genital growth
Oil (Sweat glands)	Almost at the time of hair of under arms	Hairs on face and under arms	2 years after the growth of genital hairs
		Sweat glands	Almost at the time of underarms hair.

Important points :

1. Adolescence derived from the Latin word generally means “to grow”.
2. Adolescent period is generally divided into two sub stages-early adolescent period and late adolescent period.
3. Adolescence is a period of stress and strain.
4. The fastest rate of growth and development in adolescence after pregnancy and infancy.
5. The time of growth spurt varies in girls and boys. The fluctuation increase in the girls starts around 11.5 years and reaches their peak in 12.5 years, while in the boys starts from 10.5 to 14.5 years and reaches the peak in 15.5 years.
6. The height of boys and girls is almost equal during the nine to ten years of age. Thereafter, there is a rapid rise in the height of girls between 10-14 years, whereas the boys’ average growth rate ranges from 12 to 15 year on average.
7. Weight increase in adolescence is not only with the increase of fat, but also by the growth of bones and muscular tissues.
8. The bone is mature in terms of size and development at the age of 17 years and the development of the ossicles in boys is completed after about two years.
9. The body grows when the puberty starts, but all the organ of the body does not grow at the same speed. As a result, childish attributes of childhood remains same.
10. The growth spurt that started at the time of puberty starts to decrease in the early adolescence and gradually stops in late adolescence.
11. There is proportional increase and growth of the internal organs of adolescents, which occurs in early teens.
12. Motivation to practice various skills in adolescence and to practice till it is not learned is very strong.
13. Older teenagers are highly interested in same lane, active participation in physiological sports, participate in exercise and more skills, whereas

early teenagers are involved in dizzying, gossiping and enjoying other sports that are far more powerful than others. Importance is of muscular coordination.

14. Sexual development as well as physical development begins in adolescence. The genitals mature in size and in terms of work during adolescence.
15. Gonadriens mature for their work around the middle of the puberty in both boys and girls, but get mature size until 20-21 years.

Questions :

1. Choose the right answer to the following questions :
 - (i) Rate of Growth and development is fastest in adolescence known as :
 - (a) Rapid increase
 - (b) Increase flutter
 - (c) High growth
 - (d) None of the above
 - (ii) Shoulders are broad from the hips :
 - (a) In the child
 - (b) In the teens
 - (c) In the teenager
 - (d) In the girls
 - (iii) Thyroid is :
 - (a) Part of the skin
 - (b) Part of the digestive tract
 - (c) Part of circulatory system
 - (d) Gland
 - (iv) Male gonads receive mature size in :
 - (a) 10-12 years
 - (b) 14-15 years
 - (c) 20-21 year
 - (d) 30-31 years
 - (v) The first true indicator of maturing of female genitalia occurs in girls :
 - (a) Growth of hair in the genitals
 - (b) Oil glands are highly active
 - (c) First discharge of blood
 - (d) Hard and thick skin
2. Fill in the blanks:
 - (i) Development of the ability of motional work develops in girls and boys at the age of and respectively.

- (ii) When the genitals mature for their actions on average, at 14-15 years of age, they often begin to be
 - (iii) Female genitals are mostly in the body, so their growth does not recognized from anything except the growth of
 - (iv) Period of menarche is with regularity till menopause.
 - (v) The breasts lift from the thorax and become cone shaped due to the deposition of
 - (vi) The main function of the ovary is to produce which is necessary for childbirth.
3. "The physical development of the child is the basis of his personality." Explain.
4. Comment on the following physical development in adolescents -
(A) Length (B) Weight (C) Physical Ratio
5. "Adolescence is a period of Stress and Strom." Explain.
6. What is the contribution of a teacher and parents in the successful motor development of adolescents ? Explain.
7. Write in detail about the changes that take place during sexual development in adolescents.

Answer :

- 1. (i) b (ii) b (iii) d (iv) c (v) c
- 2. (i) 14, 17 (ii) nocturnal emission
(iii) abdomen (iv) 28-30
(v) fat (vi) ovum

2. DEVELOPMENT IN ADOLESCENCE II : SOCIAL, EMOTIONAL AND COGNITIVE DEVELOPMENT

IV Social Development :

Social development occurs intensely in adolescence. The meaning of social development is “the ability to behave in accordance with social beliefs and to co-ordinate with others.” Understanding the ideals and values of the society, as well as the behaviours, thoughts and feelings of different people of the society and learning adjustments in various situations is also important. A teenage receive respect in society if its behavior is consistent with the ideals and values of society, as well as its adjusting behaviour. Social maturity is necessary in the adolescent in order to adjust and behave according to the expectations of society. Under this stage, social development can be understood by the following points :

1. Social behaviour :

Child social circle becomes vast as the child grows up, and the role in society outside the home becomes progressively important for the development of his personality. The child’s interests and experiences become immense. He is now connected with many groups whose members are often of different interests and perspectives. The adolescent learns with a large number of social connections to organize his activities, choose leaders, behave as a youth on small level, deal with heterosexual sex, talk, dance, and behave in socially accepted ways.

Negative attitude found in teenagers at early adolescence is replaced by positive attitude like sympathy towards the weak, social loyalty, interest in social work, desire to improve others, loyalty towards

the individual etc. His behaviour becomes limited and moderate rather than talkative, rowdy and brutal. Adolescent develops self acceptability as a young teenager instead of inferiority of social norms. The desire is awakened that he should be considered as a different person and the group’s approval is obtained. He adopts now subtle methods of meditation, such as wearing the latest and the best clothes, revealing new ideas, listening to fun stories etc. Social discrimination at this stage reaches its peak. Both, the adolescent and the teenager discriminate against those whom they consider low on account of race, color, religion, social, economic status or intellectual ability. They deliberately behave indiscriminately with them. This intolerance decreases automatically and now the teenager makes good adjustments with social situations and fight less than before.

2. Group formation :

The gang of childhood gradually breaks up at puberty and during early adolescence as the individual’s interest shifts from the strenuous play activities of childhood to the less strenuous and more formal social activities of adolescence. Their place is occupied by new social groupings. The social groupings of boys as a rule are larger and more loosely knit while those of girls which are smaller and more sharply defined. The closest friends of teenagers are their buddies. Buddies are often of the same sex, whose interests and abilities are the same. Their relationship is so intense and satisfying that they have a lot of influence on each other. Even though there are occasional differences or disputes, these bonds are very strong, and the fight-disputes are resolved soon.

Three or four close friends together make small intimate group as cliques. They may also have some pairs of buddies. There is a lot of resemblance in the interest of the members of the circle. Their activities include watching movies, watching sports competitions, reading together, going to parties, talking, chatting on the telephone, etc.

Most close friends of older teenagers, are few in number, and spend most of their time with them. In their social life, cliques of buddies and heterosexual friends are more important. The largest group of teenagers is crowd, which is a large and loosely set up group of couples. The interests of the members of the crowd are almost identical. The movement of the crowd is primarily social. Their main interest lies in conversation, play, dance and eating. There is a social distance among their members. The teen gets a sense of security becoming a member of the crowd. He has an invaluable experience to be successful with the people. There is an opportunity to learn various social skills and get an opportunity to meet and learn from the opposite sex in socially accepted situations. On the other hand, due to excessive exertion in the life of a teenager, occasionally some teenagers are not related to the crowd nor they have close friends. Keeping in mind the needs of such teenagers schools and social institutions establish youth groups. These groups are open to teenagers who are willing to enter them at certain age limits. These organized groups provide an opportunity to these teenagers to spend their social life. Today, groups like whatsapp and facebook are also popular.

3. Adolescence friendship :

The tendency of choosing friends in the child by the time of adolescence becomes increasingly vulnerable. Adolescent adopts the person as a friend :

1. Who are their peers.
2. Whose choices and ways are in accordance with them.
3. Who have personality characteristics of their choice.
4. Who understand them.
5. Who are of their equal socio-economic status.
6. Who confirm to their ideals and values.

7. Whom get a sense of security.

As a result of their inexperience especially with members of the opposite sex, they may choose friends who turn out to be less congenial than they had thought they would be; quarrelling often occurs then and friendships are broken. In early adolescence the number of friends is less important than their suitability. So the friends of older teens are less and familiar. Generally teenagers live in different parts of the community or live in different communities, but their closest friends are those who live close to him, whom they can meet again and again, whom they can get help from time to time. Both boys and girls spend more time by the end of adolescence with fellow friends and show more interest in them than with gay friends. Both boys and girls by the end of this stage make certain standards how their heterosexual friend should be. The boys like fun loving and courageous girls while the girls always like the boy who is masculine, hygienic and fun loving person.

Adolescents attempt indirect methods of showing interest in each other, wandering and quarrel, teasing each other in the presence of other people. In early sexual relations, girls are more aggressive than boys. Adults often blast upon this early love of teens and do not pay special attention to it. While the teenager feels insecure in these circumstances and often tries to hide their problems by pretending to be calm and emotionally stable. They also desire to focus their attention with the interest in the heterosexual people by adopting various measures, such as bizarre language, extraordinary dress, extraordinary way of grooming, displaying ignorance to the loved one and behaving indecently and caring others etc.

Boys and girls become temporary pairs by the end of adolescence. Now, there is a romantic attachment in place of hero-worship, love, and romance. In fact, the interest of older teenagers ends in collective activities and they prefer to be alone with their partner. Nowadays, young people prefer pleasant and happy personality, hygienic, reliable, caring one while young girls prefer well-behaved, hygienic, attractive and well dressed boy with good communication skills. Along with the progress of adolescence, love, romance and interest in marriage

reaches at peak. Their behaviour and tendency to meet each other is in accordance with the social environment.

4. Interest in the opposite sex :

Their form of interest in heterosexuality also changes as the sexual abilities develop during puberty. The nature of developing interests in the early days of adolescence is pragmatic. There is a strong desire to be liked by heterosexual people at the same time. The interest of his friends also has a great effect on the heterosexuals.

There is feeling of grudge in the beginning which gradually converts into love. In this transition period, both boys and girls fall in love with some older ones of their same sex and then start loving older heterosexual person. It can be anyone, whether it be a teacher, a big player, a musician, an actor / actress, a member of your own family or a family friend. The teen worships him like a hero-heroine and has a strong desire to follow them.

Their interest in older heterosexual is destroyed gradually, at the end of early adolescence and interest in same age of heterosexual develops. In the beginning, girls like any boy without any discrimination who is attracted, while boys are attracted to different beautiful girls instead of a particular girl. Girls usually begin to take interest by the age of 14 in the boys of their age, while the boys still feel shy in the presence of girls. They hesitate, though they show little interest in girls, but upper hatred remains up to a great deal.

5. Leader :

There should be innate qualities in teenage in order to become a leader which are superior to the qualities of the other members of the group and are appreciated by them. The neoclassical leader of the innovators is higher than the average due to his age, expediency or training, higher educational achievement and mature than the average. It includes reliability, loyalty, extrovert, superstitious, excessive interest, self-confidence, quick decision-making, living creativity, good fame, society fondness, grief, fondness, endurance, originality, work skills, adaptability, tacts, sensuality, collaborative attitude. In childhood, they become leaders and change, but it does not happen in

adolescence, who becomes the leader in the first class of the college, is more likely to be a leader in entire college life. The girls like to pick boys as leaders by the age of 14-15 while boys choose boys as their leader. Therefore, leaders in the activities related to both sexes are usually boys. Teenagers participate in various social activities, so they have social comprehension and understand the importance of adjusting to the wishes of the group.

6. Social acceptability :

The greatest desire of adolescent is to be popular among his peers and adopted by them. Different types of adolescents get social acceptance separately. Higher classified adolescents like 'Stars' get more acceptances, fewer adored teens get fewer acceptances and social acceptance is not available to solo teen at all. Most teenagers know about themselves, about the feelings of others through various signs, such as being adopted by the circle or crowd, their behaviour towards others, their efforts to be appreciated, their mistakes being forgotten, party or collective involvement of them in activities, etc. The adolescent who can be adopted in the society is efficient and aggressive in social behavior and takes the group's leadership. His conduct is sinful, inexhaustible and restrained. Such adolescent is more popular among his colleagues. They get permission to participate in activities of their families as well as outside activities. The popular teenager has the feeling of security and happiness and he is optimistic about his future and is confident about his success. Adolescent is happy and adjusts like a teenager when he receives social acceptance in the right degree. The older teens enter college after completing their studies, training, school or job etc. where they have to be related to the group of strangers. The adoption by the unfamiliar group depends upon the perceptions about them. If the impression is favorable, then the chances of adolescent adoption and eligibility increases and the adverse assumption reject them. The initial concepts created by the group depend on many things such as the appearance of the person, dressing and the socio-economic status manifested by the trick, its behaviour and companionship etc.

7. Social maturity :

Teens become socially mature to handle their new situation successfully until the end of adolescence. As a member of the group now he has adequate knowledge of his proper place and work. Those who get social maturity and are prepared to make adjustments with young life, their dependence on their family decreases i.e. they can make their own decisions, their families and can feed themselves. Such teenagers behave friendly with their family members, reveal affection, loyalty, thoughtfulness and respect towards their friends, accept their civil works and fulfill them with loyalty. They make good adjustments with all kinds of people without any prejudices against anyone based on religion, caste or color. Adopt their friends in their original form and do not try to change them. Maintain complete loyalty towards friends and they will be able to help as much as possible from time to time. Now, the teenager becomes so self-reliant that he can be happy even in such adverse situations which make it impossible for him to live with his family, friends or acquaintances.

If social development of adolescent is proper, then such teenager creates a good society in the future.

V Emotional Development :

Child psychologist G. Stanley Hall has described adolescence as a state of “storm and stress”. At this stage of life cycle, physical changes due to secretion of glands create a sense of emotional instability and stress. Teenage tendencies are often acute, unstable, uncontrolled expression and conscience is zero. Suspicious instability in youth is due to the confusion caused by changing interests in adolescents, changes in glands and physique, the tendency of self to be deemed inferior to the general, suspicion on the ability of self or the lack of self-confidence. Very little things make adolescents happy, even ordinary things undergo their criticism. These teens express sad feelings by staying depressed and cry by getting a little excitement.

Development of sensory and secondary sex characteristics occur due to changes in the growth and maturation of genitalia. The attention of the young child leads to gender issues, but its gender interests are personal. He cannot talk to anyone in this matter. An

adolescent feels embarrassed. He is very conscious about his own physical changes and avoids going to social gatherings to avoid social comments. He spends his time playing with other children and day dreaming as compared to the activities of school or home. In day dreaming, he imagines himself as a martyr, a parent, a teacher, a friend and a common victim of a misery of society and is troubled. The more the child is lost in such activities, the more he gets away from reality and his social adjustment remains under developed. As the age progresses, the teenager faces conflicts with some calmness. Now he strongly intends to control his or her emotions, but nevertheless, sensational expressions remains, and adolescent displays his/her responses towards them. Some major emotions of adolescence are as follows :

1. **Anger** : Conditions that raise anger in adolescence are mostly social, like teasing, making fun, criticism, parental or teachers inappropriate behaviour, interruption and punishment, not providing proper facilities etc. Teenagers become angry even when the desired work is not accomplished properly or hinders any regular activities. If angry, the teen may be alone or can make any kind of trickery like saying abusive, tossing things, not eating food, kicking on the ground and wall, hurting himself, shutting the room, going out of the house or screaming, cry etc. Generally, the adolescent boys in the form of aggressive response do not attack younger adolescents, they invade them by the voice of aggression, such as abusing, squirming, screaming or teasing others, behaving like whistling, screwing on the table etc.
2. **Fear** : In adolescence, childhood fears are replaced by new fears, like the fear of being alone in the dark, fear of going alone outside at night, fear of living among many people or strangers, fear of their performance in school etc. The body of the adolescent becomes yellow as a response to fear and starts to vibrate, sweating, but the teenager tries to hide his fear and makes excuses to justify his behaviour.
3. **Anxiety** : Fear is replaced by the anxiety as age increases. Anxiety is a feeling of worry,

nervousness, or unease about something with an uncertain outcome. Anxiety in adolescents is due to the fear of examination results, the hesitation to make a speech in front of the group, the desire to make impression in sports competitions, and the desire to confirm to the expectations of the people. Teens are also concerned about their popularity, reputation, marriage and adolescent friends. Most of the anxiety arises from the direct or indirect feelings of inability.

4. **Jealous** : Jealousy is a childish moment, but in adolescence it is displayed in intense and hidden forms. Adolescents are jealous of those companions who get more freedom and facilities or who are more successful in academic, sports or other activities. A jealous adolescent exhibits his jealousy as a subtle verbal response such as satirical comments, ridicule, or slander. Adolescent girls sometimes scream or cry when they feel jealous or neglected. The reason of this may be their boyfriend / girlfriend, whom they love. There is a sense of uncertainty towards their feelings at the same time. They always remain thinking about what their boyfriend/ girlfriend would do when they get out of sight. The response of such jealousy appears in the form of speech.
5. **Envy** : Young children often become envious of the abilities or material possessions of another child. Not only adolescents want them to have the same amount of facilities such as lavish house or bungalow, great car, expensive clothes, cellular phones, prestige, freedom to go to hotels etc., as their friends have, but they also want their stuff to be as good as their friends have. The typical response to the envy (initial reaction) is also verbal. Teenagers can either criticize them by comparing them with others' objects and can make fun of them or they can tell the excellence of their things. These verbal manifestations are merely an attempt to get the attention and sympathy of others. Occasionally, teenagers work to earn the needed money to get the good things done or solve their problem by adopting

a method of stealing. Thus, hidden reason behind the adolescent delinquency is the feeling of envy.

6. **Affection** : The affection of adolescent is centered on those with whom they have a pleasant relationship, and they feel a lot of love and security. The affection of older teenagers is centered on one person, especially on heterosexual person. The affection of this state is an assimilation moment that inspires adolescent / teenager to live with the person or the person whose love for him is most intense. He sees the character of his affection, concentrates on it, he listens to it and smiles equally in his presence.
7. **Joy** : Joy is a light-hearted pleasure, which is a normal emotional state. Adolescent is delighted when he successfully completes his work, attains harmony with the people and social situations of society, feels himself superior in various social situations or can see the funniest aspect of any circumstance. There is a tendency to smile as joy's characteristic response, and sometimes there is laughter after smile. Girls often blossom with joy, while boys laugh loudly . Expression of joy gives an opportunity to unleash unpleasant moments, such as anger, fear and jealousy which prevent the adolescent.
8. **Curiosity** : The natural curiosity of adolescents is suppressed in external restrictions. Now his curiosity is about the physical changes in self, sex and relations of man and woman. Teenagers are also curious to find new topics that are available during schooling and new ones in society. Growing up teenager also learns to control his or her emotions. He does not allow his moments by the end of adolescence to explode in the presence of others and waits for a suitable time to remove his feelings in a socially approved manner. In this situation, the emotions should not be controlled so strictly that the adolescent may become impatient, irritable and angry, infact, there should be socially accepted emotional stimulus events such as sports, dance songs, etc., so that he could spend a normal life.

VI Cognitive Development :

Despite the perils of adolescence, most young people emerge from the teenage years with mature, healthy bodies and zest for life as their cognitive development has continued too. Adolescents not only look different from younger children; they also think differently. Although their thinking may remain immature in some ways, many are capable of abstract reasoning and sophisticated moral judgments and plan more realistically for the future. According to Piaget, adolescents enter the highest level of cognitive development- formal operations- when they develop the capacity for abstract thought. This development, usually around age 11, gives them more flexible way to manipulate information. No longer limited to the here and now, they can understand historical time and extra terrestrial space. They can use symbols (for example, letting the letter X stand for an unknown numeral) and thus can find richer meanings in literature. They can think in terms of what might be, not just what is. They can imagine possibilities and form and test hypotheses.

People in the stage of formal operations can integrate what they have learned in the past with the challenges of the present and make plans for the future. Thought at this stage has flexibility not possible in the stage of concrete operations. The ability to think abstractly has emotional implications too. Earlier, a child could love a parent or hate a classmate. Now the adolescent can love freedom or hate exploitation. The possible and the ideal captivate both mind and feeling.

Thinking ability of children comes in order on the onset of adolescence. For example, asking a little child to draw, he would make a favorite picture and fill the colors of his choice whether the colors are suitable or not. While giving a subject to the teenager for drawing, after contemplating the topic, he will draw a layout of picture and color in his mind, then he will make an outline on the paper with a light hand. Once the outline is formed, it will gradually fill it with a light color. The real and attractive color will provide the final finishing after the decoration so that the picture appears very attractive and realistic.

You have also read in the past that adolescence is the state of the day dreaming. At this time, the teenager takes a lot of imagination while sitting and

resolves too many problems in the fantasies. Just like a bird has feathers, but if they have their wings, then will they fly? They give logical testing of such questions in “yes” or “no”. Teenagers now perform various types of activities such as combinability, associability, reversibility and nullifiability. For example, he now does not take a bigger class by adding two or more sections comfortably. Such as :- All Older Men + All Aged Women = All Aged. Teenagers can also understand it in reversibility, like all elderly = all aged male all aged female or all aged male = all aged. The process of associability can be explained by this example. Suppose that there are a total of 30 students in the classroom and one day after the closure of India (Bharat band) 30 students were absent in the classroom. How many students will be present in the class on that day? The teen will answer the question that not even one.

The intellectual process of teens is based on quantitiveness, qualitiveness and effectiveness. Teenagers can combine several factors together. He can argue by looking at the circumstances in a new form, and not believing on the advice of others, but maintains his own opinion.

The following changes seen in a teenager due to cognitive development as compared to children are :

1. Teenagers are severe critics. The attitude of watching and testing their surroundings and environment (self-interest) is logical and analytical, which have a great effect on their personal, social and emotional level. Teenagers begin to identify the shortcomings of their parents and elderly people due to their critical tendency, thereby creating a situation of controversy and tensions between parents and adolescents. Our Indian parents still do not tolerate the criticism of growing teenagers and their mutual relationships are worsened.
2. In late adolescence period, adolescents do not wish to work under adults as their subordinates. Due to their increasing critical capabilities, they establish their own imaginary ideal and begin to take themselves as a major reformer in the world. The adolescents begin to understand and accept that the elders are not behaving in a fair

manner with them, and in fact they become fictional criminals (Idealistic rebellion). Being young, the spirit of rebellion ends itself.

3. Along with cognitive development, teens develop a unique language of their own, in which there is a combination of Hindi-English. They will say a bit of the same sentence in English and the remaining phrase in Hindi Like “Let us go for a picnic, there will be great fun”. They take new and unique names of their teachers and older elders, such as a terrible teacher to a strict teacher, a teacher who is always scolding, and parents like clouds and thunderstorms. Phonics like being bored, not being moody, are among their common dialogues.
4. Teenagers are very aware of their appearance, color and their shape. Due to their limited understanding, they feel that the whole world is watching them. As a result, they stand in front of mirror and observe themselves as a fictional audience.
5. Often teenagers are creative. Therefore, parents and elderly people should encourage their creativity. As the intellectual capacity increases, the creativity also increases. The atmosphere at home and school should be friendly and flexible for the development of their creativity.
6. In addition to the intellectual development, the tendency of day dreaming also increases. As the age progresses, their hypotheses appear to be positive and confirmed. Now, they do not feel afraid of failing in dreams, because by now they are able to fight with bad experiences. They visualize many possible options of their problems in fantasies through the day dreaming.
7. In the teenage years, along with intellectual development, long-term value also becomes fixed. As the age progresses, the feelings of selfishness and self-realization (shortcomings) begin to subside, and arguments, values and attitudes in the adolescent begin to develop. This enables them to establish long-term value of self-confidence, competition and independence.

Thus, the following characteristics develop in adolescence :

1. The ability of logical thinking.
2. Problem solving ability.
3. Ability to understand the difference in real-artificial.
4. Ability to launch real experiences in imaginary situations.
5. Ability to develop hypotheses.

Important point :

1. Ability to behave in accordance with social beliefs and to coordinate with others.
2. Adolescents learn to organize their activities and to behave in a socially accepted manner by keeping social interaction on a large scale.
3. In adolescents, place of negative instincts found in the puberty period begins to take plausible manifestations.
4. There is a tendency to make more choices in teens and make less friends than childhood. The groups of teenagers are large and loose and teenagers are small and solid.
5. The closest friends of the newcomers are their buddies. Buddy is often of the same sex, whose interests and abilities are the same. Three or four close friends together make small intimate intersections. The closest friends of older teenagers are few and they spend most of their time with them.
6. Some teenagers are not related to the crowd, nor are their close friends. In view of the needs of such adolescents, schools and social institutions establish youth groups.
7. By the end of adolescence, romantic attachment is replaced by hero-worship, love and passion. Consequently, interest in community activities of older teenagers ends and he likes to be with his partner.
8. The young people give more importance to the pleasant and happy personality, cleanliness, reliability, care of others and qualities of good shape girls. While the girls like fair-minded, clean-minded, attractive and well dressed, bold and eloquent young men.

9. Sexual orientation in childhood mostly focuses on physical differences. As the sexual abilities develop during puberty, the nature of interest towards heterosexuals is also changed.
 10. To become a leader qualities in the teenager should be that superiority in the qualities of the members of the group and are appreciated by them. Girls prefer to choose a boy as a leader until the age of 14-15, while the boys choose boys as their leader.
 11. Teens become socially mature by the end of adolescence to handle new situations successfully.
 12. If social development in adolescence happens systematically then only it is possible to build a good society in the future.
 13. In the teenage years due to physical changes due to the secretion of glands, sensory instability and stress are created.
 14. In adolescence, the momentum is often miserable, unstable, uncontrolled expression, and conscience void.
 15. Adolescent is attracted towards sexual talks but he is very shy.
 16. The fear of childhood life is replaced by anxiety. He likes to stay alone and be lost in the daydreaming.
 17. Early adolescents exhibits their emotions, by injuring themselves, by smashing the objects, aggressive actions, etc. whereas in adolescence, accusations of speech are displayed by means of abusive speech, satire, joke or teasing etc. .
 18. Cognition refers to all of the mental actions and behaviours by which the child adopts social activities, acquires, remembers and thinks about it.
 19. Teens are on the fourth stage of cognitive development, which is called formal operational stage. This phase is from 11 to 17-18 years.
 20. During cognitive development, teens start thinking about problems with hypothesis and understand the details of things, relativity, symmetry etc.
 21. There are variety of changes in teenagers due to cognitive development as compared to the children.
 22. In late adolescence period, adolescents do not wish to work under adults as their subordinates. develop a unique language of them, and are very conscious about their appearance, color and shape and are often creative. The long-term value also starts to be fixed at this stage.
 23. Different characteristics are developed at this time - logical thinking and capacity for problem solving increases. They begin to understand the difference between real and unrealistic, in them, in the fictional circumstances of real experiences, the ability to develop projection and hypotheses.
- Questions :**
1. Choose the correct answer for the following questions:
 - (i) are the closest friends of adolescents :

(a) Parents	(b) Buddies
(c) Neighbors	(d) None of the above
 - (ii) The behavior of adolescents in comparison of the puberty period is :

(a) Talkative	(b) Loud
(c) Sharp	(d) Limited
 - (iii) is called the largest group of teenagers

(a) Youth Group	(b) Gang
(c) Crowd	(d) Buddies
 - (iv) There is a privilege of the choice of life partner in our culture :

(a) Youth	(b) Maiden
(c) Parents	(d) a and c
 - (v) The reason for the anxiety among adolescents is:

(a) Examination result	(b) Hesitation to give a speech in front of the group
(c) Popularity	(d) All of the above

- (vi) In late adolescence typical response to jealousy and competition is:
 (a) Physical (b) Literal
 (c) Mental (d) None of the above
- (vii) Teen learns to control his or her emotions at :
 (a) Puberty
 (b) Early adolescence
 (c) Late Adolescence
 (d) None of the above
- (viii) Adolescents are on stages of cognitive development :
 (a) First (b) Second
 (c) Third (d) Fourth
- (ix) Teenager thinks..... about their problems:
 (a) Hypothetically (b) Abstract
 (c) Real (d) None of these
- (x) In late adolescence, teenagerswork as subordinates with their elders:
 (a) want to do (b) do not want to
 (c) Sometimes want to (d) do not decide
2. Fill in the blanks:
- (i) In late adolescence, of friends have less significance and their to be more
- (ii) Both boys and girls spend more time with friends by the end of adolescence.
- (iii) The girls like to choose as the leader by the age of 14.
- (iv) In adolescence, the place of negative beliefs found in puberty time seems to be taking place by
- (v), groups provide the opportunity to spend a social life to single living adolescents.
- (vi) Youth likes..... and personality of girls.
- (vii) The situations that lead to anger in adolescence are mostly
- (viii) takes the place of fear with age.
- (ix) Teens come in the stage of cognitive development.
- (x) At this time comes in the thoughts of the teenagers.
3. What kind of persons adolescent adopt as friends?
4. How is social behavior developed in adolescents?
5. Why is social development essential in a teen? Explain.
6. Why there is emotional instability in puberty? Explain.
7. Explain the difference in emotional performance of adolescent girls and boys.
8. Competition is a cause of mischief in adolescence. Clarify
9. Explain the specific viability of cognitive development in adolescence.
10. How does the mutual affiliation of size, number, color and time develop in adolescents? Explain.
- Answer :**
1. (i) b (ii) d (iii) c (iv) d (v) d
 (vi) b (vii) c (viii) d (ix) a (x) b
2. (i) Number, suitable (ii) heterosexual
 (iii) Boys (iv) Definitive (v) Organized
 (vi) Pleasant, Delighted (vii) social
 (viii) anxieties (ix) formal Operational
 (x) Mutual affiliation

3. PROBLEMS OF ADOLESCENTS AND THEIR MANAGEMENT

Adolescence is called ‘Age of problems’. Excess of problems in adolescence is higher than childhood. Teenagers are problem for family members more than themselves. Lack of knowledge about desired behavior, teachers, parents’ expectations, stress of life, pressures etc. are the main causes of the problem. Teens have to face new challenges in this condition which is more complex than childhood.

Adolescents have to face different types of problems. The main problem of this condition is adjustment. It has to reconcile its intense physical growth, emotional instability, and its changing scenario in society, on the other hand, it is necessary to choose a certain career for self and prepare itself for the marital and social responsibilities. Many times they get involved in alcohol, tobacco, cigarettes, drugs, and ruin their priceless life due to the wrong friends circle and stress caused by problems. Not only this, many times they get involved in crimes such as theft, assault, run away from school or home etc. Girls have more problems than boys. In this chapter we will read about the main problems that occur in adolescence in detail:

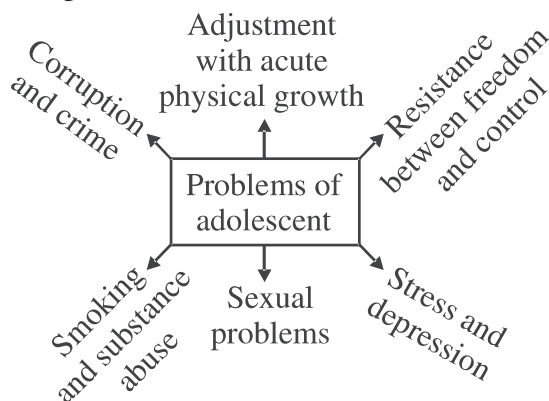


Fig. 3.1 : Problems of adolescent

1. Adjustment with acute physical growth

Physical growth and development is very fast and disproportionate at the beginning of adolescence. Adolescents are not prepared for these sudden changes in their body. Some adolescents are very tall; some are under nourished and some suffer from serious problem of acne. Such children are often called by siblings and classmates by many names, such as Lambu, Tent, Candle, Agarbatti, Power Pole, Motu, Chhotu, Pimple etc. Necessarily increase in physical growth creates anxiety inside the young child, which reaches the extent of terror. Muscle and bones grow rapidly due to the physical growth in adolescence and their mutual proportions also change. Muscles increase in length and come in new conditions. Body coordination leads to temporary deficiency in imbalance and eligibility. In fact, the achievements of motion achieved in childhood are deteriorated, it is also called the state of austerity. The problem is automatically eliminated when physical development is completed in late adolescence.

2. Resistance between freedom and control :

Along with the progressive development of childhood, there is an increase in the child’s resistance to rule and he wants to be more independent. The teenager feels him grown up and hundred percent right and wants to take his own decision, while in fact the teen has not yet matured completely in view of physical growth and shape in youth pattern. Consequently, they are not given full responsibility by parents, family and social members. The teenager sees everything in scientific form and wants to resist the old

customs and practices, and wants to be free from any type of prevention and control imposed by the elderly in the home and society. At this time parents should provide open counseling and appropriate guidance to the adolescent for the education, subject, business, career, life partner etc., and should not impose their choices, desires and harsh discipline on them to restrict them unnecessarily.

3. Stress and depression :

The young child's move on the threshold of adolescence is the invitation of problems and stresses. Teenagers do not have one reason to be stressed. They are due to various reasons such as mature size obtained from intense physical growth, social hinges between childhood and puberty, family and social customs restrictions, self-expression, business, career and choice of life partner, rapid repulsion, ups downs of mood etc. Consequently, they also suffer from stress, who worry about their changing body and keep them confined to thinking about that. They begin to understand themselves as inferior and eventually create issues when they do not get charm and beauty. Girls are much worried about their shape and starve to look slim and thin, resulted in physical weakness and other problems arise. The discontent of the teenager's appearance on his face increases even more when he fails to meet his or her intellectual abilities or personality with his hopes and becomes frustrated. There is a sense of inability and insecurity in them. Social and cultural pressures make them unhappy on slight failure in education and business and show dislike in various activities. Occasionally, teens get involved in wrong decisions like suicides. This tensed condition when lasted for a long time, can be transformed into a serious form of "depression", which makes it difficult to recover for the juvenile.

At this stage, parents and adolescents should set short term goals, maintain their strength and ability to work to achieve those goals and they can also achieve long-term goals in their lives as well.

4. Sexual problems :

One of the developmental tasks of growing up is that of accepting the newly developed body and recognizing that nature has endowed the individual with certain physical characteristics. For any teenager,

this sexual development and maturation are the most important topics. These changes in adolescence are the subject of curiosity and if they occur before and after peer friends, then it creates anxiety. In our society, there is no public talk on youth issues by the elderly and school teachers etc. and it is considered as a taboo subject. In such a situation, the adolescent / teenager resorted to the knowledge of poor literature or friends and are mostly confused.

Earlier marriages were used to perform at very young ages, so that sexual desires and longings of adolescence were satisfied. Nowadays, due to increasing independence in the education and business sectors, late marriages have come into existence. Teenagers are unable to talk to the elders on the subject of sexual development and feel shy as a separate personality from the society. Whereas, media display intimate relationships of young men and women in open form. Real problems come when our teens try to get this imaginary world of film and media into their real life. Adolescents should accumulated their enthusiasm and energy to overcome these problems and adopts a positive attitude, in different creative activities such as drama, debate, music, dance, sports, exercise etc.

5. Smoking and substance abuse :

In the teenage years of adolescence, the tendency of indulging towards smoking and intoxicating substance such as beer, alcohol, tobacco, gutkha, narcotics etc is also targeted. The following conditions, problems and the state of acute overshadow that come in the life of the teen, push them on the wrong path :

1. Promotion and pressure by friends.
2. Desire to be accepted by friends.
3. Failure in education or business.
4. Failure in love.
5. Scolding and punishment from family and social friends for mistakes made in ignorance.
6. Desire to see himself as a youth in society.
7. Mark of social prestige.
8. Feel lonely at home, family and social environment.

9. Protest against family and family friends.
10. Try an experiment with their curiosity.
11. Ignorantly give by friends in form of softdrinks, beetalnuts and medicines.

In the above mentioned situations, teens consume the following types of narcotics :

(i) Drinking alcohol : Alcohol has the ability to reduce anxiety and to calm feelings. Therefore, some teenagers resort to alcohol to hide their shortcomings when they are unable to cope with the challenges of daily life or to flee from problems.

Alcohol not only robs the memory of man but excessive intake of physical balance and harmony also worsens. There is no control over the alcohol of the intoxicated youth, and he indulges in negative behavior such as abusive speech, abuse, and adult abuse.

(ii) Smoking and Tobacco consumption : Tobacco-cigarette, hookah, gutkha and paan etc. are taken. Smoking and smoking chemotherapy by adolescents is seen as a symbol of fertility. The habit of smoking and smoking in teenagers is due to the pressure of the friends and the desire of the age community to accept them. The harmful substances present in tobacco nicotine harm the body and not only causes many respiratory diseases but also increases the likelihood of different types of cancers.

(iii) Drugs : Sometimes some drugs are used to make some medicines that are beneficial in various diseases. Unnecessary use of these drugs makes the person addicted to it, as well as causing serious harm to health. The physical powers of the teen are decayed by using them and they can not work with their full power. On the other hand, these drugs are also expensive; consequently the financial condition of the person becomes weak. Nowadays, consumption of narcotic substances such as brown sugar, ganja, opium, charas etc is increasing day by day. Teenagers start doing anti-social work several times to get drugs. It is very painful to discontinue once it becomes addictive. In today's changing perspective, our teens and adolescents are trapped in these substances because they can not reconcile with their changing physical, social, psychological, emotional and sexual development conditions. Teens and adolescents should

know the side effects of these narcotic substances, rebuild their self-confidence and adopt a positive attitude and face the various challenges of life by utilizing strong will.

6. Corruption and crime :

It is a crime or misfortune to disregard and violate the rules of society. The person who does not follow the rules of society is called a criminal. According to psychologists, no one is a criminal by birth, nor is anti-social behavior learned in one night. Only the untimely conditions that exist for a long time after birth have made him malicious. Children who become juvenile offenders, their problems begin from childhood. The trend of being a culprit in these adolescents can be seen since childhood only. For example, most of the teenagers are stealing a little bit at a time or fleeing from school, but the wrong doing usually keeps themselves out of school or most of the time is out of school.

Reasons of adolescence problems and their management :

Various factors contribute to the origin of adoption of the criminal trend of adolescent boys/ girls such as (i) Causing inferiority complex due to physical defects or poor health, (ii) Lack of love and emotional control due to the death of both parents, (iii) Strict discipline of elderly people in the family, (iv) Behavior dispelled by a step mother or father, (v) Everyday domestic disputes or divorce, (vi) Immoral acts of parents, elder-siblings or other members, indulging in smuggling, unethical sexual relations, (vii) Bad companies, (viii) Lack of intellectual skills of the child or inadequate facilities for teaching in the school, (ix) Social economic level of the family is high or low, (x) Become insolent after excessive beatings in the family, (xi) Mental retardation, (xii) Mentally absenteeism of the child for any reason, (xiii) Lack of moral education in the family, (xiv) Absence of adequate amusement resources, and lack of creative interests, not being able to use free time profitably, (xv) Reading porn literature and watching porn movies. Adolescent's criminal behavior is inspired by ignorance rather than anger, hostility, disobedience or suspicion. They feel that the society has abandoned them and the society

has no debt on it. When teens do not solve their problems in the absence of the above-mentioned guidance and facilities, they tend towards anti-social behavior.

In the school or college, after falling behind in intellectual skills and other skills, the adolescent starts falling away from educational institutions, trapped in the wrong association, becomes addicted to narcotics, alcohol and smoking. They abuse friends and family members being drunk. They stole to get money for drugs, if failing in academic or business areas, lie in the house with fear of scolding, strikes in educational institutions and offices for wrong demands. Sometimes they break down their negative feelings at places and harm national wealth, even beat them up. Many times in the competition to earn more money, teenagers are indulged in bad-businesses such as theft, smuggling, etc. not getting the proper means to remove sexual anxieties and frustrations, they indulge in sexual crimes. In order to stop the crime trends in adolescents, they should have received a caring environment, control, full confidence and security of the parents since childhood. Elders in the family and teachers should provide proper moral guidance to the adolescents and prevent them from bad association. The above guidance and counseling should be provided in the school. Looking at the interests of the children, give them full support in choosing their academic and professional field and continuously provide creative direction to their enthusiasm. Adolescent girls and boys should be given proper sexual education by the teacher and parents.

Important point :

1. Adolescence is called the period of problems. The main problem of adolescents is related to adjustment.
2. Girls have more problems in comparison to boys.
3. Physical growth and development is extremely fast at the beginning of adolescence and disproportionately, and consequently there is a temporary decrease in imbalance in some physical coordinates.
4. Intense physical growth, maturity, social halt between childhood and youth, family and social

customs and restrictions, personalities of itself, business and career, and family, family and social customs and restrictions, personality of yourself, business and career; life partner’s choices, acute euphemisms, and ups and downs of mood are the causes of stress.

5. In addition to the progress of childhood, resistance to governance increases in the child and he wishes to be more independent.
6. Sexual changes in adolescents are the subject of curiosity. There is a horrified anxiety in him if it is before and after peer friends.
7. Many times the circumstances, problems, and acute embarrassment in the life of the teenager motivate them to consume smoking and substances such as alcohol, tobacco, gutka, drugs etc.
8. Teenagers are not the culprits since birth, but they have contributed a variety of factors in the origin of adoption of this criminal trend.
9. Parents, teachers and elderly people are an important contributor in preventing crime trends in teenagers. They can give proper guidance to the adolescent girls and boys through their soft-heartedness, affection, faith and security environment.

Question :

1. Choose the correct answer for the following questions:
 - (i) Adolescence is called -

(a) Healthy state	(b) Tensionless state
(c) Period of problems	(d) All the above
 - (ii) In addition to the progressive development of childhood, there is a sense of resistance to the rule in the child and the desire to be more.....

(a) Independent	(b) Dependent
(c) Sharp	(d) Limited
 - (iii) As the adolescence progresses from childhood to adulthood, the growth and development of the child is peak in puberty.

(a) Physical	(b) Sexual
(c) Mental	(d) a and b

- (iv) ...contribute to prevent growing crime trends in adolescents.
- (a) Parents (b) Elderly
(c) Teacher (d) All the above
2. Fill in the blanks:
- (i) Adolescence is said to be the age of
- (ii) In the childhood coordination in adolescence, imbalance and eligibility comes in temporary.
- (iii) Adolescent sees everything from the point of view and resists the old customs and rituals.
- (iv) Due to increasing independence in the business and business sectors, nowadays marriage has started happening in
- (v) In the absence of facing the challenges of daily life, many adolescents have resorted to
- (vi) To disregard and violate the rules of society is called or
- (vii) The problems of girls are compared to boys.
3. Why is adolescence called 'Age of problems'? Explain.
4. Write a brief comment on the following :
- (i) Adjustment with intense physical growth
(ii) Sexual problem
(iii) Power of freedom and control
5. What types of tensions adolescent face at this age?
6. Parents and teachers contribute in preventing crime in adolescents, with the help of a teacher; discuss this subject in the classroom on the basis of your own experiences.
- Answer :**
1. (i) c (ii) a (iii) d (iv) d
2. (i) Problems (ii) Retardation
(iii) Scientific (iv) Big
(v) Substance abuse (vi) delinquency, crime
(vii) more

4. PREPARATION OF MARRIAGE AND CAREER

One of the most difficult tasks in the life of teenager is to choose the life partner or career as it is of the fact that it creates his personality. A teenager ask many questions to himself as what I would like to take, what I would do, where I would had a career choice. In ancient times, the choice of career for a teenager was very easy. A teenage girl used to choose to follow her mother to put herself as a skilled house wife.

While rapid change in time & the industrial revolution today has opened a wide range of career opportunities for young adolescents. Now a days women have come forward in the field of work & working side by side with men in diverse business. Now days, the choice of career or business is equally important for boys and girls as well.

Meaning of Career :

All of you have used the word career in your life many times. In the daily life, career word is involved with the following question. As what you want to be in the future ? How do you want to present yourself in the society? Career means “Acquiring achievements by fulfilling various socio- economic responsibilities while acknowledging the challenges of life, increasing the career life or business”.



Fig. 4.1 : Individual and Career

Teenager from early adolescence develops interest and attraction towards career. However to fulfill that interest teenager starts making small business and earns money and enjoys independence. The center of this interest is not business but making a lot of money. These teenager are not interested in depositing money or helping in the family’s financial business. This is the only tool of freedom for them. Therefore, they leave their studies to get time to work for achieving independence, or do not take into consideration the future progress, or they do a normal salary job. Teens fall backward in studies by taking more time in part time jobs.

Choosing a career for a young teen is really a difficult task, because he is not able to make adjustments between their values, interests, available options and their abilities. Many of his decisions are based on imagination. Adolescent identifies his

potential as age and maturity develops and work especially for his career. Their opinion on career is now practical for example younger children of age 5-6 sees himself as doctor, engineer and police etc but in reality at the age of 11-12, they learn that which subject they like to read and which occupation they can select. This situation is serious until he recognizes his liking or ability to work. More he get informed about career more he get confused. Confusion and anxiety increases as he learns and get information for vocational choices. Older adolescents are still in the stage of inquiry and judge their work by part time or full time job which they like and get informed more and more.

called private hospital, shop industry etc. becomes ideal and inspired the children. Child show his interest by doing in the particular career. Home environment of highly educated parents also develops the academic view and interest.

2. School : Good & bad experiences in school also affect the career of adolescent. The school environment & teachers create the strong will of children interest by recognizing the individual characteristics & making them feel like something within them & help in shaping their future. In some schools vocational education & workshops are organized for business selection. So somewhere in the schools, career counselor is appointed where students will interact in their interests.

3. Social expectation : It also affects the selection of business by adolescents. Since childhood, some business leave an imprint of men’s chemistry & feminine mind so most teenagers choose businesses that have a lot of hard work & business skills such as Doctor, Engineer, Compounder, mechanic, Driver, Pilot etc. Adolescents like to choose such business in which physical labor is minimum, there is an opportunity to see intelligence or some part of the social service like Nurse, Teachers etc.

4. Individual characteristics : Different business require different skills & attitude. For some business, artistic skills, painting skill, soft vocal for music, the best coordination of hands and eyes are essential. Finally required concentration & creativity such as dance, handicrafts etc. To achieve success in some business, high physical ability such as medical advocacy or physical exercise like sports are inevitable. The person’s special ability will be better if he is interested in that work as well as having all necessary qualifications for that work. So, teens should select according to interest and abilities and consult the career counselor.

5. Job opportunity : Interest in any particular area and qualifications corresponding to professional selection is not enough, Rather , to earn success and reputations in that business. It’s also important that there is enough employment opportunities available in preferred field. For eg there was a time when 10th and 12th pass would get very easy jobs. Gradually the

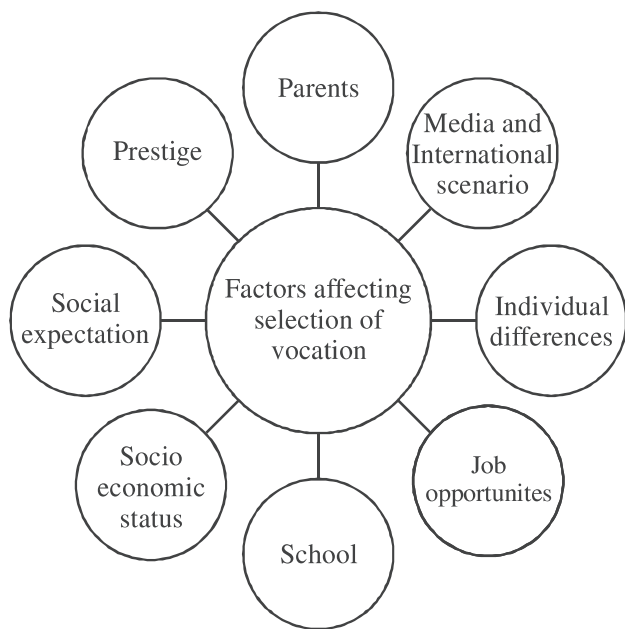


Figure 4.2 : Factors affecting selection of vocation

Factors affecting selection of vocation :

1. Parents : Parents play on important role in selecting children’s career. Many times this effect is hereditary. Son of a businessman grows watching his family business and join their family business afterwards. Son of the painter becomes painter and shopkeeper son has good skills in shop business. Encouraging collaborative environment given by the parents during the upbringing of the children such as promoting their interests, giving them various types of sports and business training etc. in career. In society, job of the parents such as the principal, magistrate, police officer etc. or the prestigious professional so –

study progressed over the time and then every child wanted to become a Doctor or Engineer. Then gradually enter the computer era, which gave the full crop of computer experts. In the era of today's competition on the one hand, Govt. jobs have remained a dream only & Medical, Engineer & Computer experts are not able to get full remuneration for their services beside hard work. On the other hand in the modern era, many other new business areas such as information technology, biotechnology, Forensic science, environmental science etc. are the thirst area for employment opportunities.

6. Socio-economic status : Everyone likes to sit among people of their equal or higher social economics status. In the selection of the career or profession of adolescents, family members and the family profession, rules and regulation of the family also play a major role. Each child wants to earn higher position from his own parents in his life and also attempts for it. Sometimes business is also chosen because of personal interest or greater satisfaction or money gains like as a person's own interest and personal characteristics influence his business directory.

7. Prestige : The prestige available from the work area in choosing a particular business by teens wants to choose popular business with high reputation. Selection of occupation by the glamorous impact sometimes becomes risky because not every single person achieves success in any business or occupation. It is not necessary that all the actors, actress, doctors and politicians are famous and successful.

8. Media and global trend : In modern era media is playing a important role in inspiring and selecting various occupations. Importance of television and internet cannot be under rated because adolescents learn about the jobs and work globally which can make them famous. Modeling, games, music bands are new areas which adolescents are running for.

As you can see that selecting occupation is a challenging task. No one can select occupation blindly. They should take this seriously and should select according to interest, skills and abilities. Adolescent

can take advice to achieve this task from their parents, teachers, elder brothers and sisters, talks in the school, workshops and career counselors. In the era of industrialization and competition they should identify their skills and get a vocational education instead of wasting time in getting higher degrees and education so that they can practice for self employment timely.

Preparation of married life :

With the preparation of future vocation adolescents are now preparing for married life as well. You have studied in the last chapter that sexual development is also rapid with rapid physical growth in adolescent period. Teenager looks like grown up adults due to these physical changes. Now they realize that they have grown up. They develop interests among opposite sex during this period and prepare a image of his marriage partner. In early period, selection of mate is based on attraction, dressing and showoff but as age grows attraction disappears. Now, they seriously think about their soul mates.

On the onset of adolescent period, behavior of parents and other elders changes towards them. They are given responsibilities of some chores and expected to behave maturely. In ancient times early marriages



were in trend. Sense of responsibility was automatically developed during adolescents. Now marriages are not performed in childhood but adolescent attracts their parent's interest on this matter. Many times elder family members interferes and hinders i.e. not to talk loudly or not going outside home in the evening for girls. Except these, girls are

taught to cook good food, stitching clothes and other household chores. The reason behind this is after marriage girls have to live at other place so they should know all these works. Alike these, adolescent boys are expected to confirm this vocational choice and start to earn, so that he can be married.

In modern era changes are incorporated in marriage preparation. Now the main objective of parents is to make adolescents self sufficient by educating them before marriage. After nocturnal emission and menarche parents try to divert their mind on personality development, good education and settlement of vocation instead of sexual interests, so that they can be independent and take their own decisions as soon as possible. The second aspect of this is that adolescent of today want to earn more prestige and escape from marriage due to the fact that this will hinder their growth. Late marriages for girls lead to unsuccessful and less coordinated marriage because of their high education and independent attitude. That is why seminar and workshops are organizing in abroad for marriage counseling to counsel adolescent and train them for being future husband and wife. This show to achieve success not in occupation but also in marriage adolescent needs to be mentally prepared.

Important points :

1. Choosing life instinct and a career in life is one of the most difficult tasks of a teenager’s life.
2. Teenager struggles with many question to choose his career because the career builds on his personality in future.
3. Choosing a career for younger teens is very difficult task because their approaches is rather idealistic and not realistic & practical while older teens recognize their abilities & capabilities. They strive for a career special and their approaches is realistic & practical.
4. Parents have an important role in career selection; if parents are employed in reputable jobs they are ideal for adolescent teenagers.
5. Good–bad experience in school affect the career of adolescent teenagers. School environment & teachers can identify the

children’s abilities and individuals characteristics & shape their future.

6. Now a days, professional teaching, workshops & career counselor are playing an important role in the task of identifying and student with their interest and qualification.
7. Social selection also affects the selection of business by adolescents.
8. In the modern era, being inspired to attract teenagers to various businesses, media such as television, internet etc. is also important.
9. In order to achieve success & prestige in any business, it’s not enough to be interested in a particular area hearing competences with it, but it’s necessary that there is a sufficient employment opportunity available in the preferred field.
10. Teenager should know their job efficiency after getting professional education of working hard to get job.
11. Teenager is the time when they are ready to become young man. At the same time, they are also preparing for future business as well as preparing themselves for a house hold life.

Questions :

1. Choose the correct answer for the following questions :
 - (i) The most difficult or important task of the life of adolescent is :

(a) Earn money	(b) To study
(c) Choosing career	(d) All the above
 - (ii) are the views of a elder teen ?

(a) Realistic & practical	(b) Idealist
(c) Optimistic	(d) All the above
 - (iii) play a key role in choosing a career of teen :

(a) Parents	(b) Teachers
(c) School & society	(d) All the above
 - (iv) If son chooses his father’s career, its called :

(a) Helplessness	(b) Hereditary
(c) Instigation	(d) None of the above

- (v) is organized for marital preparation in abroad.
- (a) Workshop (b) Prayers
(c) Seminar (d) None of the above
2. Fill in the blanks :
- (i) The choice of career is now a days important not only for boys but also for
- (ii) Money is the only tool for teenagers whose practice is
- (iii) Highly education, parent's, home environment also develops and for children's education.
- (iv) Teenagers should choose a career by looking at thus own and
- (v) At this time adolescence/teenagers prepare themselves for business or for like as well
3. How to choose a teenager's career? Explain.
4. How school and parents affects the career elections?
5. How to help yourself to choose skill, eligibility & aptitude career?
6. What is the change in the marriage tool place in between the parents and the adolescents in the modern era? Explain.

Answers :

1. (i) c (ii) a (iii) d (iv) b (v) a
2. (i) Girls (ii) Independent
(iii) Interests, point of view
(iv) Interest, Eligibility (v) house hold

5. REPRODUCTIVE HEALTH AND SEXUALLY TRANSMITTED DISEASES

Generally adolescents don't have proper and scientific knowledge about sexual development. Adequate knowledge related to reproductive health and sexually transmitted disease should be provided to solve such problems. In this chapter we will study about reproductive health and sexually transmitted diseases.

Reproductive health :

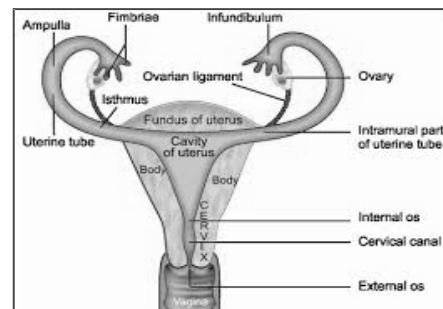
Human child is the corner stone of the society. Reproducing child is a natural process. Human reproduces child by inspired from the maternal and paternal feeling. One generation is replaced by the second one. Healthy reproductive system means that male and female reproductive organs work regularly and reproduce a healthy child. In other words reproductive health as a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity. Reproductive health or sexual health/hygiene, addresses the reproductive processes, function and system at all the stage of life.

Knowledge of male and female reproductive organs and their working is necessary to understand the reproductive health.

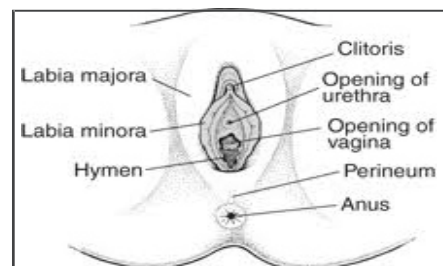
Female reproductive organs :

1. **External reproductive organ:** The external genital organs include the mons pubic, labia majora, labia minora, bartholin glands and clitoris. The area having the organs is called the vulva. This organ helps to identify the sex of the child. This organ is small, flat and without hairs in childhood. This region also develops with the development of body.

2. **Internal reproductive organs:** The internal sex organs are the uterus, fallopian tubes and the ovaries. The uterus or womb accommodates the embryo which develops into the fetus. The ovaries produce the ova (egg cells). The ovaries are paired organs located on either side of the uterus. The ovaries are responsible for storing and releasing the ova or eggs, necessary for reproduction. Main function of ovaries is "menstrual cycle". A mature egg reaches to ovary per month. Human fertilization is the union of human egg and sperm. Zygote develops and gets nutrition in uterus. If egg fails to fertilize, it expell during next menstrual period.



Female internal reproductive organ



Female external reproductive organ

Fig. 5.1 : Female reproductive organ

Male reproductive organs :

The male reproductive system includes the scrotum, testes, spermatic ducts, sex glands and penis. These organs work together to produce sperm, the male gamete and the other components of semen. These organs also work together to deliver semen out of the body and into the vagina where it can be fertilize egg cells to produce off springs. Testicles are responsible for the production of sperm and testosterone. The scrotum is made up of two side by side pouches with a testies located in each pouch. The prostate is a walnut sized exocrine gland that borders the inferior end of the urinary bladder and surrounds the urethra. The prostate produces a large portion of the fluid that make up semen which contains sperms. Only one sperm penetrate the egg and fertilization process occurs.

Point to be keeping in mind for reproductive health :

- 1. Age of marriage :** It is necessary for boys and girls to be mature both physically and mentally for the reproductive health. This maturity attains in boys usually at the age of 21 and in girls at the age of 18. Hence the marriage of the boys and girls should be performed at the age 21 and 18 years respectively.
- 2. Physical hygiene :** Boys and girls should regularly clean their genital organs for reproductive health. Girls 'especially at the time menarche should clean her external organs. Infected organs hinder the process of reproduction.
- 3. Reproduction capacity/ ability :** When a boy or a girl is physically mature they can bear a child. Some couples are not able to bear child. In such condition male and female should consult a doctor and take treatment. If any one of them is weak or their reproductive health is poor then conception is not possible. In our society still females are responsible for not being pregnant. In such condition female are subjected to medical checkups but males are not mentally prepared for this. For any incapability found in male in such tests, male dominating society doesn't accept it. Hence, reproduction capacity is required in both male and female.

- 4. Mental health :** Couples should be mentally prepared for conception. Now a day's female also works outside with male. Both the couples gives priority to their job and career hence there is instability and decrease infertility relationships. Many couples due to the shortage of time do not take their family, social and economical responsibility and feel stress. This stress influences their reproductive health which directly affects their reproduction capacity.
- 5. Balance diet :** Husband and wife should consume balance diet for physical health according to the requirement. Deficiency diseases occur due to the insufficient nutrient in diet. In our country 90% females are suffering from anemia. Anemia not even affects their health but also their conception ability. Anemic females are more prone to miscarriages and high mother's mortality rate. Hence prevention and cure of anemia is necessary. Adolescent girls and female should take cheap and available iron rich food items like green leafy vegetables, whole grain, pulses, egg, meat, fish in their diet. Iron and folic acid tablets are distributed to the girls and female beneficiaries of anganwad, girls of govt school and govt. hospital for prevention and cure of this disease. Pregnant female is prescribed one tablet per day and one tablet per week is advised for girls.
- 6. Pregnancy Intervals :** Proper pregnancy interval determines reproductive health. There should be minimum three year interval between 2 children. During this interval, reproductive organ of female becomes ready for next conception. Family planning methods can help to maintain proper interval. Reproductive health is also necessary like normal health.

Sexual diseases :

Diseases which mainly spread through sexual contact are called sexually transmitted disease. In this chapter, we will study AIDS, Gonorrhoea and Syphilis.

- (I) AIDS :** AIDS is non curable disease, prevention is only cure. Full form of AIDS is Acquired immune- deficiency syndrome



Fig. 5.1 : Sign of AIDS

A = Acquired, not inherited

I = Weakens the Immune system

D = Creates a **D**eficiency of CD4+ cells in the immune system

S = Syndrome, or a group of illnesses taking place at the same time.

AIDS stands for Acquired Immune Deficiency Syndrome. AIDS is a serious condition that weakens the body's immune system, leaving it unable to fight for illness.

AIDS is the last stage in a progression of diseases resulting from a viral infection known as the Human Immunodeficiency Virus (HIV or AIDS virus). The disease include a number of unusual and severe infections, cancers and debilitating illnesses, resulting in severe weight loss or wasting away, and diseases affecting the brain and central nervous system.

There is no cure for HIV infection or AIDS nor a vaccine to prevent HIV infection. However, new medications not only can slow the progression of the infection, but can also markedly suppress the virus, thereby restoring the body's immune function and permitting many HIV-infected individuals to lead a normal, disease-free life.

According to **WHO**, 35 million people were suffering from this disease in 2013. In India 2.1 million people are suffering from HIV and from this data India has the third highest number of people living with HIV in the world. According to UN reports about 4 out of 10 people infected with the deadly virus in the Asia Pacific region.

AIDS is the leading cause of death among young people. Because more than half HIV infected people are of the age of 15-24 years. **“National**

Programme for AIDS control” has been started to prevent HIV and AIDS. First December is celebrated as World AIDS Day to aware people about this deadly disease.

The immune system is a network of cells, organs and proteins that work together to defend and protect the body from potentially harmful, infectious microorganisms (microscopic life-forms), such as bacteria, viruses, parasites and fungi. The immune system also plays a critical role in preventing the development and spread of many types of cancers. When the immune system is missing one or more of its components, the result is an immunodeficiency disorder. AIDS is an immunodeficiency disorder. Lymphocytes (white blood cells) are one of the main types of immune cells that make up the immune system. There are two types of lymphocytes: B cells and T cells. (T cells are also called CD4 cells, CD4 T cells, or CD4 cell lymphocytes). B cells secrete antibodies (proteins) into the body's fluids to ambush and attack antigens (foreign proteins such as bacteria, viruses or fungi). T cells directly attack and destroy infected or malignant cells in the body. There are two types of T cells: helper T cells and killer T cells. Helper T cells recognize the antigen and activate the killer T cells. Killer T cells then destroy the antigen. When HIV is introduced into the body, this virus is too strong for the helper T cells and killer T cells. The virus then invades these cells and starts to reproduce itself, thereby not only killing the CD4 T cells, but also spreading to infect otherwise healthy cells.



Fig. 5.2 : Process of AIDS

The HIV virus cannot be destroyed and lives in the body undetected for months or years before any sign of illness appears. Gradually, over many years or even decades, as the T cells become progressively destroyed or inactivated, other viruses, parasites or cancer cells (called “opportunistic diseases”) which would not have been able to get past a healthy body's defense, can multiply within the body without fear of destruction. Commonly seen opportunistic diseases in persons with HIV infection include: pneumocystis

carinii pneumonia, tuberculosis, candida (yeast) infection of the mouth, throat or vagina, shingles, cytomegalovirus retinitis and Kaposi's sarcoma.

HIV is transmitted by

- Direct contact with infected blood
- Sexual contact: oral, anal, or vaginal
- Direct contact with semen or vaginal and cervical secretions
- HIV-infected mothers to infants during pregnancy, delivery, or breastfeeding

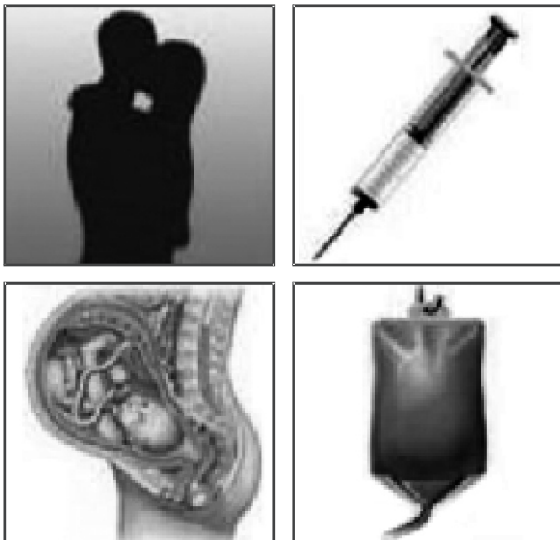


Fig. 5.3 : Causes of AIDS

HIV is not transmitted by

- Coughing, sneezing
- Insect bites
- Touching, hugging
- Water, food
- Kissing
- Public baths
- Handshakes
- Work or school contact
- Using telephones
- Sharing cups, glasses, plates, or other utensils

Prevention is cure :

There is no cure for HIV infection or AIDS nor a vaccine to prevent HIV infection.

- Don't have sexual contact with anyone who has symptoms of AIDS or who is a member of a

high risk group for AIDS.

- Avoid sexual contact with anyone who has had sex with people at risk of getting AIDS.
- Don't have sex with prostitutes.
- Avoid having sex with anyone who has multiple and/or anonymous sexual partners.
- Avoid oral, genital and anal contact with partner's blood, semen, vaginal secretions, feces or urine. Unless they know with absolute certainty that their partner is not infected, a latex condom should be used during each sexual act, from start to finish. The use of a spermicidal agent may provide additional protection.
- Avoid anal intercourse altogether.
- Don't share toothbrushes, razors or other implements that could become contaminated with the blood of anyone who is or might be infected with the AIDS virus.
- Exercise caution regarding procedures, such as acupuncture, tattooing, ear piercing, etc., in which needles or other nonsterile instruments may be used repeatedly to pierce the skin and/or mucous membranes.
- Such procedures are safe if proper sterilization methods are employed or disposable needles are used. Ask what precautions are taken before undergoing such procedures.
- If an individual is scheduling surgery in the near future, and is able, they could consider donating blood for their own use. This will eliminate completely the already very small risk of contracting AIDS through a blood transfusion. It will also eliminate the risk of contracting other blood borne diseases (such as hepatitis) from a transfusion.

Some people apparently remain well after infection of the AIDS virus. They may have no physically apparent symptoms of illness. However, if proper precautions are not used with sexual contacts and/or intravenous drug use, these infected individuals can spread the virus to others.

(II) Syphilis : Syphilis is a sexually transmitted infection caused by the bacterium *Treponema*

pallidum subspecies *pallidum*. Syphilis is most commonly spread through sexual activity. It may also be transmitted from mother to baby during pregnancy or at birth, resulting in congenital syphilis. Development period of *Treponema pallidum* is 14-28 days. There are two type of this disease-

1. Congenital
2. Adquired

Treatment :

This disease can be treated within the two week of diagnosis. The bacteria of this disease *Treponema pallidum* is very sensitive to penicillin and destroy in the presence of antibiotics. To prevent this disease decrease promiscuity, prostitution, increase in use of condoms, safe sexual practices and sex education in school and colleges

(III) Gonorrhoea : Gonorrhoea is a sexually transmitted infection (STI) caused by the bacterium *Neisseria gonorrhoeae*. Many people have no symptoms. Men may have burning with urination, discharge from the penis, or testicular pain. Women may have burning with urination, vaginal discharge, vaginal bleeding between periods, or pelvic pain. Complications in women include pelvic inflammatory disease and in men include inflammation. If untreated; gonorrhoea can spread to joints or heart valves.

Treatment :

Prevention and treatment of this disease is same as Syphilis :

Important points :

1. Reproductive organs are necessary to give birth.
2. Reproductive organ of both male and female should not have disease, blocked or infected to give birth to a healthy child .
3. The external genital organ of female includes the mons pubic, labia majora, abia minora, bartholin glands and clitoris. The internal sex organs are the uterus, fallopian tubes and the ovaries.
4. The male reproductive system includes the scrotum, testes, spermatic ducts, sex glands and penis.

5. Sperm fertilize egg cells to produce off springs.
6. This maturity attains in boys usually at the age of 21 and in girls at the age of 18. Hence the marriage of the boys and girls should be performed at the age 21 and 18 years respectively.
7. Reproductive health can be attained by following the dimensions like physical cleanliness, regular medical checkups, balance diet, maintaining the intervals between 2 children.
8. Diseases transmitted through direct sexual contacts are known as sexually transmitted diseases.
9. AIDS is non curable and infectious disease, prevention is only cure.
10. AIDS stands for Acquired Immune Deficiency Syndrome. AIDS is a serious condition that weakens the body’s immune system, leaving it unable to fight off illness. AIDS is the last stage in a progression of diseases resulting from a viral infection known as the Human Immunodeficiency Virus (HIV or AIDS virus). The diseases include a number of unusual and severe infections, cancers and debilitating illnesses, resulting in severe weight loss or wasting away, and diseases affecting the brain and central nervous system resulting death.
11. Antibody tests check for HIV antibodies in blood or fluids from the mouth. Infected person is called as HIV positive.
12. HIV infection is caused by the human immunodeficiency virus. You can get HIV from contact with infected blood, semen, or vaginal fluids. Most people get the virus by having unprotected sex with someone who has HIV. Another common way of getting it is by sharing drug needles with someone who is infected with HIV. Mother can transmit HIV to her child during childbirth, pregnancy, and also through breastfeeding.
13. The virus cannot be transmitted from shaking hands, hugging, casual kissing, sneezing, touching unbroken skin, using the same toilet,

- sharing towels, sharing cutlery, mouth-to-mouth resuscitation, or other forms of “casual contact”.
14. AIDS can be prevented by safe sex, unshared needle, blade and syringe, avoid pregnancy and breast feeding by HIV positive mother, only checked blood should be used.
 15. If person is suffering from AIDS, should not infect other person and try to prevent self from diseases.
 16. Syphilis and Gonorrhoea are transmitted respectively from *Treponema pallidum* and *Neisseria gonorrhoeae*.
 17. Syphilis and Gonorrhoea can be treated in early stage.
 18. To prevent this disease decrease promiscuity, prostitution, increase in use of condoms, safe sexual practices and sex education in school and colleges

Questions :

1. Choose the correct answer from the following questions :
 - (i) Nourishment and development of fetus occurs in which reproductive organ:-

(a) Ovum gland	(b) Uterus
(c) Vagina	(d) Ovary
 - (ii) Iron and folic acid tablet required for a pregnant lady in her pregnancy is:

(a) 75	(b) 100
(c) 150	(d) 200
 - (iii) AIDS is
 - (a) Communicable
 - (b) Non communicable
 - (c) Mental
 - (d) None of above
 - (iv) HIV transmitted from virus

(a) Hepatitis	(b) AIDS
(c) Herpes	(d) Diarrhea
 - (v) HIV is transmitted from which reason

(a) Use of infected needle	(b) Coughing
(c) By air	(d) Eating food together

- (vi) Syphilis is transmitted through
 - (a) Tryponima par
 - (b) Nisera
 - (c) None of above
 - (d) All of above
2. Fill in the blanks :
 - (i) To maintain human species is necessary
 - (ii) There should not be any problem, disease or in male and female reproductive organs.
 - (iii) Main function of uterus is
 - (iv) Main function of is to produce sperms.
 - (v) develops when there is a cross between ova and sperm.
 - (vi) AIDS is resulting from a viral infection known as
 - (vii) HIV infected person can live normal life up to
 - (viii) National AIDS control society is working from
 - (ix) Females suffering from Gonorrhoea secretes.... color fluid from urinary track.
3. What do you mean by reproductive health?
4. What points should be considered by male and females regarding reproductive health and why?
5. What is the difference between HIV and AIDS?
6. How HIV is transmitted? Write down the methods of prevention.
7. How will you control sexually transmitted diseases?

Answers :

1. (i) b (ii) b (iii) a (iv) b (v) a (vi) a
2. (i) reproductive system (ii) Infection (iii) Menarche (iv) Testis (v) Fetus (vi) HIV (vii) 11 years (viii) 1992 (ix) White

6. ADULTHOOD AND OLD AGE

Different cultures have different ages at which children reach the adult status or the age of legal maturity. Generally, they reach this status when their puberty growth is complete and their sex organs have developed to the point where they are capable of reproduction.

Adulthood

Early Adulthood :

Early adulthood extends from age 20-21 to approximately age 40, when the physical and psychological changes, accompany the beginning of the loss of reproductive capacity.

Middle Adulthood (Middle Age)

Middle adulthood, or middle age, begins at forty and extends to age sixty, when both physical and psychological changes decline become apparent in the average person.

Late Adulthood (Old Age)

Late adulthood - senescence or old age – begins at sixty and extends to death. Physical and psychological decline speed up at this time. Modern medical techniques, as well as careful attention to clothing and grooming enable many men and women to look, act, and feel much as they did when they were younger.

1. Early Adulthood

It is a period of adjustment to new patterns of life and new social expectations. The young adult has to take roles as spouse, parent and bread earner and to develop new attitudes, interests and values in

keeping with these new roles. Some of the outstanding characteristics are :

- Early Adulthood is the **“settling - down age”**. This is the period when young men and women are trying out different life patterns in terms of jobs and different individuals to share their life. Once individuals decide upon the pattern of life they believe to meet their needs, they develop pattern of behavior, attitudes and values which tend to be characteristically theirs for the remaining of their lives.
- Early Adulthood is the **“Reproductive Age”** - parenthood is one of the most important roles in the lives of most young adults.
- Early Adulthood is a **“Problem Age”** - young adults need to cope up with all adjustments within their work, with partner, larger circle of friends and relatives. Expectations are too high to meet demand make it even more difficult.
- Early Adulthood is a period of **“Emotional Tension”** – what young adult’s worry about which leads to emotional tension will depend upon their work load at their work place, at home and in the social circle and also how much success or failure they are experiencing in meeting these problems.
- Early Adulthood is a period of **“Social Isolation”** - with the end of formal education and the entrance into adult life pattern of work and marriage, the association with peer groups is slowly weaned. They experience social isolation.

- Early Adulthood is a *“time of Commitment”* - As young adults change their role from student and dependent (characteristic of adolescence) to that of independent adults, they establish new pattern of living, new responsibilities and take up new commitments for themselves and their partners. Young adults with high level of education, good health support and guidance from partner and family members, high ambitions and realistic goals, ability to accept success or failure gracefully, ability and willingness to communicate with others, respect for others and active participation in prestigious community affairs will easily climb up the ladder to successful economic and social status. Poor health or physical defects can be hazardous to personal and social adjustments but these can always be overcome with the support one gets from the family and friends. A lot of adjustments need to be made by young adults, the most important being - adjustment to marriage, to parenthood, and to the expanded family circle. There are chances of singlehood also but how women feel about unmarried life and adjustment to singlehood differs from that of men. Stress is less for men than single women.

2. Late adulthood

It is generally considered to extend from age 40 to age 60. The onset is marked by physical and mental changes. It is recognized that, next to old age, it is the most dreaded point in the total life span and the one, adults will not admit that they have reached until the calendar and the mirror image force them to do so. Some of the reasons are, the mental and physical deterioration, cessation of the reproductive life, restrictions in finance and independence. Middle age is a time of transition always means adjustment to new interest, new values, new pattern of behaviour, physical changes, changed roles etc. and the most important adjustment is with death of a spouse. Of course adjustment with the problems of aging parents is always there. Middle age is a time of stress while major adjustment's to work, home, social life are

made, this will lead to stress. Women have stress during the period of menopause. Middle age should be a time not only for financial and social success but also for authority and prestige. They usually reach their peak after which they rest to enjoy the benefits of their hard work. Evaluation of their achievement and accomplishments in terms of money, social status, family size, their earlier aspiration, plans for future life etc., is carried out. Middle age is the time of the emptiness, the time when the children no longer want to live under the parental roof. This period is much more traumatic for women than men. This leads to boredom especially if one has given up the job and other activities.

One of the most difficult adjustment middle age men and women must make is to change the appearance. They must recognize that their body is not functioning as adequately as it formerly did and may even be 'wearing out' of in certain vital areas. This reproductive capacity is coming to an end and losing some of their sex drive and sexual attractiveness. Women may experience a sudden cessation of menstruation. Many women gain weight during menopause mainly around the abdomen and hips. They also experience personality changes, become depressed and hostile. Among men, there is a gradual decline in gonadal activity leading to decline in sexual desire and sex organ functioning. Good social adjustments in middle age is important. They should give up the "rocking chair" philosophy which many middle age people follow. They should not think they have to remain inactive and give up many of their normal activities and desires. Instead they need to develop skills to keep them engaged in economic and social activities, take up responsibilities in the family like take care of grand children and giving a moral support to the members of the family. Adjustmental hazards are more to single women than single men.

Adjustment to loss of a spouse presents many adjustment problems for the middle aged man or woman. This will lead to disruption in the pattern of living. They also have to adjust to approaching old age and retirement. The success with which men and

women adjust to middle age can be assured by their achievements, emotional status, effects of physical and psychological changes or personality and the degree of satisfaction of happiness the middle aged person experiences.

Old age :

Old age is the closing period in the life span. Age 60 is usually considered the dividing line between middle and old age. Chronological age is poor criteria to use in marking off the beginning of old age because there are such marked differences among individuals in the age and better aging actually begins. Most men and women today do not show the mental and physical signs of aging until early seventies because of better living conditions and health care. The characteristics of old age are far more likely to lead to poor adjustment than to good and to unhappiness rather than to happiness. That is why old age is even more dreaded than middle age.

Old age is a period of decline, comes partly from physical and partly from psychological factors. There is change in body cells due to the aging process. Unfavorable attitude towards one self and life in general can lead to decline or become depressed and disorganized. Motivation plays a very important role in decline. There are individual differences in the effects of aging. People age differently because they have different hereditary endowment, different socio economic and educational backgrounds and different patterns of living. The general rule is physical aging precedes mental aging. Old age is judged by different criteria. Age is judged in terms of physical appearance and activities. One who has white hair is labeled as old. There are many who try to cover up their aging symptoms to create illusion that they are not yet old. There are many stereotypes of old people – let it be the folklore, the media, poetry, fiction, jokes or different forms of humor or scientific studies, all portray the aged as those who are worn out physically and mentally, unproductive, accident – prone, hard to live, days of usefulness are over, should be pushed aside to make way for younger people. Poor adjustment is characteristic of old age – Because of

the unfavorable social attitudes towards the elderly that are reflected in the way the social groups treat them; It is not surprising that many elderly people develop unfavourable self-concepts. These tend to be expressed in maladjusting behavior of different degree of severity.

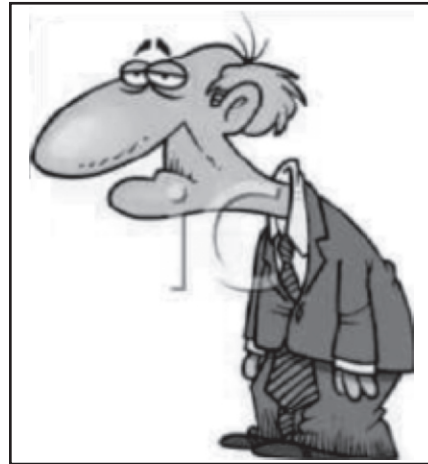


Fig. 6.1 : Old Person

Problems and changes during old age :

(i) Physical changes :

1. The nose elongates. The mouth changes its shape as a result of tooth loss or the necessity of wearing dentures. The eyes seem dull and lusterless and often have a watery look. A double or triple chin develops. The cheeks become pendulous, wrinkled, and baggy. The skin becomes wrinkled and dry, and dark spots, moles, or warts may appear. The hair on the head becomes thin and turns grey or white, and tough, bristly hair appears in the nose, ears and eyebrows.
2. The shoulders stoop and thus seem smaller. The abdomen bulges and droops. The hips seem flabbier and broader than earlier. The waistline broadens, giving the trunk a sack like appearance. The woman's breasts become flabby and droop.
3. The upper arm becomes flabby and heavy, while the lower arm seems to shrink in diameter. The legs become flabby and the veins prominent, especially around the ankles. The hands become

scrawny, and the veins on the back of the hand are prominent. The feet become larger as a result of sagging muscles, and corns, bunions, and collouses often appear. The nails of the hands and feet become thick, tough, and brittle.

4. Changes in Physiological functions include decline in the ability to see, hear, marked changes in taste, sense of smell becomes less, and also that of sensitivity to pain.
5. Elderly people tired quickly and require a longer time to recover from fatigue, changes in skilled movements especially handwriting, slow in learning new skills and quite often tend to become awkward and clumsy.
6. Recall is affected. Old people tend to have poor recent memories but better past memories.
7. Quite often due to lack of income or low economic status they become dependent and have to compromise on many of their hobbies, interests, activities etc.
8. Common physical hazards Include disease and physical handicaps like circulatory, metabolic and mental disorders. Heart diseases, rheumatism, arthritis, visual and hearing impairment, etc., are also common. Due to psychological and physiological disorder and economic reasons, malnutrition in old age is common.

(ii) Social :

With advancing age, most people suffer increasing social loss or social disengagement- a process of mutual withdrawal of the aged from the social environment. Social disengagement in old age commonly expressed in a narrowing down of the sources of social contact and a decline in social participation. For most older people this means a radical change in the pattern of social life they established during early adulthood and carried on, with only minor changes, through middle age. Women as a rule, retain their friendships longer than men, mainly because their friends, for the most part, come from their neighborhoods, while men's friend are largely

work associates who live in scattered areas of the community and who are not brought together by their common interest in work after retirement.

People who perceive their friends and family members as supportive during times of need have a stronger sense of meaning in their lives; that is, they live their lives with a broader purpose, adhering to a value system that fits within the larger social world. In addition, people with strong social networks report greater emotional well-being in day-to-day life and also when they experience stressful life events. Both structural - i.e., the number and type of social partners in a given network — and functional - i.e., the perceived or actual receipt of support - aspects of social networks contribute to emotional well-being.

(iii) Economic

The problem of economic insecurity is faced by the elderly when they are unable to sustain themselves financially. Many older persons either lack the opportunity and/or the capacity to be as productive as they were. Increasing competition from younger people, individual, family and societal mind sets, chronic malnutrition and slowing physical and mental faculties, limited access to resources and lack of awareness of their rights and entitlements play significant roles in reducing the ability of the elderly to remain financially productive, and thereby, independent.

The elders living with their families are largely contingent on the economic capacity of the family unit for their economic security and well being. Elderly often do not have financial protection such as sufficient pension and other form of social security in India. Also due to their financial dependence, elderly persons though are most vulnerable to infections have low priority for own health. Migration of younger generation, lack of proper care in the family, insufficient housing, economic hardship and break-up of joint family have made the old age homes seem more relevant even in the Indian context

Retirement from service usually results in loss of income and the pensions that the elderly receive are usually inadequate to meet the cost of living which is

always on the rise. With the reduced income they are reversed from the state of “Chief bread earner to a mere dependent” though they spend their provident fund on marriages of children, acquiring new property, education of children and family maintenance. The diagnosis and treatment of their disease created more financial problem for old age.

Old age is a period of physical deterioration and social alienation in some cases, loss of spouse, friends, Job, property and physical appearance. In old age physical strength deteriorates, mental stability diminishes, financial power becomes bleak and eye sight become weak. It is a period of disappointment, dejection, disease, repentance and loneliness.

(iv) Emotional :

An elderly person who continues to be physically active, mentally alert can retard this aging process to some extent and reduce associated physical and psychological problems. Absence of any useful, goal directed activity and dull, inactive mind hastens disability, personality and mood changes, increased irritability, self centeredness, social withdrawal or feelings of insecurity and neglect. Isolation, or a deep sense of loneliness, is a common complaint of many elderly is the feeling of being isolated. While there are a few who impose it on themselves, isolation is most often imposed purposefully or inadvertently by the families and/or communities where the elderly live. Isolation is a terrible feeling that, if not addressed, leads to tragic deterioration of the quality of life.

The elderly, especially those who are weak and/or dependent, require physical, mental and emotional care and support. When this is not provided, they suffer from neglect, a problem that occurs when a person is left uncared for and that is often linked with isolation. Changing lifestyles and values, demanding jobs, distractions such as television, a shift to nuclear family structures and redefined priorities have led to increased neglect of the elderly by families and communities. This is worsened as the elderly are less likely to demand attention than those of other age groups.

Decline in mental ability makes them dependent. They no longer have trust in their own ability or judgments but still they want to tighten their grip over the younger ones. They want to get involved in all family matters and business issues. Due to generation gap the youngsters do not pay attention to their suggestion and advice. Instead of developing a sympathetic attitude towards the old, they start asserting their rights and power. This may create a feeling of deprivation of their dignity and importance.

Loss of spouse during old age is another hazard. Death of a spouse creates a feeling of loneliness and isolation. The negligence and indifferent attitude of the family members towards the older people creates more emotional problems.

Care in old age :

Elderly people are highly prone to mental morbidities due to ageing of the brain, problems associated with physical health, cerebral pathology, socio-economic factors such as breakdown of the family support systems, and decrease in economic independence. The mental disorders that are frequently encountered include dementia and mood disorders. Other disorders include neurotic and personality disorders, drug and alcohol abuse, delirium, and mental psychosis.

The rapid urbanization and societal modernization has brought in its wake a breakdown in family values and the framework of family support, economic insecurity, social isolation, and elderly abuse leading to a host of psychological illnesses. In addition, widows are prone to face social stigma and ostracism. The socio-economic problems of the elderly are aggravated by factors such as the lack of social security and inadequate facilities for health care, rehabilitation, and recreation. Care should be done in following ways:

- (i) Balance diet :** The diet for elderly people should include nutrient rich foods to enable them to be fit and active. Senior citizens need more of vitamins and minerals to be healthy and active. Elders generally complain of loss of appetite or sometimes difficulty in chewing. A soft diet

should be given to elders, with inclusion of fruits and vegetables in their diet. Calcium rich foods like dairy products (low fat), milk (toned) and green leafy vegetables should be included in the daily diet to maintain bone health, so as to prevent osteoporosis and bone fractures. Consume pulses, toned milk, egg-white etc. in good quantities as they are rich in proteins. The diet for elderly people needs to be well cooked, soft and should be less salty and spicy. Ensure to eat small quantities of food at more frequent intervals and drink water at frequent intervals to avoid dehydration and constipation.

- (ii) **Total rest and sleep :** In general, sleep becomes more fragmented and lighter with an increase in the number of arousals and awakenings. There is a reduction in the amount of slow wave sleep. Sleep efficiency and total sleep time are reduced with age and there are an increased number of sleep stage shifts. Treatment should address the primary problem rather than the complaint itself and may result in significant improvement in quality of life and daytime functioning in the elderly.
- (iii) **Residence :** Home is somewhere that is both desirable and exists in the mind's eye as much as in a particular physical situation. Sometimes due to some economical and family reasons elderly have to leave their house and stay in old age home and faces adjustment problems due to changes in place. This adjustment is very difficult. The room for aged should not be very cool. Big windows, airy rooms, proper lighting, and peace required for the room of aged. There should be material for the entertainment of aged near the room.
- (iv) **Medical facility :** Immunity power reduces at old age and they become ill easily. They are surrounded by the diseases like heart problem, respiratory problem, diabetes, osteoporosis. Therefore they need regular medical facility. If these facilities are near their house they themselves goes for the regular checkups

otherwise other member of family have to take this responsibility. Some time due to economic problems they don't afford medical treatment. One should always accumulate money for the old age.

- (v) **Activeness :** Old age consists of ages nearing or surpassing the average life span of human beings. Many people develop disabilities in later life related to the wear and tear of ageing (e.g., arthritis) or the onset of a chronic disease, (e.g., lung cancer, diabetes and peripheral vascular disease) or a degenerative illness (e.g., dementia). But disabilities associated with ageing and the onset of chronic disease can be prevented or delayed.
- (vi) **Economic help :** The traditional Indian society and the age-old joint family system have been instrumental in safeguarding the social and economic security of the elderly people. However, with rapid changes in society and the emergence of nuclear families in India in recent years, the elderly are likely to be exposed to emotional, physical and financial insecurity in the years to come. In view of the increasing need for intervention in area of old age welfare, the Ministry of Social Justice and Empowerment, Government of India, adopted a 'National Policy on Older Persons' in January 1999. The policy provides broad guidelines to the State governments for taking action for the welfare of older persons in a proactive manner. It defines 'senior citizen' as a person who is 60 years or above and strives to ensure their well-being and improve the quality of their lives by providing specific facilities, concessions, relief and services and helping them cope with problems associated with old age. It proposes affirmative action on the part of government departments for ensuring that the existing public services for senior citizens are user-friendly and sensitive to their needs.

Over the years, the government has launched various schemes and policies for older persons. These schemes and policies are meant to promote the health,

well-being and independence of senior citizens around the country. Economic help, free medical facilities, less fair in train n buses on travel and pension plans are also introduced by the government. Some seats are also reserved for the aged persons so that they can travel comfortably. Every member of family should take special care of aged. Aged should adjust with the youth and children so that their prestige in the family maintained.

Important points :

1. Early adulthood extends from age 18 to approximately age 40, when the physical and psychological changes, which accompany the beginning of the loss of reproductive capacity, appear.
2. Youth and mature are commonly known as adults and after the end of adolescent period to the period before the starting of aging is known as adulthood.
3. Early adulthood is the period when youth finishes their studies and their career is almost decides. During this various changes like physical, mental, social and emotional changes slow down.
4. Adulthood is a period of economic and social stability. This time adults are on peak on their social and economic growth and they are emotionally stable, calm and experienced at this period. They guide various people of the society.
5. Old age is a period of decline, comes partly from physical and partly from psychological factors. There is change in body cells due to the aging process.
6. Old age is a period of slow and steady decline. This decline can be compensated.
7. In old age the hair on the head becomes thin and turns grey or white, and tough, bristly hair appears in the nose, ears, and eyebrows. Changes in Physiological functions include decline in the ability to see, hear, marked changes in taste, sense of smell becomes less, and also that of sensitivity to pain.

8. Immunity power declines and thus suffers from communicable diseases.
9. Activeness in social activities declines as the age increases in old age.
10. Family group is core of the social life for aged.
11. Main cause of emotional instability is retirement. For the stability aged needs to engage them in interesting work. Understand the feelings and needs of children and coordinate with them.
12. They need special care due to the problems and changes in old age.
13. Balance diet should be given according to the physical changes, health and interest of aged.
14. Due to the lack of coordination with other family members, aged likes to stay alone in their house, but it creates problems related to their care.

Question :

1. Choose the correct answer for the following questions:
 - (i) Adulthood is normally a period of
 - (a) 18-19 to 40 years
 - (b) 19-20 to 40 years
 - (c) 18-20 to 40 years
 - (d) 20-21 to 40 years
 - (ii) Period of economical and social stability is:

(a) Young age	(b) Adulthood
(c) Childhood	(d) Old age
 - (iii) Loneliness increases in old age due to:
 - (a) Death of the spouse
 - (b) After the marriage of children
 - (c) Leaving home for the job by children
 - (d) All of above
 - (iv) Diet to the aged should be given according to:

(a) Physical changes	(b) Interest
(c) Health	(d) All of the above
 - (v) In old age amount of lubricant of the bone joints becomes:

(a) Low	(b) High
(c) Unchanged	(d) None of the above

2. Fill in the blanks :
- (i) is the period when adolescent achieves full physical growth and development becomes a mentally mature youth.
 - (ii) Youth and adults commonly known as
 - (iii) If childhood is period of life than old age is
 - (iv) For the aged is the core of social life
 - (v) Start of aging is from the period of Years

3. Comment on following :
- (a) Young age
 - (b) Adulthood
3. What kind of problems usually person faces after retirement?
4. Write down in detail about the physical changes and problems of aged.
5. How will you care aged women? Describe.

Answers :

- 1. (i) d (ii) b (iii) d (iv) d (v) a
- 2. (i) young age (ii) Adult
- (iii) Morning, evening (iv) 50
- (v) 60 years

7. POPULATION CONTROL

India is still suffering from various problems after independence, over population is most dangerous among them. Being a developing country, the increasing growth rate is dragging India into a vicious cycle of population and poverty, which leads to a development trap. This further increases other problems like illiteracy, unemployment and inflation. Eradication of poverty is a very long-term goal in India. The current population is around 1.21 billion. India occupies only 2.4% of the world's land area but it supports over 15% of the world's population. Next to China, India is the second largest populated country in the world. In 2001, India became the second country after China to cross the one billion mark. India is expected to surpass China in total population by 2030 (five years earlier than previously estimated). During 1975–2019 the population doubled to 1.2 billion. The Indian population reached the billion mark in 1998. India is projected to be the world's most populous country by 2024, surpassing the population of China. It is expected to become the first political entity in history to be home to more than 1.5 billion people by 2030, and its population is set to reach 1.7 billion by 2050. Its population growth rate is 1.2%, ranking 94th in the world in 2013.

Table 7.1: Census

Census year	Total population (in millions)	Growth in comparison to 1901 (%)
1901	238.4	-
1911	252.1	5.75
1921	251.3	5.42
1931	279	17.02
1941	318.7	33.67
1951	361.1	54.47
1961	439.2	84.25
1971	548.2	129.44
1981	683.3	186.64
1991	846.3	255
2001	1028.7	330.8
2011	1210.2	408

Population, Growth rate, Mortality rate and Sex ratio (India 1901-2011) : Source- Census 2011, Indian Government :

Overpopulation is an undesirable condition where the number of existing human population exceeds the carrying capacity of Earth. Over population is caused by number of factors. Reduced mortality rate, better medical facilities, depletion of precious resources are few of the causes which results in overpopulation. It is possible for a sparsely populated area to become densely populated if it is not able to sustain life.

Causes of Population growth :

1. High Birth Rate on Death Rate
2. Early Marriages and Universal Marriage System
3. Poverty and Illiteracy
4. Old traditional patterns
5. Illegal migration

Problems created by population explosion :

The current population is around 1.15 billion. India occupies only 2.4% of the world's land area but it supports over 15% of the world's population. There is shortage of land in comparison of population which affects the availability of resources and as a result it created many problems:

1. **Starvation** : India, with a population of over

1.3 billion, has seen tremendous growth in the past two decades. Gross Domestic Product has increased 4.5 times and per capita consumption has increased 3 times. Similarly, food grain production has increased almost 2 times. However, despite phenomenal industrial and economic growth and while India produces sufficient food to feed its population, it is unable to provide access to food to a large number of people, especially women and children. The Global Hunger Index 2016 ranks India at 97 out of 118 countries on the basis of three leading indicators – prevalence of wasting and stunting in children under 5 years, under 5 child mortality rate, and the proportion of undernourished in the population

Table 7.2 : Data on population explosion, growth rate and sex ratio

Census year	Total population (in millions)	Changes in population	Growth rate	Crude birth rate	Crude death rate	Sex ratio (Female on per 1000 male)
1901	238.4	-	-	45.8	44.4	972
1911	252.1	13.7	0.56	49.2	42.6	964
1921	251.3	-0.8	-0.03	48.1	47.2	955
1931	279	27.7	1.04	46.4	36.3	950
1941	318.7	39.7	1.33	45.2	31.2	945
1951	361.1	42.7	1.25	39.9	27.4	946
1961	439.2	78.1	1.95	41.7	22.8	941
1971	548.2	109.1	2.2	41.2	19	930
1981	683.3	135.1	2.22	37.2	15	934
1991	846.3	163.1	2.14	32.5	11.4	927
2001	1028.7	182.3	1.97	24.8	8.9	923

2. **Lack of Sanitation** : The atrocious hygiene that results from widespread lack of sanitation is made worsen by the density of the population. With large numbers of people openly defecating, fecal-oral-transmitted infections are common, leading to diarrhea, with such diseases draining growing children of vital nutrients. Growing up in environments teeming with fecal pathogens has a permanently debilitating effect, experts say.

Over time, a large buildup of fecal germs in the body can also manifest as severe intestinal diseases.

3. **Lack of drinking water** : Depleting ground water table and deteriorating ground water quality are threatening the sustainability of both urban and rural water supply in many parts of India. The supply of cities that depend on surface water is threatened by pollution,



Fig. 7.1 : Starvation



Fig. 7.2 : Lack of drinking water

increasing water scarcity and conflicts among users. Overpopulation will strain current water resources to their limits, cause an increase in water pollution, and lead to an increase in civil and international conflicts over existing water supplies. The increasingly high demand for water will also affect food production in water stressed areas.

4. **Lack of residence :** Rising rate of population growth exerts pressure on land. On the one hand, per capita availability of land goes on diminishing and on the other, the problem of sub-division and fragmentation of holdings goes on increasing. It adversely affects the economic development of the country. Numbers of slums are increasing day by day. Lack of sanitation creates many diseases. Earlier one family used to live in one house but now a day's many families are residing there, reason- population growth.



Fig. 7.3 : Problems of transportation

5. **Problems of transportation :** In a heavily populated country such as India, managing different aspects of transportation is a difficult task. There is also a growing concern over the high degree of air pollution in Indian cities. It is evident that most pollution is caused by motor vehicles. Roads are getting congested because more vehicles travel on them.
6. **Insufficient cloths :** In our country production of cloth not only fulfills the need of the people but by exporting cloth and dresses it earns foreign exchange also. There is per annum growth in the production of clothes but still these are not available to the poor living below poverty line. Many times children and old age people die because of cold in winters.
7. **Limited medical and educational facilities :** The rate of population growth affects long-range planning of community health and medical facilities. Alterations in age composition, internal migration of racial or industrial groups, changes in population density and urban-rural movement require current adaptation of the health program to solve the new problems thus created. Future population changes among children, and, in particular, among children under 5 years of age, are reflected in the trend of deaths from the principal communicable diseases of childhood. It is a matter of routine that patients share beds and doctors are overworked. The shortage of health providers and infrastructure is the most acute in rural areas.



Fig. 7.4 : Limited medical facilities

India, being a developing country, has had to face several economic and political challenges. One of the most important problems is the population explosion. India's population hit 1 billion in May 2000, increasing the urgency for the country to moderate its population growth. Some of the reasons for this population explosion are poverty, better medical facilities, and immigration from the neighboring countries. Several solutions to decrease the rate of population increase have been tried by the government, some successful, some unsuccessful. Although the rate of increase has decreased, but the rate has not reached the satisfactory level yet. The population in India continues to increase at an alarming rate. The effects of this population increase are evident in the increasing poverty, unemployment, air and water pollution, and shortage of food, health resources and educational resources.

Population Education :

One of the formidable problems which stare us in the faces, is our rapid increasing population, which offsets every endeavour for development. A need is being felt for imparting factual knowledge about population dynamic, so that the younger generation may understand the nature and magnitude of the burden imposed by rapid population growth. According to UNESCO, "Population Education is an educational programme which provides for a study of population situation of the family, the community,



Fig. 7.5 : Happy family

nation and world, with the purpose of developing in the student's rational and responsible attitudes and behaviour towards that situation." Hence, we can conclude that population education is an exploration of knowledge and attitudes about population, family living, reproduction education and basic values. It means educating the students about large population or ever-increasing population. Population Education needs to be given top priority. The situation is so grim that something needs to be done quick at grassroots level. The younger generation needs to be informed. They need to be properly educated for leading a planned adult life. Population Education seems to be most relevant. Education has a great motivational force to perform for controlling over population. Suitable educational measures need to be adopted to promote desirable changes. The population control programmes must be universally accepted in the interest of the family and the nation. The aim of the **Family planning** is to make family life and the life of the children happier, richer, more prosperous and more progressive.

Family Planning :

Family planning services are defined as "educational, comprehensive medical or social activities which enable individuals, including minors, to determine freely the number and spacing of their children and to select the means by which this may be achieved." Family planning may involve consideration of the number of children a woman wishes to have,

including the choice to have no children, as well as the age at which she wishes to have them. These matters are influenced by external factors such as marital situation, career considerations, financial position, any disabilities that may affect their ability to have children and raise them, besides many other considerations.



Fig. 7.6 : Family planning card

Family planning association in India was established in 1949. It provides information on sexuality education and family life, along with a wide range of services including family planning, bringing health and happiness to millions. Every year 11 July is celebrated as population day. In present time name of family planning is changed into family welfare.

Desire of boy and ignorance of girls :

Government is conducting Family Welfare programme in India at vast level but cannot control the population. The main reason for this is the male dominating society and desire for boy. The traditional social set-up focuses on the son as being the main bread earner of the family. He is expected to earn and take care of his parents in their old age. It is apparently more expensive to bring up a girl child. Not only to educate her, you also have to save up for her marriage and perhaps for other occasions in her life. This reason was mostly voiced by the elderly.

Continuing the family name and the task of doing karma has always been on the shoulders of the son. This is still something people are concerned about, despite girls now coming forward to do the last rites of their parents.



Fig. 7.7 : Save girl child mission

Women in India slowly started recognizing her true potential. As a result, girls has started breaking barriers and earned a respectable position in the world. Today Indian women have excelled in each and every field from social work to visiting space station. There is no arena, which remains unconquered by Indian women. Whether it is politics, sports, entertainment, literature, technology everywhere, its women power all along.

If we want our future generations to live the life of barbarians, it is imperative that we control the population explosion and thus control the usage of the available resources. We can start by educating the women of India in the basics of family planning. This can simply be done if just one educated person takes it into her/his stride to teach one other person .Each one, teach one. Couples with fewer children should be encouraged or rewarded so that other people get encouragement and limit their family size.

Important points :

1. Population explosion is the most serious problem of our country. According to the world's population India ranks second after China.
2. According to the census 1901 population of India was only 238.4 million which increased to 1210.2 million in 2011.

3. The population increase has led to air and water pollution, unemployment, poverty, lack of educational resources, and even malnourished women and children.
 4. Growing population of India is hindering the overall development of India. To control the population Government has started the programme "Family welfare programme".the objective of this programme is to decrease the birth rate according to the national economy and stabilize the population.
 5. Modern period girls are working head to head with the boys whereas the desire for male child is a big reason for population growth.
 6. Family planning may involve consideration of the number of children a woman wishes to have, including the choice to have no children, as well as the age at which she wishes to have them.
- (iv) One of the biggest reason of population growth is:
 - (a) Industrialization
 - (b) Desire of boy
 - (c) Urbanization
 - (d) None of above
 - (v) World's Percent population resides in India.
 - (a) 16
 - (b) 17
 - (c) 18
 - (d) 15

2. Fill in the blanks :

- (i) Due to population growth agriculture land is converting into
 - (ii) The has led to air and water pollution, unemployment, poverty, lack of educational resources, and even malnourished women and children.
 - (iii) is an educational, comprehensive medical or social activity which enable individuals, including minors, to determine freely the number and spacing of their children and to select the means by which this may be achieved.
 - (iv) Girls are getting prestigious place in the society by and
3. What are the influence of population growth on food, residential land, drinking water and sanitation?
 4. What is Family Planning Programme? When did it start?
 5. How can a boy or girl contribute in population control?
 6. Discuss population growth and its consequences with the help of teacher in your class.

Questions :

- (1) Choose the correct answer for the following questions :
 - (i) Most populated country is :
 - (a) India
 - (b) China
 - (c) Pakistan
 - (d) Japan
 - (ii) In comparison to 1901, in 2011 the population growth is
 - (a) 186.64%
 - (b) 330.8%
 - (c) 84.27%
 - (d) 408.0%
 - (iii) Most successful method to control the population control is:
 - (a) Welfare programme
 - (b) Employment programme
 - (c) Family planning
 - (d) Rural development plans

Answers :

1. (i) b (ii) d (iii) c (iv) b (v) a
2. (i) Residential (ii) Population Explosion (iii) Family Planning (iv) Education, Employment

8. SPECIAL CHILDREN

You have already studied that the children grow and develop physically, socially and emotionally. All children are 'unique' yet similar to one another in most aspects of growth. However, some children are very different from their age-mates that they 'stand out'. The obvious 'standing out' creates problems during the growing periods. Such children have to deal with the normal/usual problems of growth along with all those difficulties that may arise because of being different.

The child's ability to cope with these problems is limited. The child is unable to deal with the social and emotional problems. This has marked effect on the child's personal and social development. Such a child needs special attention during the formative years so as to be able to grow to the full potential.

According to Crow and crow "the term typical or exceptional is applied to a trait or to a person possessing the trait if the extent of deviation from the normal possession of that trait is so great that because of it, the individual warrants and receives special attention from his behavior responses and activities are thereby affected"

"One who deviates from what is supposed to be an average in physical, mental, emotional and social characteristics to such an extent that the child requires special educational services to help develop to the maximum capacity."

I Children with Physical Disabilities :

Physical abnormalities : Such as webbed fingers, hunch back, sixth finger/toe, malformed ear, harelip, cleft palates, face and body birth marks.

Chronical defects : The defects that exist year after year are generally referred to as chronical defects i.e. congenital heart diseases, rheumatism and muscular atrophies.

Types of physical disabilities :

1. Blind and weak eye sighted children :

Vision is a critical tool that children use in obtaining information about the world in which they live. Impairment of vision can lead to partial or total blindness. The children without vision will need special materials and attention to develop fully.

Very often a blind child is not able to compete with the normal one. As a result these children may remain physically and economically dependent to a certain extent. It is possible to educate children with poor sight, total/partial blindness.

Books with big print and desk with proper light are of considerable help to the child with defective

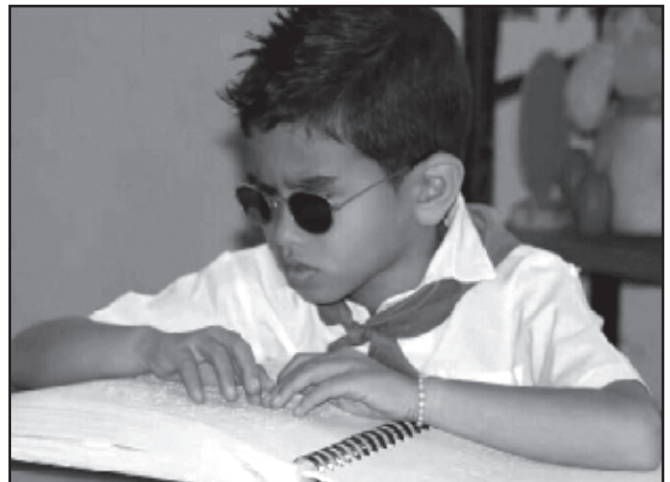


Fig. 8.1 : Braille Method

vision. Green/grey board instead of a blackboard, unglazed paper and use of soft black pencils improve the visibility for such a child. Handicapped children learn better with special equipment under the guidance of special educators. Children with severe defects will need to be educated with special tools. BRAILLE is a system of reading and writing the letters, numbers and words. The basic Braille is a six keyed device like a typewriter. The Braille dots are punched out one at a time from right to left. Children learn to use Braille with ease, once coached properly. Recorded tapes are being used to impart education to the blind. Blind children need to develop listening skills to better their learning.

Special attention is being given to the blind children in the form of education and training. More employment opportunities provided to the blind adults are an assurance of their legal and human rights.

2. Deaf and hard of hearing :

A Deaf child is one who has lost the sense of hearing before learning the language. This means that the child is born without the ability to hear. Such children are often mute and silent. Hard of hearing on the other hand is a defect that is acquired later in life. The child experiences varying degrees of hearing loss. Damage can be (i) congenital or (ii) acquired. The child may be dumb besides being deaf. The speech defects are common among children with hearing impairment. They have difficulty in learning language/vocabulary. It is an enormous challenge to learn to communicate in a language one cannot hear.

Consequently these children are low in intelligence because they are incapable of using available opportunities. Such children have suspicious minds because of lack of coordination between vision and hearing. Educational needs involve child's ability to understand the languages. They learn to communicate through visual and manual means. Oral Method or Lip-Reading is a special way of educating deaf children to identify sounds by watching the lip movement. It is slow method involving a lot of patience for the learner as well as the educator. Manual Method or Sign Language helps the child to communicate with gestures, cues and finger-spellings. Need to be independent is of utmost importance to the



Fig. 8.2 : Sign Language

deaf child. It reduces his/her dependency on parents, and siblings. The ability to be independent makes them important components of the society they live in. Invention of hearing aids have provided the much need relief to the deaf.

3. Crippled children :

A Child with affected limb is not able to perform fully the activities involving the use of bones, muscles and joints. Similar handicap is experienced by children with the missing limb. Such children are known to be orthopedically crippled.

Psychologist defines a child with affected and missing limb "as one who has a defect which causes a deformity or an interference with the normal functioning of bone, muscle or joint." Such orthopedic (bony) conditions may be congenital or acquired. Congenital Deformity can occur due to genetic problems. Pregnancy is a critical period. Foetal formation is adversely affected if the pregnant mother suffers from measles, mumps, jaundice and other severe viral infections. Drug abuse among pregnant mothers may also result in the improper foetal formation of bones, limbs and other important body organs. Acquired Orthopaedic Defects can occur at any stage in life. Polio and bone tuberculosis among small children has long lasting crippling effect on them. Congenital or acquired muscular atrophy (Muscular damage) affects the efficiency of muscular performance. The extent of damage is determined by the severity of the atrophy. Spinal injuries are often responsible for limiting the efficiency of one's motor activities. Accident involving limb amputations result in bone deformities coupled with varying degrees of

incapacitation. Education Needs involve and include activities that require 'doing'. writing, playing, drawing, painting, knitting and even dancing are some such activities. How can a child with weak/missing limb move from one place to another? Use of stretchers and wheel chair improves the mobility besides boosting the confidence. Have you ever seen a child with a missing hand? Such children have been known to make beautiful paintings by foot/mouth. The environment of these children can be specially designed to promote education and learning among them.

4. Children with language disorder :

When a person is unable to produce speech sounds correctly or fluently, or has problems with his or her voice, then he or she has a speech disorder. Difficulties pronouncing sounds, or articulation disorders, and stuttering are examples of speech disorders. When a person has trouble understanding others (receptive language), or sharing thoughts, ideas, and feelings completely (expressive language), then he or she has a language disorder. A stroke can result in aphasia, or a language disorder. Problems with receptive language skills usually begin before age 4. Some mixed language disorders are caused by a brain injury. These conditions are sometimes misdiagnosed as developmental disorders. Language disorders may occur in children with other developmental problems, autism spectrum disorder, hearing loss, and learning disabilities. A language disorder may also be caused by damage to the central nervous system,



Fig. 8.3 : Crippled Children

which is called aphasia. Speech and language therapy is the best approach to treating this type of language disorder. Counseling, such as talk therapy, is also recommended because of the possibility of related emotional or behavioral problems.

5. Weak children :

Weak children are physically lean thin and nutritionally very feeble. Their work efficiency is very low. Child become weak due to deficiency of nutrients for this period or chronic diseases persist for longer intervals or any physical defect due to congenital diseases. Inefficiency level increases in the absence of proper caring. Such kind of children should not be indulged in exostive sports and other activities. Proper rest be advised inbetween of study hours.

II Children with mental disorder :

Mental retardation is an intellectual disability that appears in children at a tender age. Such children posses a lower-than average intelligence, cognitive ability and social skills. Mentally retarded children suffer from poor impulse control and react to simple situations aggressively. Due to the poor IQ levels, such children are easily agitated and frustrated by complex life events. They may master very basic self-care skills and some communication skills. The symptoms of mental retardation include delays in oral language development, deficits in memory skills, difficulty learning social roles, difficulty with problems solving skills, decreased learning ability or an inability to meet education demands at school, failure to achieve the markers of intellectual development and a lack of social inhibition.

1. **Mental disorder :** Many different systems for organizing the causes of mental retardation can be applied. Sometimes they are divided into four groups: socioeconomic and environmental factors, injuries, infections and toxins, and biological causes. AAMR divide them instead into three groups by time of onset—that is, by when the event or cause first occurred
2. **Mentally retarded :** While signs of mild retardation (i.e., those with IQs of about 52 to 79) may include a lack of curiosity and quiet behavior, signs of severe mental retardation (i.e.,

those with IQs of about 20 to 35) may include infant-like behavior throughout the patient's life, and those with profound mental retardation (i.e., IQs of 19 or below) are likely to have limited motor and communication skills and require lifelong nursing care.

Characteristics of mentally retarded children :

- Delays in reaching or failure to achieve milestones in motor skills development (sitting, crawling, walking)
- Slowness learning to talk or continued difficulties with speech and language skills after starting to talk
- Difficulty with self-help and self-care skills (e.g., getting dressed, washing, and feeding themselves)
- Poor planning or problem solving abilities
- Behavioral and social problems
- Failure to grow intellectually or continued infant-like behavior
- Problems keeping up in school
- Failure to adapt or adjust to new situations
- Difficulty understanding and following social rules
- Some students with mental retardation exhibit an apparent lack of interest in learning or problem-solving tasks
- Students with disabilities, especially those with mental retardation, often have trouble using their new knowledge and skills in settings or situations that differ from the context in which they first learned those skills.
- Students with mental retardation often have trouble attending to relevant features of a learning task and instead may focus on distracting irrelevant stimuli. In addition, individuals with mental retardation often have difficulty sustaining attention to learning tasks.
- The rate at which individuals with mental retardation acquire new knowledge and skills is well below that of typically developing children. Intellectual disability can be distinguished in

many ways from mental illness, such as schizophrenia or depression. Currently, there is no "cure" for an established disability, though with appropriate support and teaching, most individuals can learn to do many things. There are thousands of agencies around the world that provide assistance for people with developmental disabilities. They include state-run, for-profit, and non-profit, privately run agencies. Within one agency there could be departments that include fully staffed residential homes, day rehabilitation programs that approximate schools, workshops wherein people with disabilities can obtain jobs, programs that assist people with developmental disabilities in obtaining jobs in the community, programs that provide support for people with developmental disabilities who have their own apartments, programs that assist them with raising their children, and many more. There are also many agencies and programs for parents of children with developmental disabilities. Beyond that, there are specific programs that people with developmental disabilities can take part in wherein they learn basic life skills. These "goals" may take a much longer amount of time for them to accomplish, but the ultimate goal is independence. This may be anything from independence in tooth brushing to an independent residence. People with developmental disabilities learn throughout their lives and can obtain many new skills even late in life with the help of their families, caregivers, clinicians and the people who coordinate the efforts of all of these people.

III. Gifted children :

Gifted children are, by definition, "Children who give evidence of high performance capability in areas such as intellectual, creative, artistic, leadership capacity, or specific academic fields, and who require services or activities not ordinarily provided by the school in order to fully develop such capabilities." here are some common characteristics the gifted child may possess. The gifted child may be:

- Self-disciplined, independent, often anti-authoritarian.
- Good sense of humor.
- Able to resist group pressure, a strategy that is developed early

- More adaptable and more adventurous
- Greater tolerance for ambiguity and discomfort
- Little tolerance for boredom
- Preference for complexity, asymmetry, open-endedness
- High in divergent thinking ability
- High in memory, good attention to detail

The main approaches to gifted education are enrichment and acceleration. An enrichment program teaches additional, related material, but keeps the student progressing through the curriculum at the same rate. For example, after the gifted students have completed the normal work in the curriculum, an enrichment program might provide them with additional details about a subject in the curriculum. An acceleration program advances the student through the standard curriculum faster than normal. When gifted students have completed the normal work, they move on to the next subject in the curriculum, even though the rest of the class is still working on the first subject.

IV. Delinquent children :

Juvenile delinquency, also known as “juvenile offending”, is participation in illegal behavior by minors (juveniles, i.e. individuals younger than the statutory age of majority). Most legal systems prescribe specific procedures for dealing with juveniles, such as juvenile detention centers, and courts. Individual psychological or behavioural risk factors that may make offending more likely include low intelligence, impulsiveness or the inability to delay gratification, aggression, lack of empathy, and restlessness.

Family factors that may have an influence on offending include: the level of parental supervision, the way parents discipline a child, particularly harsh punishment, parental conflict or separation, criminal parents or siblings, parental abuse or neglect, and the quality of the parent-child relationship.

V. Problematic children :

Every child has to adjust in his or her environment for the survival. They become problematic when they fail to do so. If their wishes are not fulfilled, not guided properly by family and society,

lack of love, over control and ignorance creates problem in child. Behavioral disorders refers to a category of mental disorders that are characterized by persistent or repetitive behaviors that are uncommon among children of the same age, inappropriate, and disrupt others and activities around the child. Some Common behavior problems of children’s are :

- (1) Thumb sucking
- (2) Nail Biting
- (3) Bed wetting
- (4) Lying
- (5) Stealing
- (6) Stuttering
- (7) Day Dreaming
- (8) Fearful
- (9) Destructive children
- (10) Jealous
- (11) Angry child

If parents, teachers and other people solve the problem of children with proper guidance from the beginning their behavior can be normal in less time.

Important points :

1. In children physical, mental, social and other difference are found due to the abnormalities in heredity and environment.
2. Children who have appropriate quality trait according to the norms are known as normal children whereas children with inappropriate quality traits are known as abnormal or exceptional children.
3. There are different types of normal children . Abnormality can be intellectual, physical, social behavior, adjustment, emotional language etc in one or more area.
4. Physical disability can be from birth or accidental or dangerous disease. Due to these disabilities their growth, development and learning abilities can not be normal.
5. Physical abnormalities such as webbed fingers, hunch back, sixth finger/toe, malformed ear, harelip, cleft palates, face and body birth marks.

With proper education and guidance abnormal person can also be a useful person for society.

6. Mental retardation is an intellectual disability that appears in children at a tender age. Such children possess a lower-than average intelligence, cognitive ability and social skills. Mentally retarded children suffer from poor impulse control and react to simple situations aggressively.
7. Mental disability can be due to heredity, birth issues, long term malnutrition, or an accident.
8. Mentally disabled are unable to work or help themselves. They are cared and secured as small children.
9. Physical and mentally disabled children should be treated as socially useful person.
10. Children with the IQ of more than 130-140 are known as genius children.
11. If parents, teachers and other people solve the problem of children with proper guidance from the beginning their behavior can be normal in less time.

Questions :

1. Choose the correct answer for the following questions :
 - (i) Children with inappropriate quality traits are known as :
(a) Normal children (b) Crippled children
(c) Abnormal children (d) Mentally disabled
 - (ii) Physical disability can be due to
(a) Adventitious (b) Accidental
(c) Due to disease (d) All of above
 - (iii) Educating the mentally disabled children priority should be given to:
(a) Mental activities (b) Physical activities
(c) Stress (d) None of above
 - (iii) Children deprived in mental abilities are known as :
(a) Weak (b) Strong
(c) Brave (d) Mentally challenged

- (v) IQ of mentally challenged children is below.
(a) 70-75 (b) 90-95
(c) 95-100 (d) 105-110
2. Fill in the blanks :
 - (i) By proper..... and abnormal children can be socially useful member.
 - (ii) Blind children can be given..... education in the school.
 - (iii) Children who are unable to hear and speak are known as.....
 - (iv) Due to malnutrition, long term disease or physical defect children can be.....
 - (v) Mentally challenged children are..... to help themselves and others.
 - (vi) To develop interest in mentally challenged person and..... education should be given.
 - (vii) IQ of genius children is more than.....
3. Define exceptional children.
4. Comment on :
 - (a) Problematic child
 - (b) Delinquent child
 - (c) Genius child
5. Write down the causes of physical and mental disability.
6. How does a mentally challenged child can be socially useful person. Explain with example.
7. There is a cripple child in your neighborhood. How will you behave with him. Discuss it in class with help of teacher.

Answers :

1. (i) c (ii) d (iii) b (iv) d (v) a
2. (i) Education, training (ii) Braille
(iii) deaf and dumb (iv) weak
(v) unable (vi) music, drawing
(vii) 130-140

UNIT II - FOOD AND NUTRITION

9. MEAL PLANNING

In previous class you have read that human eat food not just to quench hunger but also for keeping body healthy, to provide energy, to maintain her work capacity, physical growth and to move body in proper way. This work could be done in proper way only when all nutrients are present according to our physical state and work capacity. All individual have different age, sex, stage and work capacity in a family, hence there nutrient requirement is also different. Meal planning is important in order to fulfill nutrient needs of all family member.

Meal planning is art as well as science to prepare food in different ways and presented in attractive way, with aroma and taste increases the hunger pangs and palatability. While on other hand inclusion of all food groups according to the requirement of the family members is a mental process. Meal planning is not mere the planning list on paper, it also includes purchase, cooking, storage and serving. Meal planning is to provide food according to nutrient requirement of family member.

In other words inclusion of nutrients rich food according to the requirement of each family member is known as meal planning, means each member in the family should get balanced diet is meal planning.

Importance of meal planning : Planning a successful diet is very important with some vision, it does supply well to the nutritional needs of all the members of the family, as well as, according to their interest. Apart from making food differently, it is also a means of providing nutritious food at a low cost. House wife can save his time, money and energy through meal planning. Preplanning i.e. before 3-4

days makes easily to know which food item has to be purchased and which is already present in kitchen. It also helps in storage of food, food available according to season and food obtained from home itself. It also helps in utilizing left over foods. In brief meal planning is to provide food which is nutritious, tasty, according to interest in aroma, colour and taste is incorporated.

Need for meal planning : In a family, there are individual with different age, sex and work capacity. For example infants, school going children, college going adolescent, male working in office and female working in house and office and old age male and female. There nutrient requirement is different according to their physical and work state capacity. If in a family, individual who is hard worker i. e. working in farm, laborers, require food which provide more energy (like cereals oil seeds gur etc.). Individuals with sedentary workers for example office worker and college going or who are involved in mental work require less energy. These individuals have more stressful life hence, they require more fruits and vegetable. Growing children, adolescent, pregnant and lactating woman require energy, protein, vitamins and mineral rich food. Old age people require less energy and more vitamins & mineral rich food because their physical activity is very less. Meal planning is also affected by like, dislike, climate, availability of food, time, energy and cost of food stuffs. For example children relish sweet in contrast to adolescent which like spicy foods, according to climate we like cold in summers while hot and spicy in winters. Fruits are also liked in season as they are tasty and cheaper in season.

Principle of meal planning :

1. Nutritional requirement : Most important point is to take care of nutritional requirement of all family members. Individuals require nutrients according to their age, sex, physical state and work. House wife should choose different nutrients from food groups so that balanced diet is provided to whole family.

It is very difficult to prepare, different food to each members of family. Using food groups by adding or reducing some nutrients in one food can prepare balance diet for each member of the family for i.e. for children can be given milk, curd, butter milk, ghee custard, paneer, cheese instead of milk only to fulfill their nutritional requirement. Adolescent like spicy foods hence stuffed paranthas can be given inspite of plain dal and vegetable.

2. Variety : There should be variety in food interms of colour, aromo, texture and shape. Consumption of one type of food daily reduces interest in food and this type of food does not provide satisfaction. Variety can be brought in many ways :

- Choose food items from each food group for eg for making chapaties wheat flour can be replaced with corn, barley, bajra or mix atta.
- We can add variety in food by using different cooking methods for example : boling, frying and roasting.
- Variety can be added by changing consistency of food for example : liquid, semi-solid and solid.
- Food variety can be created by altering shape and size of food items for example by cutting, different colour of fruit and vegetables into various shape and sizes.

3. Satiety : Meal should be planned in such a way that it gives satiety to our hunger. Food should contain protein, fat and roughages so that it gives satiety. Breakfast should be taken heavy so that hunger pangs cannot be experienced till lunch i.e. if we take bread or biscuit with tea in breakfast than we feel hungry very easily while if we take parantha with milk then satiety is maintained up to lunch.

4. Meal time : Meal should be planned in such a way that interval between the meals is also considered. Normally we take meal 2-4 times. Breakfast, midmeal, lunch and dinner. Laboures eat food only 2 times. Children take meal 5-6 times in a day because children cannot take much food at a time. This principle can also be taken care while planning meal.

5. Consider whole day as one unit : Meal should be planned from breakfast to dinner so that food item could be included in whole days meal for example cereals to be taken in whole day. In breakfast- bread, upma, poha. In lunch- chappati, puri, rice. In dinner inner-parantha, bati, halwa and kheer.

Considering whole day as unit to fulfill requirement of all nutrients required in a day by family member. Mental process of meal planning should be done once in a day to provide balanced diet to whole family.

6. Time : There is also one factor in meal planning that working women manage their daily work by doing pre-processing of food at night i.e. cutting vegetable, rolling dough for chappti and putting it into fridge. This saves time with planning meal together.

7. Acceptability of food : Acceptability of cooked and prepared food is also one of the principle of meal planning. If balanced, tasty and palatable food is not acceptable by the family than it is waste of time and energy.

Hence it is important to know likes and dislikes of family members while planning meal. Children do not like dal vegetables hence it should be rolled in dough to make parantha. Amount of food served at a time should be neither less nor more for eg one chappati and half bowl vegetable or four chappati and two bowl dal served in lunch is not acceptable. Food will not give satiety to your hunger if it is served very less while appropriate quantity of food reduce hunger hence amount of food should also be taken care during meal planning.

8. Cooking method : As we have read that meal planning is not mere the planning. It includes

purchase, storage, cooking and saving while meal planning on paper. Cooking methods should also be considered while plan meal. For eg we have planned to make rice in lunch, if we remove water from cooked rice, it will reduce nutrients from rice. In the same way removal of excess water from dal, vegetable or over cooking reduce the nutrients. There are many factors which affect meal planning. These are as follows :

Factors affecting meal planning :

1. **Age and physical status :** Age and physical state affect meal planning. Nutrient requirement is different in physical state and stage. For example requirement of nutrients increased in pregnancy and lactation. In the same way nutritional requirement of all nutrients increased in diseased person according to its disease condition. Growing children require more energy and protein as compared to adult and old.
2. **Sex :** Normal body built of man is varied as compared to female in their body composition. Man have muscular body and less deposition of fat and cholesterol. Hence they require more energy giving food like cereal, jaggery, sugar, fats & oil. In contrast females have more fat hence they should be given less fat and more protein rich foods.
3. **Climate and weather :** People living in colder region require more energy and protein as compared to hot region so that they can maintain their body temperature.
4. **Physical activity :** Requirement of nutrient change according to physical activity for eg laboures require more energy as compared to sedentary worker so that he can perform his activity properly.
5. **Income :** Major part of income in every family spend on food. Expenditure on food decrease as income increase. Its believed in today's scenario that people of high income groups expend more money on nutritious food if they using principles of meal planning. Balance food can be served to low income groups whose economic status is not good by following way :

- (i) Costly foods like milk, egg, meat, fish, paneer, almond, cashew can be replaced by dal and groundnut
- (ii) Seasonal fruits and vegetable should be chosen.
- (iii) Left over can be used by changing its form - left over dal can be used in making parantha, left over vegetable can be used to prepare pullav or khichdi.
- (iv) Nutritious food can be prepared by replacing combination of low cost food like - spinach, gramflour, potato and oil. Hence balanced diet can be prepared by using principle of meal planning.

6. **Availability of food stuffs :** Seasonal vegetables and fruits are easily available at low cost. It can be preserved if we want take use of off season fruits and vegetable. All food stuff are not available everywhere, example wheat is cheap in North India while rice in south. That's why meal should be planned according to availability.
7. **Likes and dislike of members :** Considering all the members living in the house, it is a difficult task to consume food items, but if the food is prepared in different ways, for eg bottle gourd is not liked by everyone but if koftas are made out of it then everyone can eat with interest. Many times we want our child drink milk but children do not drink milk. Parents should not forced children to drink milk. In place of milk custard, curd, cheese, ice cream, etc., ca be prepare which he likes very much. It is important factor in meal planning.
8. **Family customs, tradition and culture :** Each family has its own custom and tradition. Meal should not be planned other than their tradition. Suppose, a family has a tradition of 2 meal pattern than we cannot change it by 4 (breakfast, lunch, mid meal and dinner). Change should be made gradual. Meal planned in festivals, birthday, marriage are different from regular meal planning. Meal should be according to occasion like in holi and diwali, sweets should

be prepared. On makarsakranti gingelly seed should be used in food, sevia on eid and cake on christmas.

9. **Working women :** It is always a pressure on working women that they do not plan balanced food for their family due to dual responsibility. Its not always true. They spare time to make preparation for next day either by taking ready to eat or ready to cook foods for eg ground spices, sauce, jam are used for making preserved vegetables and fruits. Reduces time and energy by using equipment for eg by cooking dal, rice and vegetable by using separate containers, by peeling peas, and other vegetables while watching TV. They can also plan meal for whole week so that they do not have to ponder daily.

Nutrition education : This is very important point because if she is not having general knowledge of food and nutrient thus she will not be able to plan meal.

On this basis of above principles and factors, meal planning will be practical and containing variety. Meal planning have many benefits.

Important Points :

1. Food available according to the nutrition requirements of the family.
2. Meal planning can prepare food nutritious, tasty, palatable and contain, different colour, aroma and taste.
3. Meal planning principle are- nutrient requirement of family, variety in food, satiety, time of meal, whole day as unit, acceptability of food, appropriate cooking method.
4. Meal planning is affected by age, physical activity, sex, climate, season, income, availability of food, like and dislike of family, traditions and customs working women and nutrition education.

5. Requirement of whole family can be nutritionally fulfilled through meal planning.

Questions :

1. Choose correct answers for the following questions :
 - (i) Meal planning is most important for :
(a) Pregnant (b) Lactating
(c) Children (d) All the groups
 - (ii) Most important person in meal planning is :
(a) Shop keeper (b) Neighbor
(c) Infant (d) House wife
 - (iii) Nutritional requirement of all family is :
(a) Similar (b) Equal
(c) Different (d) Extra
2. Fill in the blanks :
 - (i) diet can be prepared from low cost seasonal food.
 - (ii) Including different nutritional food according to the need of family is known as
 - (iii) Physical, mental state and age are the main which influences meal planning.
3. Factors affecting meal planning. Explain.
4. Explain any two principles of meal planning.
5. Write the importance of meal planning in following points
 - (a) Variety
 - (b) Nutritional education
 - (c) Working women
 - (d) Income of family.

Answers :

1. (i) d (ii) d (iii) c
2. (i) balanced diet (ii) meal planning
(iii) factors

10. PROCESS OF MEAL PLANNING

In the last chapter, you read about the significance principle and the factors influencing the diet, the process of planning the diet at home is done at some level by every housewife. Some housewives buy fruit vegetables for a week in advance, dry ration collects for a month, they think about the meals from morning to evening for next day. In this chapter, we will discuss about the practical process of balanced diet plan for the family. Its principles and influencing factors should be kept in mind before planning a diet to reconsider these points briefly :

- (i) All the nutrients are met by the daily needs of all the members of the family by planning a diet.
- (ii) Diet plan should be done by considering the entire day as a unit i.e. planning of different diets for the whole day.
- (iii) Diet planning can save a lot of time and energy of the housewife and should be according to interest of family members.
- (iv) 3 to 4 meals are planned primarily in one day but according to the needs and habits of the individual and family members. The number of meals given in the day can be reduced or increased.
- (v) There should be a gap of at least 2 to 3 hours between each meal and the time of the first meal should be taken from 7:00 am to 8:00 - 9:00pm.
- (vi) Diverse food preparation should be done throughout the day by selecting different age groups. Quantity of food items should be considered with the nutritional requirements of the members.
- (vii) It is necessary not only to achieve balanced and nutritious diet while feeding, but the food should be attractive, tasteful and digestible, in which the person can achieve complete fulfillment and satisfaction.

How to plan a diet?

Some practical things are essential before planning a diet if you observe the process of making and serving food in two or three houses, you will see that :

- (i) The method of taking raw food items to make food is different from each house Quantity of food items such as dry lentils or rice etc. are also measured in similar way. Each housewife has its own measurement, some of take flour by handful while others use cup or glass or bowl.
- (ii) Chapatti size varies house to house, some use thin while other make thick. Likewise, some prepared thick dal while others thin. In making curry vegetables, ingredients used for it may be different and vary in cooking methods.
- (iii) There are also different utensils, such as glasses/ bowl/spoons, which are served in the houses, food served in the big bowl to the older members, while the small children are served in small bowls.

On the basis of above observation, you will find that if we prepare a diet plan in the common manner such as two chapatti, one bowl of pulse, half cup raita, one plate rice, half bowl vegetable etc, then the quantity of food items eaten by two families will be different for the members, because the utensils or units

used in the service of serving food are different for measuring the food items in the family. The amount of nutrients received from these will also not be appropriate for different members or different families. For example, if two housewife prepare chapatti, then

flour quantity may be different. The quantity will be different, if the housewife planned a diet on the basis of the number of chapatti, the amount of dough used for the same number of chapatti is used different. Similarly, other food items can also vary from family to family.

Table 10.1 : Reference unit of raw food for planning a diet

Food Ingredients	Reference unit (gm)	Food Ingredients	Reference unit (gm)
Grains	30	Green Vegetables	100
Pulses	30	Other vegetables	100
Egg	50	Fruits	100
Meat/Fish	50	Sugar	5
Milk	100	Butter/oil	5
Tuber	100		

A normal size and thickness of chapatti is made of 30 grams of flour, which is neither too small nor too big, nor is it thin or thick, 30 grams of dal fills with a medium sized bowl may satisfy for a normal person. The weight of a normal egg and medium sized fruit is

approximately 50 grams & 100grams, respectively. Similarly, non-vegetarian dishes such as meat fish etc., at least 50 grams of raw food is required. In this way, for any type of vegetable served to a normal adult, at least 100 grams of raw vegetable is required.

Table 10.2 : Balance diet for girls (13-18 Years; NIN - 2010)

Eating Unit	Reference Unit (gm)	Consumption unit		Total Amount	
		13-15yrs	16-18yrs	13-15yrs	16-18yrs
Grains	30	11	11	330	330
Pulses	30	2	2.5	60	75
Milk	100	5	5	500	500
Tuber	100	1	2	100	200
Green Vegetables	100	1	1	100	100
Other vegetables	100	2	2	200	200
Fruits	100	1	1	100	100
Sugar	5	5	5	25	25
Butter/oil	5	8	7	40	35

Note : Non vegetarian person can use 50 gm of egg/meat/fish in place of 30 gm dal/day

We can not change the utensil to be used at home for serving and cooking, therefore it is necessary that in order to estimate the quantity given in the reference unit, choose any utensil available in the house and to measure the quantity of different types of food items to be filled in it. We can use measuring spoon or set of glasses or weighing balance to measure the quantity of food.

Now, as an example, we will see that how many reference units of different food items should be included in a teenager so that the diet can be balanced. In the table, 10.2 (13 to 18 year old teenager), the

required variety of various items, unit and total quantity is given. This quantity of food items has been proposed by the National Institute of Nutrition, Hyderabad. It shows that you should use different units of different food groups throughout the day to take a balanced diet, as per our food related habits and the time of the meal. We should use different units of different food groups throughout the day. To help you, for example, a teenager whose age is 17 to 18 years student of class 12th and stays in school upto 2:00 pm daily from 8:00 am is being given a day diet plan table no. 10.3

Table 10.3 Meal planning for girls

Time	Food Item	Quantity	Food Groups	Unit
Breakfast 7-7:30 am	Milk	1 glass	Milk	2
	Toast	2 Bread	Grain	2
	Cereals	1½ Plate	Sugar	1
	Idli/Dosa	2	Butter	1
School Tiffin	Cereals	1½ plate	Grain	1½
	Idli/dosa	2	Oil	½
			Root vegetable	½
			peanut	½
Lunch 2-2:30 pm	Chapatti/rice	2/1 spoon	Grain	3
	Lentils spinach	1 bowl	Butter	1
	Vegetable curd	¾ bowl	Lentils	1
			Green veg.	½
			Oil	½
			Milk	½
Snacks 5-6 pm	Tea	1 cup	Milk	½
	Biscuit	4	Sugar	1
	Fruits	1	Grains	1
			Oil	2
			Fruits	1
Dinner 8-9 pm	Chapatti	3	Grain	3
	Rice	½ plate	Butter	1
	Beans	1 bowl	Grain	1
	Cabbage/potato	1 bowl	Lentils	1
			Root veg.	½
			Oil	½
			Cabbage	1
			Potato	½
			Oil	½
Before sleeping	Milk	1 glass	Milk	2
			Sugar	2

Table 10.4 Total units of food items

Food groups	Breakfast	tiffin	lunch	snacks	dinner	Before bed	Total
Grains	1	1.5	3	1	3+1	-	10½
Lentils		½	1	-	1	-	2½
Milk	2	-	½	½	-	2	5
Root veg.	-	½	-	-	½+½	-	1½
Green veg	-	-	½	-	1	-	1½
Other veg.	-	-	½+¼	-	-	-	¾
Fruits	-	-	-	1	-	-	1
Sugar	2	-	-	1	-	2	5
Oil/butter	1	½	1+½	2	1+½+½	-	7

You saw in the table above :

- (i) We distribute the total amount of essential nutrients for a balanced diet of a teenager on the basis of unit number for various reasons throughout the day.
- (ii) This diet plan is sample for one day only, you can make changes in the selection of the food items and the recipes made for daily consumption. But keep in mind that the total amount of quantity of food items should be supplied by various food items. Regarding the substances you have read in detail in class XI, for example, grains like wheat rice maize millet etc., gram mung bean etc. from dal family is consumed.
- (iii) Parathas can be made from various food items such as cereals, grains of cereal, etc. Instead of biscuits, in the breakfast, Poha, Semolina, oatmeal or idli dosa can be used. Other dishes of dal instead of plain dal like dry pulses, kadi, pakora, kachori and pudding can also be eaten.
- (iv) The nutrition may vary as per age, body stature, physiological state and activities. A small height 14 years old girl having thin body with less active require less nutrition than a girl of 16-18 years with highly active. The only change made in the energy content of food by reducing ghee/oil and sugar, no need to make changes in protective food like fruits, vegetables, milk, pulses etc.
- (v) In addition to the personal diet and dietary habits of the teenager, the quantity of food consumed in the food can be reduced or more, but this change should also be done in the energy consumed foods, not in other food items.
- (vi) There should be flexibility in the daily diet plan of the teenager, for example, instead of 10 units of grains, 8 to 9 units can be consumed from 11 to 12 units on one day, and in the same way, green leafy vegetables can not eat at all. Some day can be given only 2 times, but such a change should not be for long. Consumption of sweets for longer period will lead to obesity. Protective food items such as pulses, fruit and a vegetables. Physical growth should not reduce as they may increase the chances of blockage or disease.
- (vii) We can plan a balanced diet in low income by selecting cheap and available food items instead of the included food items in the above diet, for example gram dal can be selected instead of rajma.

Advantage of planning diet with reference unit :

- (i) With the help of reference unit, not only students, but also a less educated housewife can easily plan a balanced diet.
- (ii) The diet can easily be balanced according to the financial condition.
- (iii) Various types of food items are included under the food group, the age of all the members of the family, depending on the demand of nutritious on the basis of sexual orientation, etc., can be used to make the food balanced by easily selecting food items.
- (iv) Balanced diet can be plan with taking food items, or measuring the quantity of different food items which are filled in any vessel available in the house.
- (v) Do not include the baby upto 1 year in the consumer unit

In this way you have seen that with the help of consumption units you can plan a balanced diet for yourself. With the consumption of balanced diet, you will be healthy and will be able to do creative work for your society and nation. You will study in next chapter about nutrition requirement for different age group, income group, activities and physiological conditions. Nutritional requirements are based on changes in body as well as specific characteristic of group. Therefore, all points are included in the chapter so that student can plan diet as per specific requirement of individual.

Important Points :

1. Diet is planed at some level in every home by the housewives, but it is not necessary that it is balanced diet.
2. Food should be plan with considering the principles of diet and influencing factors.
3. The measurement of the utensils used in the home to prepare food vary in size of raw foods.
4. To measure the various food items, the housewife can choose one of the utensils available in the house and the can be measure with the glass to estimate the food items to be filled in it.

5. She should use reference unit to plan a balanced diet for herself and her family according to need and limited resources.
6. The reference unit is the amount of food that is called its quantity which should be prepared for the food based on that food item.
7. With the help of the reference unit, students can plan a balanced diet according to the family members, including various types of food items.

Questions :

1. Choose the correct answers for the following question :
 - (i) The least amount of food that we need to make the food based on :
(a) Food groups (b) Foods
(c) Reference units (d) Measurements
 - (ii) Reference unit of green leafy vegetables is :
(a) 50gm (b) 200gm
(c) 100gm (d) None of above
 - (iii) Teenage girls of the family drink a glass of milk every day :
(a) Unequal (b) Definite
(c) Equal (d) None of above
2. Fill in the blanks :
 - (i) Diet should be planned by considering of the whole day
 - (ii) To diversify the diet, various food items should be included with the choice
 - (iii) To plan a balanced diet for our family, we should use
 - (iv) By selecting cheap and available food items,we can organize a balanced diet in low
3. What is the reference unit and what is the importance of planning diet?
4. How to plan your home diet as a skilled housewife. Explain.

Answers :

1. (i) c (ii) b (iii) a
2. (i) Activities (ii) Individual
(iii) food groups (iv) Income

11. NUTRITION DURING INFANCY

Period until 1 year after child birth is called period of infancy. He is called a newborn for the first 30 days of birth and subsequently infant. It is the second important stage of development after pregnancy, in which speed of growth and development is intense. There are mainly three stages in the lifetime of each individual, which show the highest physical and mental growth. These stages are of pre-natal, infancy and early adolescence.

According to the physical growth and development during the infancy, the birth weight of a healthy baby is up to 3.2 kg. Birth weight depends on the nutritional status of the mother during pregnancy. The weight of the child becomes twice the birth weight in six months and is tripled in 1 year. The length of a healthy infant is between 50 to 55 cm at birth, which is increased by 23 to 25 cm by the time one year is completed. According to the changes in the length of the baby, the proportion of the body of the baby also changes which indicates the proper growth and development of the infant.

The amount of water in the body at the time of birth of the baby is 75 percent and 12 to 15 percent fat found. The amount of water in the body of the baby decreases to 60 percent and the amount of fat increases to 24 percent by the end of the 1st year. The development of the baby's muscles is completed by the end of 1 year. Development of brain is 90% completed during infancy and there is maximum increase in the circumference of the head. The ratio of chest and head circumference at birth is less than 1 and at the completion of infancy is increased to more than one indicates the proper growth and development

of the infant. The heart rate of the newborn is maximum 120 to 140 per minute. The amount of haemoglobin in the blood of the baby is 17 to 20 grams per 100 ml at the time of birth. The red blood corpuscles of the baby breaks quickly and within 2 months the haemoglobin level falls to 12 grams per 100 ml, but the haemoglobin which is released from the breakdown of red blood cells is re-used to make new blood corpuscles. As the growth and development of baby occurs and the volume of blood fluid in the body increases, the level of the haemoglobin decreases. The food pipe of the infant is not fully matured. Newborn's food pipe is able to digest only mother's milk protein, emulsified fat and simple carbohydrates. Secretion of enzymes for digestion of these nutrients starts in just a few months. Neonatal excretory system and kidneys are immature. Their kidneys can not filter more saline blood and can not even concentrate urine, but with the end of infancy period, kidneys of infant begin to work like adults.

Nutrient requirements in infancy :

In infancy the nutritional status is affected by three factors :

1. Nutritional status of the mother during pregnancy and lactation
2. Adequacy of breastfeeding or upper milk (formula or from cow, goat and buffalo etc.) and supplementary meal
3. Congenital characteristics received from parents, for example the children of short height parents are more likely to be small and children of obese parents will be more likely to be obese in future.

Energy :

Researches show that the need for energy per unit body weight is maximum as compared to the adults. The requirement of energy is 92 Kcal/kg in the first 6 months after birth of body weight, which is reduced after six months to 80 Kcal/kg of body weight. The rate of increase in infant weight is highest

in the first 6 months, which gradually decreases after 6 months. Infant receives this energy from the protein, fat and carbohydrate present in the mother's milk and supplementary diet .

The need for protein is more than a normal person in infancy. The requirement for protein is 1.16 gm per kg in first 6 months and 1.69 gm per kg in 6-12 months for the growth of the body.

Table 11.1 : Nutritional requirement during infancy

Nutrients	Age of infant	
	0-6 month	6-12 months
Energy (Kcal/Kg)	92	80
Protein (gm/Kg.)	1.16	1.69
Visible fat (gm)	-	19
Calcium (mg.)	500	500
Iron (mg.)	46	5
Zinc (mg.)	-	-
Magnesium (mg.)	30	45
Retinal (mg.)	350	350
B-carotene (mg.)	-	2800
Thiamin (mg.)	0.2	0.3
Riboflavin (mg.)	0.3	0.4
Niacin (mg.)	710	650
Vitamin B (mg.)	0.1	0.4
Vitamin C (mg.)	25	25
Folate (mg)	25	25
Vitamin B (mg.)	0.2	0.2

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The body weight of infants is increased due to all over growth of muscles, development of brain, and growth in width and length of bones.

Fat : The infant gets sufficient fat from the mother's milk. The infant needs linoleic acid for best nutrition, that is available in simple amounts in mother's milk. Their growth and development get affected and white spots appear on body if the fatty acids are not available in sufficient amount.

Minerals : The infant needs mainly calcium, phosphorus, iron and magnesium. The calcium and phosphorus helps in formation of bone and teeth, while

iron helps in formation of haemoglobin in blood. Requirement of all other minerals is fulfilled by mother's milk except iron.

Vitamins : All types of vitamins are present in mother's and animal's milk. The infant get all the needful vitamins from mother's milk.

Vitamins-A : The mother's milk has sufficient amount of vitamin-A. Vitamin-D is important for the absorption of calcium and phosphorus. Though it is found in mother's and cow's milk, but milk cannot fulfill the necessity of vitamin-D for infants. That's why it is necessary to provide vitamin-D externally to the infant.

Vitamin C : The infant fulfills the requirement of vitamin-C from mother’s milk, but after the age of 6 months drops of vitamin-C are given to fulfill the requirements.

Vitamin B : It is present in good amount in mother’s and cow’s milk. Therefore, the need of Vitamin- B group gets fulfilled by mother’s milk. But the infants whose mothers are weak or who are born weak, need extra B group vitamins.

Diet management : According to the nutritional needs of infants, the dietary management is divided into 2 parts – i.e. 0-6 months and 6-12 months.

(a) 0-6 months : The mother’s milk is very beneficial for a new born. No other product is comparable to mother’s milk. The infant at this time should be kept only on breast feeding and no other food item should be given., such as the cows milk, honey, juice, water etc.

Colostrum : The first light yellow thick milk secreted from the breasts of mother after the birth of infant should be given to him. It is a alkaline fluid that have sufficient protein, immunity boosters, which protect the infant from many infections. This is called khees or colostrum. The secretion of colostrum from mother’s breast is approx 10-40 ml during first 2-3

days, and afterwards converts into white , thin milk and within 10 days secretion of completely matured milk starts.

The colostrum should not be discarded considering it as dirty milk. It should be definitely given to the infant. Colostrum is rich in protein, but contain less fat as compared to matured milk. It also contain a good amount of vitamin A & K. The amount of Zinc is 20 mg in colostrum, while in matured milk it is 2.6 mg/l. The nutritive value of Colostrum is given in table 11.2

Colostrum is completely digestible by the immature elementary canal and is also helpful in excretion of first faeces. The composition and amount of secreted matured milk is also according to the nutritional requirements and acceptability of the infant.

Table – 11.2 Nutritive value of Colostrum

Nutrition	Amount
Energy (Keal)	58
Fat (gm)	2.9
Calcium (mg)	31
Phosphorus (mg)	14
Iron (mg)	0.09
Protein (gm)	27
Lactose (gm)	5.3

Table 11.3 : Composition of different types of milk/100 ml

Nutrients	Human	Cow	Buffalo
Water (gm)	88	87.5	81
Energy (kcal)	65	67	117
Protein (gm)	1.1	3.2	4.3
Carbose (gm)	7.4	4.4	5
Fat (gm)	3.4	4.1	6.5
Calcium (mg)	28	120	210
Phosphorus (mg)	11	90	130
Iron (mg)	-	0.2	0.2
Carotene (ug)	137	174	160
Thiamin (mg)	0.02	0.05	0.04
Riboflavin (mg)	0.02	0.19	0.1
Vitamin-C (mg)			
Caseinogen and lactalbumin	1.2	3.1	-

Breastfeeding and Composition of Breast Milk :

The mother's milk is the best milk. It is equivalent to amrit or elixir for infant. The digestive organs are immature in the initial months of infancy, they can only digest the mother's milk easily and no other food. That is why breast feed is the best option for infants.

Mother's milk is thin during the initial stage, but as the infant's digestive organs get matured, milk also become thicker. The infants of the mothers who do not breast feed are usually weak and fall ill easily. Table 11.3 compares the composition of milk with human, cow's and buffalo's milk, that are generally given in the absence of breast milk.

Benefits of Breastfeeding :

1. The mother's milk contains higher amount of lactose, which is helpful for absorption of magnesium, calcium and amino acids.
2. The mother's milk is clean and free from microorganisms, due to which there is no fear of toxicity.
3. All the nutrients are easily available for infant via mother's milk.
4. It is easily available at perfect temperature and there is no need of heating.
5. It has a protein "Lactoferrin" that gives protection to intestine against diseases.
6. It has high amount of protein and antibodies, that protect infant from malnutrition and serious diseases.
7. Problem of constipation doesn't occur due to presence of good amount of lactose.
8. Breastfeeding helps muscles of uterus and breasts in mother's body to contract and comes back, to shape that get expanded during pregnancy.
9. Breastfeed satisfies the 'Sucking Reflex' in infants, and is an exercise of mouth for which develops the muscles of jaws, throat and teeth eruption is also proper.
10. It gives mental satisfaction to mother. The infant also feels satisfied so the emotional bonding of both become strong.

11. Mother neither need to prepare milk nor to spend money.
12. It decreases infant mortality (death) rate.
13. The concentration of salts is less in breast milk but is as per the requirements of infant. Excretion of salt does not affect the immature kidney of the infant.

Preparation for Breast Feeding and Adequacy :

The mother should clean her breasts properly before and after breast feeding. The milk producing ducts get activated when the infant sucks the breast and start secreting more milk. The stomach of new born is too small and it can store only 10-12 ml of milk at a time. It can store 100 ml upto one month and upto 200 ml of milk till 12 months with an increasing age and capacity of stomach.

That's why at initial stage the infants needs to get feed at every one hour interval, and this interval increases slowly upto 2-3 hours and thus reduces the frequency of feeding milk.

Time of breast feeding

Generally the time of breast feeding is decided by two factors :

- (a) According to Need
- (b) According to time

(a) Breast feeding according to need :

It means, breastfeed the infant when he needs or cries. So whenever the infant cries, he is breastfed. This becomes problematic when the infant cries due to some another reasons like pain in ear, stomach ache, urination etc and the mother gets confused.

(b) Breast feeding according to Time :

It means, the infant get fed according to time, and generally after some days, the infant himself sets his time and interval of feed.

Methods of Breastfeeding :

1. The mother should clean her breasts properly before and after breast feeding.
2. The mother should always feed her infant in sitting position, supporting his head little upwards so that he can easily reach upto breasts.

3. Breastfeeding should always be done in relaxed state without any stress, so that secretion of milk is appropriate.
4. Some nearby portion should also be given in the mouth of infant during breastfeeding, along with nipples so that the effect of sucking reflex works properly on breasts.
5. Infant should be breastfed from both the breasts.
6. The infant feeds the breast at a normal speed. After filling of stomach he himself stops feeding. If the infant sleeps after feeding and keep on sleeping for sometime, and if proper body development occurs every week, this indicates that the infant is getting sufficient milk.
7. The mother should tap the back of infant after feeding the infant until he gets a burp, so that air he inhales during sucking is released.
8. Sometimes the milk is secreted in excessive amount or due to some reason the mother is unable to feed the child, causes heaviness of breasts. Therefore, the mother should herself squeeze out the milk from breasts and empty them in this condition, otherwise the milk gets deposited into milk ducts.

Limitations of breastfeeding :

The mother’s milk is very beneficial, priceless, complete and best diet for infant. It is very important for his growth and development, but sometimes due to some reasons, the infant is unable to get breast feed, such as :

1. Mother suffering from serious illness, like hepatitis, heart disease, nephritis etc.
2. Early pregnancy of mother.
3. Very low body weight of infant, or impaired lips, cleft etc.
4. Insufficient formation or secretion of milk from breasts.
5. Absence of mother.
6. Death of mother.

In such situations, supplementary milk with the help of spoon or cup, bottle becomes essential for the survival of infant. The milk can be from cow, goat, buffalo or formula milk prepared for infant.

Animal milk :

The animal milk differs from mother’s milk. The cow’s milk is best for infant after mother’s milk. The animal milk contains high amount of protein and minerals and there is lack of lactose sugar. That’s why some water and sugar should be added in animal’s milk before feeding the infant and it should be boiled properly, so that all harmful bacterias get killed.

Powder milk :

This is also called formula milk. Many infants cannot digest cow, goat or buffalo’s milk. In such condition milk powder that is available in the market should be given. The composition of formula milk is almost similar to mother’s milk. The amount of milk powder should be given according to age and weight of infant. The quantity of mother milk and the frequency of breast feeding decreases slowly while age of infant is increasing continuously. The method of preparation of formula milk is indicated on the container.

Diet plan for 6-12 months infant :

Mother’s milk is sufficient to meet the requirements of the infant during initial 0-6 months. Supplementary feed becomes essential to meet the growing nutritional needs of infant.

Table : 11.4 Ratio of Milk and Water

Age	Ratio of Milk and water
0-15 days	1 part milk + 1 part water
2-6 weeks	2 part milk + 1 part water
1½-3 months	3 part milk + 1 part water
Above 3 months	Milk without water

Weaning :

Weaning means to withdraw the supply of mother’s milk and gradually introduce mixed supplementary diet in small quantities. With an increase in rate of growth and development of infant, food from other sources becomes essential and this is known as supplementary food.

The weaning should be start gradually upto the age of 6 months of infant. It is also an art in which the mother has to work hard. If the breastfeeding is stopped suddenly, then the infant can become irritated and mother also feels pain in breasts. The mother should not apply any bitter, things like Neem, tablets of Kunen on the breasts to cease feeding.

Supplementary food :

It is a sequential process to give supplements to the infant, by which the infant starts to feed on diversified family food in the place of milk diet. In the form of supplements, liquid food items, fruit juice, dal water etc should be given initially and later on get converted into semi solid food items like suji kheer, thin khichdi, daliya etc and solid soft foods like

mashed banana, boiled potato, mashed dal rice, mashed vegetable and chapatti and completely solid foods like chapatti, biscuits, mathri, toasts, etc.

Table 11.5 shows a list of food that can be items given to the child in balanced form to meet his nutritional requirements.

Following points should be kept in mind while supplementing the infant :

1. The diet or food should be prepared according to nutritional needs and amount given to child.
2. Initially, the infants spit out the food from mouth, but this does not mean that he completely dislikes the food. The reason is that the infant doesn't know how to swallow the food.

Table - 11.5 List of supplements

Age	Supplements
5-6 months	Fresh fruits - orange, Mausambi, Coconut water, milk, tomato, carrot juice, dal, rice water etc.
6-7 months	Thin suji kheer, dal/veg soups, thin khichdi / daliya, curd, boiled mashed potato, banana , papaya, supplements available in market.
7-8 months	Home cooked foods - dal, vegetable, raiyta, soft mashed chapati, rice along with boiled egg, biscuits, toasts, mathri etc.
8-10 months	Non vegetarians can give boiled eggs, chicken soups, along with above mentioned foods.
10-12 months	All home cooked foods soft and cooked fish chicken etc

3. In the begining the amount of new food should be very small.
4. Food should be served to the infant at a regular time and in a pleasant environment.
5. The baby should be given liquid food items initially and then gradually semi solid and solid substances.
6. Fruit juice should be given in cup not in bottle.
7. Baby's food should always be fresh.
8. If the child tries to eat himself then a spoon or a piece of bread should be given in his hand and let him eat himself.
9. Supplements should be given along with breastfeeding.
10. Add a little bit of ghee and oil to the diet to increase the energy value of the food product.
11. The taste buds of the infant are not much developed. Therefore, more new food items are given to him, variety of foods be consumed daily he will grow and eat as much diversified food.
12. The quantity of salt and sugar should be kept low and don't give too much sweet dishes.
13. Infant should be fed food at normal temperature, not to hot or too cold.
14. If it seems that the infant is showing disinterest in any food item, then it should be discontinued for a few days and tried after some time in a changed form.

15. The infant's food should also be cooked and served in very clean utensils.
16. The economic condition should also be kept in mind while planning diet.
17. The baby should be given food in separate plate, cups etc. Keep in mind that the cups or plate are not of glass or ceramic and their corners and edges are not sharp.
7. Mother's milk is clean, free from microbe, digestible, nutritious, at appropriate temperature, fresh and tailor-made as compared to other milk.
8. Breast feeding is determined by need and time.
9. Mothers should clean their breasts before and after breastfeeding.
10. Always breastfeed the baby in a sitting position.
11. The ability of a new born baby to ingest milk is very less, which gradually increases 200 to 250 ml by the end of 12 months.

Important points :

1. The period of 1 year after the birth of the baby is called infancy. After pregnancy, infancy is the second significant stage of development when the place of growth and development is intense.
2. Various changes occur in the body of the baby during infancy :
 - a) The birth weight of the normal infant is around 3.2 kg which is doubled in 4 to 6 months and reaches 3 times in a 1 year.
 - b) Food pipe of the new born is not completely mature but in a few months gradually. The secretion of digestive enzymes begins.
 - c) The level of hemoglobin decreases after the birth.
 - d) The neonatal's excretory system and the kidneys are immature but by the time infancy complete the kidneys of infant start functioning similar to that of adults.
3. Nutrition status of infant depends on nutrition, nutritional status of mother during pregnancy and lactation, adequacy of milk, supplementary food and congenital characteristic acquired from the mother and father.
4. Requirements of all nutrients is maximum during infancy due to intense rate of growth and development.
5. Supplementary diet becomes essential after 6 months to meet the requirements along with breast feed.
6. Requirement of infant between 0 to 6 months are full filled with breast milk even water is not needed.
12. Weaning is the process of withdrawing mother's milk and gradual introduction of mixed supplementary food such foods are called weaning foods.
13. Foods given to the infant in addition to breast milk, in order to maintain the growth and development rate of the baby are called supplementary foods.

Questions :

1. Choose the correct answer for following question
 - (i) The condition of one year after birth of the baby is called :

(a) Childhood	(b) Adulthood
(c) Infancy	(d) Pregnancy
 - (ii) The height of a healthy infant at the time of birth

(a) 50-55 cm	(b) 30-40 cm
(c) 42-45 cm	(d) 55-60 cm
 - (iii) The amount of water present in infant's body as compared to fat is :

(a) Less	(b) More
(c) Equal	(d) None of the above
 - (iv) Requirement of protein in first sixth months of infancy is:

(a) 1.16 gm/kg body weight	(b) 2.5 gm/kg body weight
(c) 2.0 gm/kg body weight	(d) 1.0 gm/kg body weight

- (v) Food given to discontinue the breastfeeding is called :
- Food to stop breastfeeding.
 - Supplementary food
 - Weaning food
 - All of these
2. Fill in the blanks :
- The heart beat of neonatal/infant is
 - Haemoglobin level of infant at birth
 -calcium is required for 0-12 months infant.
 - The first secretion from the breast just after deliver the baby is called
 - The protein content in colostrum is than the mature milk.
 - and concentration is higher in animal milk where as is low.
- (vii) content is higher in mother's milk.
3. Write in brief :
- Demand breastfeeding
 - Colostrum
 - Supplementary food
4. Plan a days diet for a six months old infant ?
5. Write down the importance of nutritious food for infant.
6. "Mother's milk is best food." Explain.
- Answers :**
- (i) c (ii) a (iii) b (iv) a (v) a
 - (i) 120-140 min. (ii) 17-20 gm/100 ml.
(iii) 500 mg. (iv) colostrum (v) high
(vi) protein, minerals, lactose (vii) lactose

12. NUTRITION DURING CHILDHOOD

Childhood is the period from end of infancy upto adolescence. Hence, children from the age of 1 year to 10-12 years come under childhood. Specific changes among physical, social, cognitive, psychological and emotional domain occur during childhood. Changes in childhood affect their nutritional status and dietary pattern as well. We will study nutritional status and dietary pattern in to two parts :

1. Early childhood :

Children between the age of 1-6 years come under this group. This group is also called as preang or preschool age. Physical and dynamic maturation, body control, social and cognitive developments are more prominent as compared to physical growth and development during this period.

(I) Changes during preschool age :

a. Physical growth and development : After babyhood or infancy, growth rate in height, weight, head and arm circumference and fatty deposition etc., decrease slightly during early childhood. Development in nervous and muscular system. Infant controls his body and starts walking as he reaches 2 year.

b. Development of the nervous system and muscles : Child starts to walk and control his body by 2 years.

(II) Nutrition related problems : Preschool children are of very curious and notorious tendency. They look at every object in the environment and try to touch and taste them. Their nutritional requirements are higher due to physical development. Many children eat inedible substances during this age like sand, clay,

wax, soap etc., by hiding themselves from their elder ones. The strong tendency of eating inedibles is known as 'Pica'. Eating these substances children loose their appetite. Malnutrition among preschool children occurs due to disturbed digestion of nutrients not absorbed properly. It leads to decrease in the amount of food consumed, non nutritious food, poor quality food, faulty digestive system, increased chances of infection etc. In turn protein energy malnutrition, anemia, night blindness, rickets, scurvy, beri-beri, ariboflavinosis, pellagra may precipitate. Many microorganisms enter body through inedible items consumed in the form of Pica and cause various infectious diseases. Immunity to fight against diseases gets reduced among preschool children. In such a situation reduced appetite, pica, low nutrition/quality of food, malnutrition and increased chances of disease infection, etc., affects the nutritional status of preschool children. That's why, disease, infections and mortality rate is high in this age group. Hence, it should be imperative to pay proper attention towards nutrition and dietary management of preschool children.

2. Late childhood :

Children between the age of six year upto early adolescence, come under late childhood. The children of this stage go to school and get formal education, that is, till then their actual studies have started. Hence this age is called as school going age. The end of this age group depends upon gender and personal differences. Due to early puberty among girls, this age may last till 9-10 years while in boys this age lasts upto 11-12 years depending upon their pubertal changes. The rate of physical growth and development is

somewhat slow, stable and linear during this period. Their organs gradually attain maturity. Children attain proficiency in physical, dynamic, functions and become a part of competition in school. Children also learn the importance of discipline and moral values along with intellectual and social development.

(I) Changes during late childhood : The rate of growth (weight) during this period, increases from 2kg/year to 4 kg/year. Increment in weight of girls is due to deposition of adipose tissues while, in boys it is due to muscular development. Increase in height rate is about 5 to 6.5 cm, which is comparatively higher among girls. This increase in height rate is comparatively more in legs and hands than neck and trunk.

The temporary teeth of the boys fall and the permanent teeth begin to erupt and the process of kalasi Bhavana, which starts from the initial 3-4 months of the infancy still continues during early childhood. Considerable change in growth and development of girls and boys is seen but it is evident in late childhood. During first six years girls who were stunted and having less weight, will gain more weight

and height than boys by the age of 10 years. This is mainly because of early pubertal changes that occur among girls.

(II) Nutrition related problems : Functional and self-reliance qualities among children increase in late childhood. They always wants to complete their work as soon as possible and don't want any kind of interference. These children are more inclined towards play. Children of this group find difficulty in coping up between the harmony of increase in study load and their interest of play. They try to complete their work as soon as possible in order to play with playmates. Hence they become careless towards their food. Study period of 6-7 hours in school, homework, increase in class competition, coordination with classmates, etc., causes mental stress among children of this age group. Mental stress affects food appetite.

(III) Nutrition requirements during childhood : The need for diverse nutrients for childhood is based on the demand of specific nutrients requirements for growth and development. Indian Council of Medical Research (ICMR) has recommended daily dietary requirements of nutrients for each and every group which is as follows :

Table : 12.1 Recommended dietary allowances of nutrients during childhood

Nutrients	Childhood (age in years)				
	1-3	4-6	7-9	10-12	
				Boys	Girls
Energy (Kcal)	1240	1690	1950	2190	1970
Protein (gm)	22	30	41	54	57
Fat (gm)	25	25	25	22	22
Calcium (mg)	400	400	400	600	600
Iron (mg)	12	18	26	34	19
Beta carotene (µg)	1600	1600	2400	2400	2400
Thiamine (mg)	0.6	0.9	1.0	1.1	1.0
Riboflavin (mg)	0.7	1.0	1.2	1.3	1.2
Niacin (mg)	8	11	13	15	13
Pyridoxine (mg)	0.9	0.9	1.6	1.6	1.6
Vitamin C (mg)	40	40	40	40	40
Folic acid (µg)	30	40	60	70	70
Vitamin B-12 (µg)	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0

(NIN 2010)

From the above table, it is indicative that with the increase in age of children the nutritional requirements of all nutrients increase. Nutritional requirements of each nutrient prescribed is same for girls and boys from the age of one year to 9 years. There after separate requirements are proposed for girls and boys. Girls and boys have increased demand of nutrients because of the commencement of pubertal changes among children of 10-12 years age.

Energy requirements can be completely fulfilled by including carbohydrate rich food products like wheat, jaggery and fat in their diet. Inclusion of wheat in food fulfills energy requirements and also satisfies appetite. Proper amount of carbohydrates in food also spares protein.

The use of fats in food does not means fried and heavy food items, rather fats in food can be incorporated in a variety of dishes using butter, cream or oil.

Growing children require more proteins because it helps in building the body. Incorporate complete protein rich food items for having high quality protein, like; milk and milk products (curd, cottage cheese, khoa), egg, meat, fish, etc. Protein quality can be improved by mixing cereals and pulses for vegetarian children.

There should be proper intake of nutrients like minerals, calcium, iron, vitamin A, D, C and folic acid in our food to achieve functions like, body building, development and growth of teeth and bones,

formation of blood and to raise hemoglobin level in blood etc., Requirement of these nutrients in food can be achieved by incorporating food items like, fresh fruits, green leafy vegetables, yellow colored fruits and vegetables, juicy fruits, etc., in the diet. Requirements of water soluble vitamins, 'B' complex increases with increase in energy requirements because these vitamins play an important role in energy metabolism. Vitamin B complex can be enriched in diet of children by incorporating food items like; cereals, pulses and fermented food products which are good sources of vitamins.

We should encourage children to have enough water (about 6-8 glasses) through out a day. Use of beverages like lemonade, squashes, soups, milk, buttermilk, should be used instead of tea, coffee and aerated drinks.

(IV) Dietary management : The rate of growth and development during childhood should be maintained regularly and gradually so that the nutritional status of the child remains good. The mother should give her child a balanced diet according to the table.

Milk is the main constituent of diet during infancy. By reaching preschool age along with milk, child starts eating other food items prepared for other family members. These children are always inclined towards play being curious and fickle rather than their diet. A diverse and delightful meal given in quiet and happy atmosphere from time to time gives them satisfaction and motivation to eat.

Table 12.2: Balance diet for children (NIN - 2010)

Food groups	Quantity of food (gm.)				
	1-3 years	4-6 years	7-9 years	10-12 years	
				Boys	Girls
Cereals	120	210	270	330	270
Pulse	30	45	60	60	60
Milk (ml)	500	500	500	500	500
Roots and Tubers	50	100	100	100	100
Green leafy vegetable	50	50	100	100	100
Other vegetables	50	50	100	100	100
Fruits	100	100	100	100	100
Sugar	25	30	30	35	30
Ghee/Oil	20	25	25	25	25

Note: For non-vegetarian children we can give 50 gm egg/meat/fish can be replaced by 30 gm pulses

This is the time, when we can teach children about healthy and good eating practices.

We should keep following points in mind while planning a diet regime for preschool children :

- (a) Give food at fixed time interval when they are hungry so that they can learn to have food on time.
- (b) Children have small appetite, give them small portion of food so that they can easily finish their part.
- (c) Increase frequency of meal upto 5-6 times a day.
- (d) Food should be cut into small bites in order to avoid choking.
- (e) Food should be according to the choice of the child and have fewer spices.
- (f) In order to maintain good digestive system children should not be given product made from refined flour or fried and complex fibers products.
- (g) Children like sweets, so sugars should be included in their meals. But too much sweets items may stick to teeth, should be avoided.
- (h) Children's breakfast should include some protein rich products like, milk, egg, etc., along with cereals such as bread-jam, parantha etc.
- (i) Usually children don't like to have green leafy vegetables so these can be given in the form of stuffed paranthas, poori, pakoda, etc.
- (j) Try to change the method and pattern of cooking if the child doesn't like any food product than.
- (k) Various products like, dal, rice, chapatti, vegetables, salad, etc., cannot be given at same time, therefore they should given in mixed preparations so that children get balanced diet. i.e. dal parantha, curd or vegetable raita etc.
- (l) Children love variety of food so in order to create interest try to incorporate variety of foods.
- (m) Children usually love to have raw fruits and vegetables like tomatoes, cabbage, peas, carrot

and fruits, so give them fresh and thoroughly washed fruits and vegetables.

- (n) Don't give biscuits, bread, bhujia, etc., refreshments before meal timings because these products may reduce their appetite.
- (o) Try to give healthy beverages like, vegetable soups, fresh juice, lemonade, milk etc., instead of tea, coffee or aerated drinks.
- (p) Serve food in different designed and colorful plates; this will create interest among children.
- (q) Motivate children to eat meals by their own.
- (r) Teach children to maintain hygiene and adopt healthy practices like washing hands before and after their meals. Motivate them to eat food by chewing it properly and don't scold them while eating.

Diet regime for school going children :

Good hygiene and food habit should be inculcated in early childhood so that these habits get matured in late childhood. Their likes and dislikes are selected. They want to eat food accordingly. They don't like dal & greens at this age. Following points should be kept in mind while planning meal for school going children :

- (a) Breakfast should be nutritious enough and quick to eat like, stuffed parantha, sandwich, milk, etc.
- (b) Children eat easily in the company or with their peer group, so try to give some refreshment or lunch box so that they can have meals in school.
- (c) Their food should be simple, palatable and nicely presented.
- (d) Introduce new and interesting recipes in children's diet and try to change the pattern and cooking method of the food product if it is rejected by the child, rather scolding and forcing to eat the meal as such.
- (e) Try not to send money with your children otherwise they will have anything dirty, unhygienic and inappropriate food product from outside. This will also promote poor eating habits and causes ill health effect on children.

Important Points :

1. The time period from the end of infancy upto adolescence, is called childhood. Hence, children from the age of 1 year till 10-12 years come under childhood.
2. Childhood is divided into two stages; Early childhood which includes children from age 1-6 years and late childhood which includes children from 6 years till adolescence.
3. Late childhood is also called as school going age.
4. Rate of growth and development is high during infancy, while somewhat less during early childhood and again slightly rises during late childhood which increases rapidly during adolescence.
5. Food related requirements of children from early childhood group are more important because their requirements are reflected with their social environment, hobbies and abilities.
6. There is a need to increase interest of children from late childhood group into food as they became careless about their meals.
7. There should be proper amount of nutrients like minerals, calcium, iron, vitamin A, D, C and folic acid in our food to achieve functions like, body building, development and growth of teeth and bones, formation of blood and to raise hemoglobin level in blood etc.

Questions :

1. Choose a correct answer for following questions
 - (i) Children from the age of 1 to 10-12 come under
 - (a) Adulthood
 - (b) Infancy
 - (c) Early childhood
 - (d) Adolescence

- (ii) Early childhood is called as.
 - (a) School going
 - (b) Preschool
 - (c) Adolescence
 - (d) Infancy
 - (iii) Tooth decay of temporary teeth is found in age group of children.
 - (a) 4-5 years
 - (b) 5-6 years
 - (c) 9-10 years
 - (d) 6-8 years
2. Fill in the blanks :
 - (i) years infants starts walking and controlling bodily functions by their own.
 - (ii) Preschool children are very of and in nature.
 - (iii) and increases during late childhood.
 - (iv) Children should drink at least glasses of water in a day.
 3. What do you mean by pica?
 4. Define late childhood?
 5. Why protein is necessary for growing children?
 6. What points should kept in mind while preparing diet regime for preschool children?

Answer :

1. (i) c (ii) b (iii) d
2. (i) Two (ii) curious and notorious (iii) self activity and self reliance (iv) 6-8 years

13. NUTRITION DURING ADOLESCENCE

Adolescence is 13-21 years of age. This is the stage of change. Kishoravastha translated from English word. This word is from Latin language 'Adolescere' which literally means "moving towards maturity". Adolescence is period which starts after childhood and upto adulthood. It is a period of physical and mental change.

Boys tend to mature later than girls. Adolescent girl starts at the age of 10-11 years and is upto 17-18 years while in boys it starts at the age of 13-14 years and is maintained upto 21 years. Physical development is fast during adolescence after infancy. Overall development takes place in this stage such as physical, mental, social, cognitive and emotional.

Changes during adolescence :

- 1. Physical growth :** Adolescence is the stage of change. It is also known as the stage of complete growth. Physical development is very fast in this stage. Physical development mean an increase in height, muscle mass, deposition of fat all comes under.
- 2. Physical change :** With increment in height and weight there are some changes taking place for eg, start of menstrual cycle in girls (menarche), development of breast, accumulation of fat, hair growth on armpit and pubic area, thinness in voice, while in boy's growth of beard and mustaches, harshness in voice, strength and rigidity of muscles, development of bone. The main reason for these changes is hormones.
- 3. Cognitive changes :** Adolescents have good communication and debating quality. This age is

maximum development stage. They are able to make decisions. They are conscious towards their studies and job and also want to take decisions by their own.

- 4. Social change :** It is a stage of self dependency. Adolescents are physically and mentally mature in this stage. They avoid interference in their work. They are matured enough to behave in society.
- 5. Sensory and emotional development :** Coping with physical changes, studies, career, and adjustment with society is difficult for adolescents. They are very emotional and unstable in this age. Firmness in social and moral duties, lack of maturity their aims are not fulfilled. They face real life hardship and they emotionally get disturbed due to loss of idealistic values.

Adolescence is a period of rapid growth and proper nutrition is required for its development. On the other hand they are stressed due to many changes which are taking place like physical growth and studies, career, society approval hence do not concentrate on food. Most of the time they out due to career and studies that also affect their food intake. All these pressures make changes in their eating habits which give adverse effect on their health. Hence, looking into rapid growth it is very important to take balanced diet. Growth may be stunted in its absence and work capacity is also affected.

Nutrition related problems :

- 1. Change in food habit :** There are several

nutritional changes taking place in adolescents residing in urban areas. They prefer foods with their friends in restaurants. They like junk and fast foods, they do not like dal, vegetable, chapattis etc. They consume foods like pizza, burger, magi, chowmein, sandwich, idli, dosa, biscuits, potato wafers, chat, pakoras etc. Fruit juices and fruits are replaced by cold drinks eg- soda water, preserved and aerated drinks, hard drinks. They provide no nutrition since food available in market is not hygienic.

2. Obesity : Poor dietary habits combined with decreased physical activity increase weight and obesity among adolescents in urban areas. Increment in weight is due to growth of muscles and fat in the body, but deposition of fat balances the increment in height. Sometimes obesity of adolescence invites many diseases in adulthood.

3. Underweight and weakness : Normally adolescents are very particular about their physique, they reduces their intake which affects their body. There are irregularity in their menstrual cycle, depletion of fat, muscle, blood pressure and metabolism occurs.

4. Anemia : Anemia is more common among adolescents because amount of blood and haemoglobin decreases. Face and nails are pale.

Problems of adolescents can be solved by taking less spicy food and a balanced diet by using various food items.

Requirement of all nutrients increases during adolescence due to growth and development. In this milestone of life, physical growth is maximum and hence nutritional requirement also increases. Reduction in growth and development also reduces requirement of nutrients upto adulthood. Table shows nutrient requirement of various nutrients by age.

Table 13.1 Recommended dietary allowances for adolescents

Nutrients	Adolescents (age in years)					
	10-12		13-15		16-18	
	Boys	Girls	Boys	Girls	Boys	Girls
Calorie (Kcal)	2190	1970	2450	2060	2640	2060
Protein (g)	54	57	70	65	78	63
Fat (g)	22	22	22	22	22	22
Calcium (mg)	600	600	600	600	600	600
Iron (mg)	34	19	41	28	50	30
B-carotene (µg)	2400	2400	2400	2400	2400	2400
Thiamine (mg)	1.1	1.0	1.2	1.0	1.3	1.0
Riboflavin (mg)	1.3	1.2	1.5	1.2	1.6	1.2
Niacin (mg)	15	13	16	14	17	14
Pyridoxine (mg)	1.6	1.6	2	2	2	2
Vitamin C (mg)	40	40	40	40	40	40
Folic acid (µg)	70	70	100	100	100	100
Vitamin B12 (µg)	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0	0.2-1.0
Weight (kg)	35.4	31.5	47.8	46.7	57.1	49.9

Energy : Calorie needs increase with metabolic demands of growth and energy expenditure. Although individual needs vary, girls consume fewer kilo calories than boys because they have less weight, height, metabolism and physical activity.

Protein : Protein is structural part of each and every cell. Requirement of protein increases due to rapid physical growth and development. It is also required for the development of bone and muscles. Puberty in girls start at the age of 10-12 years while in boys it is 12-14 years, physical growth in girls is more at the age of 10-12 years as compared to boys.

With the increase in demand of protein, quality should also be considered for the development and complete growth of the body. Good quality protein is required for the same i.e. egg, meat, fish, milk and milk products, khoya, paneer, cheese etc. Complete protein can be prepared for vegans by mixing different food items for eg, cereal + pulses.

Fat : Urban children have more liking to sugary and fatty foods for eg, cake, pastry, pakora, wafers etc, and its consumption leads to obesity. Total fat intake recommended by national nutrition organization is 25 g per day.

Vitamins : Adequate amount of all vitamins are required during adolescence. These recommended vitamins fulfill the requirement of B vitamins (thiamine,

riboflavin and niacin) which increases the requirement of energy as all the three vitamins are required for the metabolism of carbohydrate, protein and fat.

Minerals : Requirement for calcium, phosphorus and iron increases during adolescence. Calcium and phosphorus is required for the growth of bone. Increment in weight also increases, fluid in the blood. With the increase in blood level, haemoglobin increases by 2 gm/100ml in boys and 1g/100ml in girls. Iron is required for formation of heamoglobin. Menarche start in this age to compensate loss during menstruation iron is required.

Requirement of iron in boys is more as compared to girls although they have loss of iron through menstruation every month. Weight of girls is less as compared to boys hence they require less iron to transport oxygen in the body. Secondly, iron present in food is readily absorbed by girls as compared to boys.

Water : Liquid in the form of milk, curd, buttermilk, fruit juices, rice and dal soup is required in appropriate amount. Intake for fluids should be 8-10 glasses per day.

Meal planning :

Adolescent should include all food groups to meet above mentioned nutrients and add variety of foods in their diet according to table 13.2

Table 13.2 Balance diet for adolescents per day

Food groups	Quantity of food items (in gms)	
	13-18 years	
	Boys	Girls
Cereals	420	300
Pulse	60	60
Milk (m.l)	500	500
Roots and tubers	200	100
Green leafy vegetables	100	100
Other vegetables	100	100
Fruits	100	100
Sugar	35	30
Ghee/oil	25	25

Points to be considered while planning meal for this group :

1. Meal should be planned according to requirement, physical growth and development of adolescent.
2. Meal planning should be according to the schedule of their school and college.
3. Such foods should be included which takes less time to cook and also meet the nutrient requirement.
4. Foods should be according to the interest of adolescents for eg, sandwich, khaman, burger, pizza, chowmein, idli, dosa, etc which is ready to cook and it also reduces craving towards market food.
5. Adolescents have mood swings which affect the nutritional acceptance. Hence, there should be flexibility according to their mental state.
6. Availability of snacks should always be there, so that they can munch in between main meals. It should fulfill their nutritional requirement.
7. Adequate milk and green leafy vegetables intake fulfill the increased requirement of calcium and iron in adolescent. If milk and green leafy vegetable are not liked then it should be given in some other form. Their forms can be changed as milk in curd, raita, buttermilk, paneer, khoa sweets. Parathas, sandwich, burger, pakoras, pav-bhaji, chowmein etc can be prepared from green leafy vegetables.
8. It is necessary to incorporate seasonal fruits.
9. There should be variety in food for eg colour, aroma, taste to increase interest in food.
10. Trend of party is increasing day by day plan to arrange it at home so that adolescents can get food prepared hygienically and nutritious too.

Looking into the lifestyle of adolescent's knowledge of balanced diet and good eating habits should be inculcated into them, which will suffice their nutritional need per day whether they are at home or out.

Important Points :

1. Adolescence is stage between childhood and adulthood. It is at the age of 13 to 21 years in which growth and development is very fast.
2. Girls experience adolescence 1-2 years prior than boys. It starts at 10-11 years and maintained upto 17-18 years while in boys it starts at the age of 13-14 years and is upto 21 years.
3. Physical and mental changes are seen in adolescence along with increment in height weight. Reasoning, thinking, and debating efficiency also increases. Due to physical change studies and stress of career and changing situation of society, coping with entire situation is difficult for adolescent. Mood swings which make them aggressive although it is impulsive.
4. Onset of adolescence changes their eating habits.
5. Normally, adolescents are more conscious about their health and physique. Girls intentionally reduce amount of food in order to look lean, thin and beautiful.
6. Amount of blood cannot compensate with increase amount of haemoglobin with rapid increase in physical growth. Adolescents face problem of anemia. Apart from over activation of oil glands leads to infections, acne problems.
7. Physical growth is highest during adolescence which increases nutritional requirement.
8. Meals for adolescents should be planned in such a way that it suffice the nutritional requirement and should be according to their school, college and other activities.

Questions :

1. Choose right answers of the following questions
 - (i) Normally adolescence age is
 - (a) 14 to 18 years
 - (b) 13 to 21 years
 - (c) 12 to 20 years
 - (d) 10 to 15 years
 - (ii) Emotions of adolescence are
 - (a) Flexible
 - (b) Sluggish and long
 - (c) Rapid and impulsive
 - (d) Normal

- (iii) Iron requirement of girls at the age of 13-15 years
 (a) 30 mg (b) 28 mg
 (c) 40 mg (d) 32 mg
- (iv) Reduction in amount of haemoglobin in blood during adolescence is due to which disease
 (a) Obesity (b) Beri-Beri
 (c) Anemia (d) Goiter
2. Fill in the blanks :
- (i) Adolescence in girls starts at years and is up to 17–18 years.
- (ii) are more conscious about their health and physique.
- (iii) groups requirement increases with increase in energy.
- (iv) Boys/ girls should take glasses of water or other fluids daily.
- (v) adolescent meal planning should be according to/..... and
3. Discuss changes taking place during adolescence
 (i) Physical growth
 (ii) Cognitive change
 (iii) Social change
4. Nutritional requirement during adolescence increases. Why?
5. Explain with example food habits of adolescents.
6. Explain in brief about points to be considered while planning meal for adolescents.

Answers :

1. (i) b (ii) c (iii) b (iv) c
2. (i) 10-11 (ii) adolescent girls
 (iii) vitamin B (iv) 8-10
 (v) school/college, activity.

14. NUTRITION DURING ADULTHOOD

An individual should consume balanced diet to live a healthy life. A balanced diet is where there is an adequate amount of carbohydrates, proteins, fats, vitamins and minerals. Requirements of essential nutrients for our body are affected by various factors such as sex, age, weight, height, physical conditions, body build, etc.

Puberty comes at the beginning of adolescent age. At this time, the teenager attains his entire physical, growth and development along with the psychological growth which makes him mature youth. Usually 21-40 years of period is called adulthood and after that old age starts. Physical, mental, social, emotional, changes occur very slowly during this phase.

“We eat to live, not live to eat”, this quote means food is essential for human beings to live their life. Our objective should not be eating only spicy and delicious food, but our diet should be balanced so that our body can get essential nutrients.

Physical growth during adulthood stops in terms of height and weight while maintenance of cells and tissues goes on continuously. Therefore, balanced diet should be given to adults so as to maintain their physical and mental health. The self-sustained food taken in the adulthood maintains health in late adulthood.

Nutritional requirements in adult male and female depend on difference in their weight and physical structure.

A Reference Indian man is defined by ICMR as “an adult male of 20 to 39 years of age, whose weight is 60 kg, height is 163 cm tall, free from disease, he

is physically fit for active work. On each working day, he is employed for 8 hours in occupation that usually involves moderate activity. While not at work, he spends 8 hours in bed, 4-6 hours sitting and moving around and 2-4 hours in walking and active recreation or household duties.

According to ICMR for female “an adult woman of 20 to 39 years of age, whose weight is 55 kg, height is 151 cm tall, free from disease, physically fit for active work. On each working day, she is employed for 8 hours in occupation that usually involves moderate activity. While not at work, she spends 8 hours in bed, 4-6 hours sitting and moving about and 2-4 hours in walking and active recreation or household duties.

Nutritional requirements :

ICMR has recommended the daily proposed quantity of essential nutrients for adults, as follows:

Energy : The demand for energy depends on the physical activity and time spent on it. Activity is divided into three parts on the basis of physical work.

- 1. Heavy worker :** People falling under this category do a lot of physical work, such as a farmer, who is carrying a burden, laborers, the rickshaw drivers, etc. and therefore, they require more energy-producing food items.
- 2. Moderate worker :** Those who perform light work and domestic tasks fall under this category such as teacher, housewives, peon, bus conductor, goldsmith, clerks, women etc. So they require less energy producing food items than heavy worker.

3. Sedentary Worker : People who perform only mental tasks and do not do domestic work or even light work, they fall under this category,

such as physician, manager, professor, IAS officer etc. So the demand for their energy is least.

Table 14.1 Recommended dietary allowances of nutrients for adulthood (NIN-2010)

Nutrients	Activity					
	Sedentary		Moderate		Heavy	
	Male	Female	Male	Female	Male	Female
Energy (K cal)	2320	1900	2730	2230	3490	2850
Protein(g)	60	55	60	55	60	55
Visible Fat (g)	25	20	30	20	40	20
Calcium(mg)	600	600	600	600	600	600
Iron (mg)	17	21	17	21	17	21
Beta carotene (ug)	4800	4800	4800	4800	4800	4800
Thiamine(mg)	1.2	1.0	1.4	1.1	1.7	1.4
Riboflavin (mg)	1.4	1.1	1.6	1.3	2.1	1.7
Niacin (mg)	16	12	18	14	21	16
Pyridoxine (mg)	2.0	2.0	2.0	2.0	2.0	2.0
Vitamin C(mg)	40	40	40	40	40	40
Dietary Folate (ug)	200	200	200	200	200	200
Vitamin B ₁₂	1.0	1.0	1.0	1.0	1.0	1.0
Zinc (mg)	12	10	12	10	12	10
Magnesium (mg)	340	310	340	310	340	310
Body weight(kg)	60	55	60	55	60	55

Protein : Animal protein sources will be good for health. The diet should consist of pulses, soybean, milk, meat, fish, egg, etc. to fulfill the requirement of protein.

Fat : 0.5 g/kg and 1 g/kg of fat should be taken from animal and vegetable sources respectively. Amount of visible fat is fixed i.e. 18 to 20 gm from oil, ghee etc.

Minerals : The ratio of calcium and phosphorus should be 1:1 (Ca:P).The iron requirement among females is 2 mg greater than male's requirement.

Vitamins : Requirement of B-vitamins depend

on calorie requirement (0.5mg Thiamine, 0.6mg Riboflavin, 6.6mg Niacin). Thus, requirement of vitamin B depends on the activeness of an individual.

Water : Adults should drink at least 8-10 glasses of water in a day in the form of milk, curd, buttermilk, soup, tea, coffee, etc.

Nutritional Related Problems :

Nutrition in adulthood is affected by their profession, activity, income and daily routine. Due to overnutrition, adults face physical as well as mental health problems such as high blood pressure, diabetes, heart diseases, stress and depression, due to which their dietary system gets affected.

Table 14.2 Balance diet for adults (NIN, 2010)

Food group	Quantity of food item (gram)					
	Sedentary		Moderate		Heavy	
	Male	Female	Male	Female	Male	Female
Cereals	375	270	450	330	600	480
Pulses	75	60	90	75	120	90
Milk (ml)	300	300	300	300	300	300
Root and tubers vegetables	200	200	200	200	200	200
Green leafy vegetables	100	100	100	100	100	100
Other vegetables	200	200	200	200	200	200
Fruits	100	100	100	100	100	100
Sugar	20	20	30	30	55	45
Fat /oil	25	20	30	25	40	30

Note : Non-vegetarian people can take 50g of egg/meat/fish instead of 30g pulses

It can be observed from table 14.2 that, requirement of food such as cereals, pulses, root vegetables, sugar and ghee/oil also increases in terms of quantity with an increase in physical activity. Because their food group should supply more energy and other nutrients to meet the greater body work. Adult diet can be planned according to economic status of the family.

Dietary pattern :

- (1) Diet of whole day should be divided into 3 meals-breakfast, lunch and dinner.
- (2) All the essential nutrients should be available in each meal.
- (3) For those people/adults who go for work daily, their tiffin boxes should be nutritious, appealing and palatable.
- (4) It can be included in lunch or dinner if any essential nutrient is skipped during packing of tiffin.
- (5) It is important to take care of type of fat/oil being used while cooking so that possibility of

heart disease, high blood pressure may be reduced to some extent.

- (6) Quantity of calcium should be proper in the diet of a person.
- (7) Iron content should be higher in the diet of female. Iron rich food are whole grain cereals, pulses, green leafy vegetables, egg, meat, etc.
- (8) Sources of dietary fiber such as raw fruits and vegetables should also be included in the diet.

Diet planning according to activity :

Nutrient requirements :

The needs for essential nutrients increases as the physical activity increases. Requirements for vitamin-B group like thiamin, riboflavin, niacin depends on energy requirement.

1. The person who is a sedentary worker needs 450 kcal less energy than a moderate worker. Thus, he should take less amount of cereals, sugar and fat and should include more of dietary fiber green leafy vegetables in the diet.

2. Heavy worker needs 925 kcal more energy as compared to a sedentary worker. Thus, amount of cereals, fats, sugar, should be higher for them. Protein, vitamin A, vitamin B nutrients may be increased or decreased according to their activity.

Diet planning according to income group :

i) Low income group :

Person with low income group, should adjust his diet in the following ways so that he can get maximum nutrients even in low income.

- (1) Quantity of milk, meat, fish, should be less.
- (2) Grains and pulses should be mixed together to ensure quantity and quality protein
- (3) Seasonal cheap vegetables should be used instead of expensive fruits and vegetables.
- (4) Seasonal fruits should be included in the diet.
- (5) Enough sprout should be consumed to get vitamin C and other vitamins.
- (6) Reduce amount of fat and oil and increase amount of sugar and jaggery to keep the energy source maintained.

ii) High income group :

- (1) High quantity of milk, meat and fish should be consumed.
- (2) Reduce quantity of cereals and pulses.
- (3) Income is not an issue. Therefore eat all fruits and vegetables as much as possible.
- (4) In case of high income group, quantity of fat/oil is usually higher than the low income group. Therefore, sugar and jaggery be reduce to curtail the energy.

Low cost balanced diet :

Diet of adult belonging to low income group can be made nutritious in following way :

1. Mix 2-3 cereals and one millet instead of one cereal.
2. One must eat 50 gm green leafy vegetable, so that quantity of vitamin-A, iron and calcium be increased.
3. Consume cheap & yellow fruits like papaya, mango etc. to fullfill the requirements of vitamin A & C.

4. Take 150 ml milk daily to get riboflavin & calcium.
5. Add extra quantity of oil (10 gm) in diet as concentrated source of energy.

Table : 14.3 Low cost balanced diet for sedentary man

S.No.	Food Groups	Quantity
1	Cereals	460
2	Pulses	40
3	Green leafy vegetables	50
4	Roots & Tubers vegetable	60
5	Other vegetables	50
6	Milk	150
7	Sugar & Jaggery	40
8	Ghee & Oil	30

Suggestions for low cost food :

1. Always buy grocery from public distribution shop.
2. Use sorghum & pearl millet at night.
3. Exchange expensive food items with low cost food.
4. Prepare big & thick chapatti.
5. Buy green leafy vegetable like spinach, fenugreek, amaranthus etc. from kitchen garden at low cost.
6. Prepare food using various preprocessing methods like fermentation, malting and germination these methods increase the nutrients with less expenditure.
7. Leaves of cauliflower, carrot, beetroot, radish and onion be included in daily diet, they are rich in nutrients.
8. Food prepare at home is less expensive so carry food in tiffin at work.
9. Steamed food is nutritious and low in cost as compared to fried food.
10. Use jaggery instead of sugar.

11. Add seasonal fruits like papaya, guava, etc. in diet.
12. Fresh & natural foods are cheaper & nutritious than preserved foods.

Important Points :

1. Adulthood lies between the adolescent (20-21 years) and old age than starts late adulthood which continue till old age starts.
2. Nutrients requirements of adulthood varies according to their physical activity and sex.
3. Heavy workers require high quantity of nutrients but their income is less. They spend 60-70% of salary on food.
4. Sedentary worker males & females get handsome salary. They can afford costly food in their diet.
5. Moderately workers have moderate/average salary and they can afford appropriate expenditure on food but consume imbalanced diet, due to unawareness, lack of nutrition knowledge, ignorance and busy schedule. They are not able to take balanced diet.
6. Planning of meals for adulthood be done according to income group by selecting the food items in proper quantity from each food group.

Questions :

1. Choose the right answer of the following question :
 - (i) Adulthood starts from :
 - (a) 18-19 to 40 years (b) 19-20 to 40 years
 - (c) 18-20 to 40 years (d) 20-21 to 40 years
 - (ii) Economic and social sustainability stage is :
 - (a) Adulthood (b) Late adulthood
 - (c) Childhood (d) Old age

- (iii) Male and female working in office are :
 - (a) Heavy worker (b) Moderate worker
 - (c) Sedentary worker (d) None of them
- (iv) Heavy workers spend% of their salary on food :
 - (a) 40-50 (b) 60-70
 - (c) 70-80 (d) 80-90
- (v) Obesity commonly develop in :
 - (a) Woodcutter & rikshawpullar
 - (b) Fisherman & Potmaker
 - (c) Businessman & Administrator
 - (d) None of these
2. Fill in the blanks :
 - (i) is the stage when adolescent attain complete physical growth and development with mental stability and become mature youth.
 - (ii) Early adulthood and late adulthood commonly known as
 - (iii) persons acquire high salary per month while perform less physical work.
 - (iv) Adult male and female must take & mg iron per day in their diet.
 - (v) worker require high energy.
3. Nutritional requirement of male and female are different. Explain.
4. What point will you keep in mind while planning meal for adult ?
5. Suggest points for low cost nutritious food.

Answers :

1. (i) d (ii) b (iii) c (iv) b (v) c
2. (i) adulthood (ii) adult
- (iii) sedentary worker (iv) 30, 28
- (v) heavy worker

15. NUTRITION DURING OLD AGE

Old age is the stage that comes after adulthood and is the last stage in human life. In this stage the growth ceases and wear and tear occurs at a larger pace which makes body shabby. Old age is best defined as the age of retirement that is, 60 years and above.

The process of ageing brings about physiological, psychological and sociological changes which influences the nutritional status and health.

Physical changes :

There is a reduction in weight and loss of muscle mass in old age. The body becomes lean and tissue metabolism slows down which also results in reduction in their total energy demand. Because of the decrease or imbalance of some hormones, the bone mineral density also decreases leading to the breakdown of bone and the chances of fractures increase. Osteoporosis is common in old age. The back bone gets curved, loss of teeth occur easily because teeth and gums become weak. The collagen hardens, thus the joints become stiff and there is pain in the joints. Elasticity of the skin decreases and due to muscle wasting the skin becomes wrinkled. The nails become stiff and hair turn grey. Neurological function during old age becomes weak leading to symptoms such as decrease in taste sensation, weak memory, hard to hear, poor eyesight. The digestive and excretory systems also become weak. The defence mechanism and immunity of the body is weak, so old people are more prone to infectious disease and colds. Due to muscle wasting, probability of various ailments relating to respiratory, heart problems and atherosclerosis increases. Reduced physical activity along with

hormonal imbalances may lead to diabetic in old age.

Social changes :

In this stage the person gets retired and because of his less movement his social circle is reduced to his family and neighbours.

Psychological changes :

Physical, economical stress and aloofness leads the person to psychological problems. The person becomes irritable. They often are embarrassed of themselves in their family and social life and thus remain sad. They become mentally and psychologically disturbed because of their pessimistic nature. In order to reduce the stress and maintain their overall physical and mental health, light physical exercise and entertainment should be provided.

The physical , social and psychological stress have an impact on their health and nutritional status, this results in reduced life expectancy. In order to lower the impact of physiological changes occurring due to old age, physical movements needs to be maintained and their diet should be nutritious and a balanced one.

Nutrition related problems :

Old age people along with changes in the external organs, some internal changes also occur which leads to decrease in the working capacity. The digestive capacity decreases; due to inactiveness of endocrine gland the metabolic rate decreases thus affecting the digestion, absorption and metabolism of food. Chewing of food becomes difficult due to loss of teeth and decreased salivary production. The taste buds and papillae become atrophid and that affects the

ability to detect certain tastes. The secretion of digestive juices from duodenum, jejunum and bile juices etc. decrease leading to improper breakdown of food and thus leads to indigestion. The duodenum shrinks and because of this regurgitation, belching and heartburn problems occur. Indigestion often leads to improper absorption of nutrients required by the body. The muscles of the alimentary canal become weak, that is why the peristaltic movement is also affected. Constipation occurs frequently in old age and there is a problem in defecation. The probability of intestinal infection and diarrhea is increased.

Nutritional needs :

The nutritional requirement in old age depend mainly on physical change. Following are the nutritional requirements:

1. **Energy :** Basal Metabolic Rate and the physical activity decreases in old age. 25 percent less calorie is required in old age as compared to adult male. The calorie intake should be adjusted to maintain the normal body weight. Since there is wasting of lean body mass, energy dense food should be avoided because it may lead to various problems of overweight and obesity.
2. **Protein :** Wear and tear of body tissues increases in old age. Ageing decreases skeletal tissue mass and digestive capacity that is why for its maintenance protein is essential. Protein deficiency symptoms occur because there is a decrease intake of food in old age. Protein requirement in old age does not decrease it should be maintained between 1 to 1.4 gm/kg body weight.
3. **Fat :** Fat is the main source of energy, consumption should be less in amount in old age should not exceed 30 grams per day. The amount of essential fatty acids is more in the oils. Therefore, instead of ghee, vegetable oil should be used. Excess fat consumption in old age leads to increased risk of obesity, diabetes, heart diseases etc.
4. **Minerals :** The absorption of minerals such as iron and calcium decreases in old age. To maintain serum level of iron and calcium,

consumption of rich sources of iron and calcium like milk and milk products, green leafy vegetables should be encouraged. Iron deficiency causes anemia and calcium deficiency causes osteoporosis.

5. **Vitamins :** Low energy demand in old age require less energy dense food which may lead to vitamins deficiency. This is the reason vitamin deficiency symptoms are mostly seen in old age people. To rectify this deficiency, diet should include food sources such as fresh fruits and vegetables. Supplementation with multi vitamin may boost cell-mediated immunity.
6. **Water :** Intake of water should be at least 1.5 to 2 litres per day so that kidney can function adequately to eliminate solid waste.
7. **Fiber :** Nutritional value of fibers is very less. It stimulates peristalsis. There is a problem of constipation in old age because the muscles of large intestine becomes weak/ shrink. Fibre should be included in adequate amount in the diet to improve this condition. Fruits and vegetables provide fiber. Post dinner isabgol should be taken with milk to relieve constipation.

Meal planning for old age :

The nutritional requirement of both male and female old age persons are listed below in Table 15.1

Table 15.1 : Balanced diet for old age male and female (NIN-2010)

Food group	Amount of food (gms)	
	Male	Female
Cereals	285	210
Pulses	75	60
Milk (ml)	300	300
Roots and tubers	200	200
Green leafy vegetables	100	100
Other vegetables	200	100
Fruits	200	200
Sugar	20	20
Ghee/oil	25	20

The following principles and factors should be kept in mind while planning diet for old age :

1. A balanced diet according to their nutritional requirement elderly people should be planned which is low in energy, high in protein, vitamin and mineral salts.
2. Elderly cannot eat food properly at one time. Therefore, food should be eaten in small quantities 5-6 times a day which should be fresh, balanced, light and digestible.
3. Food should be soft, bland and less spicy.
4. Minimum oil should be use in the food.
5. Liquid, semi-liquid food items such as milk, buttermilk, soup, lemon water, fruit juice, khichdi, porridge etc. should be included in the diet.
6. Sufficient quantity of fibrous soft vegetables and fruits should be used to prevent constipation.
7. Adequate amount of milk and milk products and green leafy vegetables should be included in diet to prevent bone deformity and anemia.
8. Ample amount of water should be consumed.
9. Dinner should be taken at least 2-4 hours before sleep and milk is necessary before sleep.
10. The food should be attractive served in delightful pleasant environments so that they take food happily and with interest.

Important Points :

1. Old age is the last stage in the development process of human life, in which the process of the body stops body become shabby.
2. Physical, social and psychological changes in the old age are clearly visible and this has an effect on the nutrition and health of an older person.
3. Many digestive problems occur in old age such as decreased rate of digestion and absorption, less secretion of saliva, acidity, atrophid taste buds and low secretion of digestive juices. All this factors increases the chance of malnutrition.
4. Nutrition of old age depends on their physical activity. Due to lack of physical activity, energy requirement decreases, but the protein

requirement to repair cells does not decrease. Vitamins and mineral salts should be taken in adequate amounts to keep the physiological mechanism smooth and normal.

5. The diet prepared for elderly should be fresh, soft and light. Frequency should be 5-6 times a day. It should be low in energy, high in protein, vitamins and minerals.
6. The diet should include adequate amount of water and liquid beverages, soft fibrous vegetables and fruits, milk and milk products.
7. The food should be favorable to their mentality, in a buoyant atmosphere, with a variety of diversities, so that they happily accept food with interest.

Questions :

1. Select the correct answer for the following questions :
 - (i) In the evolutionary order of human life, the last stage of age is called:
(a) Childhood (b) Old age
(c) Infancy (d) Youth
 - (ii) In old age change is rapid :
(a) Dissolution (b) Physiological
(c) Mental (d) None of the above
 - (iii) Bone related disease during old age is called :
(a) Anemia (b) Osteoporosis
(c) Rickets (d) Beri-beri
 - (iv) Basal metabolic rate in old age is :
(a) Less (b) More
(c) Equal (d) All of the above
 - (v) It is essential to repair body cells in old age
(a) Energy (b) Fat
(c) Protein (d) Water
 - (vi) Iron deficiency can cause :
(a) Malnutrition (b) Anemia
(c) Osteoporosis (d) Rickets
2. Fill in the blanks :
 - (i) The last stage of life cycle, there is no development of body, it is called.....

- (ii) Nutritional requirement of elderly is predominantly dependent on changes that occur in this age.
 - (iii) More consumption of causes obesity and many diseases like diabetes, cardiovascular diseases.
 - (iv) Food for elderly should be fresh, light, satvik and
3. Why old age is called shabby are ?
4. What kind of nutrition problems does an elderly face? Explain.
5. What are the points to be kept in mind while planning meal for an elderly woman ?

Answers :

- 1. (i) b (ii) a (iii) b (iv) a (v) c (vi) b
- 2. (i) old age (ii) body (iii) fat

16. NUTRITION DURING SPECIAL STAGE : PREGNANCY

Pregnancy is a temporary and specific physiological condition. Gestation is the period of embryo development from conception to birth. It is generally of 280 days or 9 months 7 days or 40 weeks. The pregnant lady carries a fertilized embryo in her uterus in pregnancy phase, whose body weight is about 3kgs. at the time of birth. It is a boon of nature, the cell formed by fusion of ovum and sperm during fertilization converts in to a fully developed healthy infant within the duration of nine months and seven days. The time period of conversion of one cell into a complete matured and developed infant is known as pregnancy.

The period of pregnancy can be divided in to three major phases, These are :

- (i) **Implantation** - Conception to first two weeks of gestation.
- (ii) **Organogenesis** - The next six weeks of gestation upto 2 months.
- (iii) **Growth** - The remaining 32 weeks of pregnancy is the period of growth.

Many changes occur in the body of the mother during pregnancy. Some changes are externally visible, along with internal changes are discussed briefly.

Changes during pregnancy :

There is a varied change in the body structure and functioning of pregnant woman during pregnancy she has to cope up with them. The uterus provides a nutritive and protective environment after conception, in which the fetus will grow and develop. It increases

from the size of a small pear in its non-pregnant state to accommodate a full-term baby at 40 weeks of gestation. The tissues from which the uterus is made continue to grow for the first 20 weeks, and it increases in weight from about 500 gm to 1 kg. It doesn't get heavier after this time, but it stretches to accommodate the growing baby, placenta and amniotic fluid. The pregnancy has reached full term, the uterus has increased to about five times its normal size by the time. There is increase of 10 to 12.5 kg in weight in pregnancy. Rapid growth is observed in both weight and body surface in pregnancy. Metabolic rate increases by 10-12% due to consequent gestation. Increasing weight of the uterus puts pressure on the bladder which leads to increased incidence of bladder infection. There is an increase in frequency of urination during initial stage of gestation i.e. first 2-3 months.

Blood volume (the total volume of blood in the circulation, measured in liters) increases gradually by 30-50 % in the pregnant woman, so by full term she has about 1.5 ltr more blood than before the pregnancy. A higher circulating blood volume is required to provide extra blood flow through the placenta, so that nutrients and oxygen can be delivered to the fetus. At least 12-13 gm per 100 ml. hemoglobin should be present in pregnancy, which decreases to 7-8 gm per 100 ml. There is increase in chances of severe anemia due to hemodilution. Load on kidneys also increases due to increased blood volume.

Increased blood volume puts extra burden on heart which leads to high blood pressure. The veins of the legs dilate and the pulse rate increases as the blood pressure increases. Changes in respiratory process also take place as time of delivery comes nearer and this leads to shallow breathing. The demand for oxygen in the body increases. Hormonal changes also take place during pregnancy and due to that female feels irritable, sluggish, lazy and apathetic behavior, she wants to take more rest. A special likes and dislikes for particular food stuffs is expressed. Excessive thirst, frequent urination, vomiting, high blood pressure etc., are various problems occur due to change in nervous system. Muscles of the back and waist get stretched, due to which there is pain in back. As pregnancy advances, adaptations start in the body for the placement of the baby growing in uterus and for the delivery. On the other hand, the muscles of the abdomen become elastic and flexible, the uterus gets more space for growing fetus. Now, uterus takes the form of a muscular bag which contains fetus, placenta and amniotic fluid. Long stretch marks appear due to the stretching of abdominal wall. Mucus membrane of vagina and cervix thickens as a preparation for delivery, there is an increase in the number of blood vessels, skin becomes blue, elasticity and flexibility of muscles increases and along with the joints and nerves of pelvic bone loosen so as to provide enough space to the baby to come out during labor.

Nutrition related problems :

Pregnancy is a normal and natural physiological process, but in this period almost all women have to undergo gestational problems because of hormonal changes. Morning sickness, dislike towards food, problems related to gastro-intestinal tract, anemia, high blood pressure, edema, cramps in extremities etc. are some problems due to which women feels irritable.

Hence, women require special care and nursing during pregnancy period. She needs to take special foods to cope up with these condition. Careful guidance of an experienced doctor is also essential to prevent her and the baby from complications. Some nutrition related problems occur during pregnancy period are :

1. Nausea or morning sickness : In early pregnancy (i.e. 2-3 months) or in first trimester morning sickness, giddiness, nausea are faced by pregnant lady. This is mainly due to hormonal changes and mental stress to cope with pregnancy. Lady should take carbohydrate rich foods like biscuits, toast, roasted channa etc. early in the morning as soon as she wakes up to reduce these incidences. The problems subside automatically after three months. There are chances of dehydration if vomiting persists for whole day or for longer time. Lady is not able to take proper nutrition due to nausea and vomiting which leads to malnutrition. In this condition it is advisable to consult a doctor. Fatty and rich foods, highly seasoned and flavored foods may be restricted if nausea continues.

2. Digestive problems : Pregnancy can bring with it digestive problems like indigestion, heartburn, flatulence, belching, constipation, and hemorrhoids. There is increased pressure on the stomach because of the increase in size of uterus. The release of hormone called progesterone is also high in this stage. This hormone causes softness and tenderness of the muscles leads to relaxation of intestinal muscles. The peristaltic movement of the intestines slows down, the food cannot move forward and stays undigested in the stomach for 40-48 hours. This causes indigestion. Sometimes the food moves from stomach into the food pipe and this causes heart burn & irritation. The rate of re-absorption of water in the large intestine increases due to which the stool is dry. There is difficulty in excretion due to lesser muscular activity and leads constipation. The raised level of blood volume during pregnancy causes veins to swell. Dry feces exert pressure on inner lining of rectum and ruptures when hard stool is passed. The blood vessels leads to hemorrhoids.

The following changes should be made in the dietary system to reduce these digestive problems :

1. Drink lots of fluids. Water and fruit juices soften stools and keep digested waste passing through the bowel.

2. Eat fiber-rich foods. Certain foods are especially good for keeping stools soft and make sure they pass easily through the bowel. These foods include many of the highly nutritious foods recommended for a healthy diet during pregnancy: fruits, vegetables, whole grains, and legumes (dried beans and peas).
3. Don't take food in one sitting, increase frequency of food intake by 5-6 times a day.
4. Drink lemon juice in lukewarm water before going for defecation
5. Regularity in diet and time of defecation is must.
6. Exercise : Not only keep your muscles in shape, it also boosts blood circulation and supplies more oxygen to all organs (including the bowels) to help them perform their job more efficiently.
7. Light walk in fresh air in the morning helps.

3. Anemia, high blood pressure and odema :

The total amount of blood also increases by one to two liters in addition to increasing body weight in pregnancy. It causes hemodilution and there is reduction in hemoglobin level. The hemoglobin level of the blood falls from normal values (12 -14 gm./100 ml.) In this case when hemoglobin level is below 11 gm/100 ml, the woman is considered to be in the state of anemia. Sometimes this level falls upto 7 to 8 grams per 100 ml. and this severe anemia has a bad effect on the nutritional level of the woman and the development of the child.

Increased blood volume increases the burden of blood circulation on the heart. Blood vessels also have to carry more blood, so to cope up with the situation, blood vessels swell up but then pressure of blood also increases in the veins. This causes problem of high blood pressure. Increasing weight of uterus causes pressure on veins and this obstructs blood flow in lower body parts - legs and feet causing fluid from the vessels comes out and accumulates in tissues and inter

cellular parts, resulted in oedema. Gradually it spreads to other body parts as face, hands etc. Doctor should be consulted if blood pressure persists for long.

Regular intake of food rich in iron is must to deal with anemia. There should be regular intake of iron and folic acid pills given by the doctor according to the medical instructions. Minimize the use of salt in food in case of hypertension and inflammation.

4. Cramps in legs: Sometimes cramps experienced the legs during pregnancy. This may be due to low intake of calcium because the calcium requirements of the fetus are very high and this extra calcium is not consumed by women's daily diet. In such a condition, calcium and vitamins tablets referred by doctors can be consumed to provide relief.

Nutritional requirements :

Only a healthy mother is able to give birth to a healthy baby. The growth and development of the fetus during pregnancy depends on the physical health and nutrition level of the pregnant woman. To ensure it, the physical changes occurring during pregnancy are normal and problems that occur during that time are minimum. It is necessary that pregnant woman is well nourished. The nutrition during and before pregnancy affects the health of the infant. She is weak or having serious illness or the mother is suffering from disease, then she will not be able to give birth to a healthy baby. It may causes death of mother and the baby or any one out of two during parturition. Hence it is important that pregnant woman fulfills the nutritional needs of herself along with that of the foetus, from the daily diet. Daily quantity of nutritional elements for pregnant women is recommended as daily requirement of working pregnant woman of any category can be ascertained after adding additional quantities of nutrients to the daily amount of normal woman.

Additional requirements for the nutritional requirements of a low, middle and hard working women in pregnancy given in table.

Table 16.1 : Recommended dietary allowances for pregnant women per day (NIN-2010)

Nutrients	Functionality			Additional requirements for pregnancy
	Sedentary	Moderate	Heavy	
Energy (K cal.)	1900	2230	2850	+350
Protein (gm.)	55	55	55	82.2
Visible fat (gm.)	20	25	30	30
Calcium (mg.)	600	600	600	1200
Iron (mg.)	21	21	21	35
Beta carotene (ug)	4800	4800	4800	6400
Thymine (mg.)	1	1.1	1.4	+0.2
Riboflavin (mg.)	1.1	1.3	1.7	+0.3
Niacin (mg.)	12	14	16	+2.0
Pyridoxine (mg.)	2	2	2	2.5
Vitamin 'c' (mg.)	40	40	40	60
Dietary Folate (ug)	200	200	200	500
Vitamin B12 (ug)	1	1	1	1.2
Magnesium (mg.)	310	310	310	310
Zinc (mg.)	10	10	10	12

Table portrays the additional quantities of almost all nutrients in pregnancy.

The extra requirement of energy in pregnancy is due to increase in body weight and size, these increases metabolic rate of the lady.

It results in increase demand of recommended extra calorie. ICMR experts suggested extra 350 Kcal in pregnancy. Grains, sugar & fat should be used in the diet to meet extra calorie requirement, but not very much. Pregnant woman should not take large amount of food at a time and should consumed 5 to 6 times a day in a small quantity.

The need for additional protein during pregnancy is to repair of the normal breakdown in the body, for the development of the fetus and for her own tissue maintenance. The pregnant women should include food of high quality such as the complete protein containing foods, milk, cheese, soy, nuts, meat, fish, egg etc.

Extra fat should not be increased during pregnancy, because fat get deposited in the uterus. Obesity occurs due to excessive fat. Many diseases arise due to the use of saturated fats such as Ghee, vegetable ghee etc. It should be used in least amount as they are harmful to health. Use of unsaturated fat is beneficial for health.

There is need of additional calcium for the formation of bones and teeth of fetus. In the absence of constant supply of calcium by daily food, mothers bone is depleted and supply calcium to the growing fetus from her own reserves. This causes weakness in bone and teeth of mother and also causes osteomalacia. Therefore, during pregnancy 1.2 gm of calcium should be consumed daily. Extra calcium supplements should be filled with adequate calcium-rich food items such as milk and milk products (milk,

curd, cheese) green leafy vegetables, cabbage, turnip should be included in the diet. Calcium tablets & tonic should be consumed to meet requirement.

Iron is essential for the production of blood and hemoglobin in the body of the fetus. In the mother’s diet if there is not enough iron content, then it is absorbed from the mother blood, due to which the pregnant woman becomes severe anemic. Pregnant woman should take iron rich food such as green leafy vegetables, spinach, amaranths, fenugreek, jaggery, meat, liver, fish, eggs etc. In the last 3 months of pregnancy, demand for iron is greatly increased, so iron salts in consultation with the doctor is necessary to be taken in the form of pills or tonics. There should be sufficient amounts of folic acid in meal because it protects from megaloblastic anemia, foods like whole grain, peanut, legumes, sesame, green leafy vegetables, dried yeast, egg and liver foods etc. It is rich in folic acid & should be included in the diet of pregnant women.

Requirement of thiamine, riboflavin and niacin are increases according to the energy requirements because these three vitamin supplements are used to oxidize fat and corbohydrate. Vitamin C, Vitamin B₁₂

or Vitamin A are required for the growth and development of the fetus. Vitamin C helps in Collagen formation. This collagen works to connect the cells of various tissues of the body. Vitamin B₁₂ is essential for the protection from pernicious anemia. The amount of red blood cells in the blood of the pregnant mother decreases in the absence of this. Vitamin-A is essential for the growth of the body and for the health of eyes, in addition to their need for pregnancy, the usual quantity is recommended every day.

Pregnant women also need water and liquids along with nutritious food. Water and fluids are helpful in maintaining fluid balance and in the excretion of waste substances. Pregnant women should drink 7 to 8 glasses of water throughout the day. The amount of water should be increased in the summer. It can be consumed in the form of fruit juice, vegetable soup, milk, buttermilk, beverages etc.

Dietary management :

In order to supply all the essentials nutrients for the complete development of the baby in the womb, the woman should conform to the various food items selected in her diet from table.

Table 16.2 : Balanced diet for pregnant women per day (NIN,2010)

Food Groups	Quantity of food items (gram)			
	Work activity			Additional requirement
	Low	Medium	Heavy	
Cereals	270	330	480	-
Pulses	60	75	90	-
Milk (ml.)	300	300	300	+ 200
Root & tubers vegetable	200	200	200	-
Green leafy vegetable	100	100	100	+ 50
Other vegetables	200	200	200	-
Fruits	100	100	100	+ 100
Sugar	20	30	45	-
Ghee/Oil	20	25	30	+ 10

Note: Non-vegetarian women may use 50 gm egg/meat/fish in exchange of 30 gm pulse.

Keep the following things in mind according to the table before planning a diet :

1. Pregnant woman in the stage of the first 3 months does not need extra nutrient, as pregnancy progresses, the demand for nutrients also increases, which is more in the last 3 months.
2. As soon as the pregnant woman gets up early in the morning do not give liquids to drink like tea, milk, buttermilk, etc. Instead, give them to eat solid foods such as biscuit toast, toasted gram etc.
3. The pregnant woman should not eat large meals at a times, give small amount of food five to six times.
4. Diet is thermally and chemically bland so that problem of indigestion or chest burning be avoided.
5. Reduce the consumption of gas-producing food items in the diet such as gram, black gram dal, beans, cabbage, cauliflower, radish etc.
6. Include fiber-rich foods in the diet such as whole grain flour, whole dal, whole grains, salad, fruit, which helps in activation of intestine and avoid the problems of constipation and piles.
7. Eat plenty of roughages such as amaranthus spinach, papaya etc in the diet.
8. Reduce the consumption of refined flour such as maida, naan because it can cause constipation.
9. Drink plenty of fluid like coconut water soup, milk, fruits juice Lemon water, butter milk etc. in the diet.
10. Keep spacing while eating milk and milk product, green leafy vegetables and fresh fruits so that it can meet the extra need of vitamins and mineral.
11. Include egg meat fish in the daily diet, pregnant woman who is consuming vegetarian diet should include mixed food items such as cereal+ Pulses, grains + milk, Pulses + milk etc. to increase the quality of the protein.
12. Salt intake should not be excessive in food because it increases the chance of odema.

13. Dinner should easily be digestive, light and it should be before 2-3 hours going to bed.
14. Use the tablets given by the doctor regularly.
15. Reduce the use of tea and coffee in the diet and avoid use of tobacco or alcohol.
16. Take two spoons of isabgol husk before sleeping in the night to get relief from constipation, taking four to five rasins with lukewarm milk to prevent constipation and drinking hot milk before sleeping brings sound sleep

Important Points :

1. Pregnancy is a temporary physiological condition in the life of women, it is usually a period of 9 months 7 days or 40 weeks.
2. The firstly fertilized embryo finally develops in fetus during pregnancy.
3. There is rapid changes taking in mothers body along with development of fetus and she has to manage for the same. Hence, food is important in this stage.
4. Pregnancy is a normal and natural physiological process but in this period almost all women have to undergo gestational problems due to hormonal changes, so pregnant, woman requires special care and counseling.
5. The growth and development of the fetus during pregnancy depends on the physical health and nutrition level of the pregnant woman. The physical changes occuring during pregnancy should be normal. The problem faced by pregnant will be minimum, hence it is necessary that pregnant woman is well nourished.
6. The nutritional needs of the fetus should also met along with the fullfillment of nutritional needs of herself by taking nutritious diet during pregnancy. Hence daily additional nutrient for pregnant women is recommended as additional requirements.
7. In order to supply all the nutrients for the pre and post development of fetus in the womb, the woman should choose the food items in her diet in conformity with Balanced Diet. (NIN,2010)

8. Pregnant woman should not consume in one sitting, frequency of food should be 5 to 6 times. Balance and nutritious food in small amount and easily digestible food should be eaten.

Questions :

1. Choose the right answer of the following questions :
 - (i) Formation of 9 months 7 days fetus from a fertilized egg is known as :
 - (a) Childhood
 - (b) Pregnancy
 - (c) Infancy
 - (d) Puberty
 - (ii) Pregnancy is predominantly divided into stages:
 - (a) Two
 - (b) Three
 - (c) Four
 - (d) One
 - (iii) Sedentary pregnant women require protein?
 - (a) 78.2 gm
 - (b) 75.2 gm
 - (c) 82.2 gm
 - (d) 55.0 gm
 - (iv) Extra iron salt and folic acid are required in pregnancy for :
 - (a) Extra energy
 - (b) Maintaining hemoglobin
 - (c) The weight of mother
 - (d) All of the above

2. Fill in the blank:

- (i) Pregnancy is usually week of a temporary phase.
 - (ii) The metabolic rate increases due to increase in body weight and surface area by
 - (iii) problems are faced by pregnant mother due to hormonal changes.
 - (iv) Calcium requirement of woman during pregnancy mg.
 - (v) Requirement of the.....group of vitamins increases according to the energy requirements.
3. Write a comment on the following.
- a. Anemia
 - b. Digestive problems
 - c. Morning Sickness
 - d. Requirement of balanced diet for pregnant woman.
4. Pregnancy is the specific and temporary stage of woman's life. Explain.
5. Write an Important points while planning meal for pregnant women.

Answers :

1. (i) b (ii) b (iii) c (iv) b
2. (i) 40 (ii) 10-25%
(iii) Gestational (iv) 1200 (v) b

17. NUTRITION DURING SPECIAL STAGE : LACTATION

The duration of lactation period starts from birth and remains till 1 year or when child is dependent on breast feeding. This period is known as breast feeding or milk- feeding. The mother's milk is equal to elixir, initial food and blessing of God after the birth of newborn baby. The mother's milk is birth right of every child. Baby/Child should not be detained from mother's milk. Breast feeding should be initiated just after birth.

Mother's milk contain all the nutrients in balance form for good health, growth & development of child. A infant depends only on mother's milk for the first 3 months. The breast – feeding is compulsory for 6 months as infant usually drinks milk of mother till 1-1½ years, but along with milk, he also starts to eat homemade food. So it is very necessary for lactating mother to be healthy. It will affect the rate of production of milk in breast if mother is not healthy. It also affects the quality of milk if mother is malnourished. It will also affect infant's health as its growth or development will not take place properly and he may get disease.

The benefits of breast-feeding for infants have already been explained for nutrition in infancy. The breast feeding is not only importantly/necessary for infant but also for mother because:

1. It develops emotional bonding between infant and mother. Mother feels self-contentment and pleasure when a mother breast feed her child. Infant also feels secured in the arms of mother. This relation between an infant and his/her mother is the starting of first social relation.
2. The breast feeding acts as a natural birth control

system, as mother who does breast- feeding for longer period, has lesser chances of getting pregnant.

3. Muscles of uterus gets in to its shape quickly due to breast-feeding.
4. The fat lobules which are deposited at the time of pregnancy the body helps in milk production through breast-feeding. Mother gets his initial body's shape and size within 6-10 months .
5. The breast feeding does not require any money or expenditure. It is easily available according to the needs of infant.
6. The breast feeding reduces the chance of breast cancer.

Healthy Indian woman secretes 850 ml. milk per day and after some time its amount reduced to 600 ml. per day. Studies also show that during 3-4 months, lactating mother secretes milk up to 1000 ml. per day. On the other hand, in weak and unhealthy women, the amount of milk secretion in first six months is 600-700 ml. and it is reduced to 400-500 ml.

The reasons of less milk secretion in lactating mother are as follows :

1. Mal-nourishment and less body weight
2. Less nutritive food during lactation period.
3. Doing fast during lactation phase.
4. Modernized thoughts in which breast feeding is not considered good.
5. The job working hours is also one of reason as infant does not get mother's milk for 7-8 hours.
6. Cracks in nipples, improper erection of nipple and deposition of milk in milk ducts makes the

breast heavy and it causes difficulty for an infant to suck the milk.

7. Any kind of deformity in lips and tongue of infant causes problem in breast feeding.
8. Less secretion of hormones responsible for the milk secretion.
9. Increasing time duration of lactation period.
10. Very primitive, excitement, aggressiveness of mother.

Reduces the production and secretion of milk if infant suck less milk or does not have proper breast feeding due to any reason. So, it is necessary that mother takes care of health, rest and proper nutrition so that infant gets milk time to time. Mother should stay happy and breast feed regularly. Consult doctor immediately if any problem arises during breast feeding.

Nutritional Requirements :

The nutrient requirements of an infants fulfills by mother's milk. So it is necessary that lactating mother should take proper meals not only for herself but also

for infant, therefore regular secretion of milk should be there. Requirement for nutrients during lactation is depicted in table 17.1.

All other nutrients except iron salts and magnesium have been proposed in table, which are essential for the proper nutrition and formation of milk in mother. The total essential quantity of nutrients can be ascertained for the woman in this condition by adding additional requirements of proposed nutrients of the general requirements of working women of a different category. The extra requirement of energy can be fulfilled by two sources:- daily meals (extra energy). Second deposited fat of lobules during lactation in mothers body. For this stage extra requirement of iron elements is not given because the baby body accumulate iron in his liver to meet the needs of the first 3 months of birth. Iron is not met through breast milk because the iron does not found in mother's milk. There is no loss of iron content by the bloodstream due to the absence of a monthly discharge in the menstruation, hence extra iron is not required during lactation.

Table 17.1:- Daily recommended allowances of nutrients during lactation (NIN, 2010)

Nutrients	Activity			Additional	
	Low	Medium	High	0-6	6-12
Energy(K.cal)	1900	2230	2850	+ 600	+ 520
Protein (g.)	55	55	55	+ 19	+ 13
Visible fat (g.)	20	25	30	30	30
Calcium (mg.)	600	600	600	1200	1200
Iron (mg.)	21	21	21	-	-
Beta carotene (ug)	4800	4800	4800	7600	7600
Thamine (mg.)	1	1.1	1.4	+ 0.3	+ 0.2
Riboflavin (mg.)	1.1	1.3	1.7	+ 0.4	+ 0.3
Niacin (mg.)	12	14	16	+ 4	+ 3
pyridoxine (mg.)	2	2	2	2.5	2.5
Vitamin 'c'(mg.)	40	40	40	80	80
Dietary Folat (ug)	200	200	200	300	300
Vitamin B ₁₂ (ug)	1	1	1	1.5	1.5
Magnesium (mg.)	310	310	310	310	310
Zinc (mg.)	10	10	10	12	12

Dietary management :

The lactating mother gets special care after delivery, during first 1¼ months or 40 days which includes oil massage, bath of warm water and rest. Mother should be given high energy and protein diet during lactation. Lactating mother gets home-made medicine like:-sweet dishes made up of ajwain, sonth, laddu, gond, supari, haldi, batisha combined with excessive ghee, jaggery, sugar, dry fruits like cashew, raisin, almond, walnut etc. These are highly rich in protein, fats & minerals, which provide extra energy, protein for the secretion of milk. These are helpful in improving health, maintaining immunity, balancing body temperature. It provides relief in back pain, stomach ache etc. Control bleeding from uterus, re-secretion/contraction of uterus & mother feels healthy. Lactating mother should be given milk & milk products, desi ghee halwa, less spicy food, soup, porridge, moong dal, spinach, fenugreek etc. Lactating mother should be given boiled water of ajwain and battisa for 1¼ months to maintain immunity. Battisa is made up of 32 ayurvedic roots which is beneficial for lactating mother.

Mother should not be consumed maize, millet, rice, other vegetables like Gobi, Pea, Leady finger, spices etc. for 1¼ months during lactating period as these create flatulence problems for both mother & child.

In this era of modernization, working class women don't take these home-made medicines as they believe that they will be fatty. Researches on lactating mothers show that these home-made medicines are beneficial even in today's context. These are helpful not only in production of milk but also in maintenance of mother health. Homemade medicines combined with regular breast feeding process is beneficial for mother as well as for infant in its growth and development.

Lactating mother should take extra food regularly after 1¼ months for the secretion of milk & should feed infant till 1 years or till infant wants to breast feed. Mother should choose various food stuff from table in appropriate amount to breast feed her child.

Table 17.2: Balance diet for lactating mother (NIN-2010)

Food groups	Quantity of Food Items(gm.)			Additional Requirement
	Activity			
	Low	Medium	High	
Cereals	270	330	480	+ 30
Pulses	60	75	90	+ 60
Milk (ml.)	300	300	300	+ 200
Root Vegetable	200	200	200	-
Green Leafy Vegetable	100	100	100	+ 50
Other Veg.	200	200	200	-
Fruit	100	100	100	+ 100
Sugar	20	30	45	-
Ghee/Oil	20	25	30	+ 10

Note : Non-vegetarian mother can exchange 30 gm dal with 50 gm of egg/meat/fish.

Following points should be kept in mind while planning meal for lactating mother :

1. Meals are planned according to the nutritional requirements which includes needs for the mother and for milk production. A modification of normal diet is worked out for a nursing mother. Additional amounts of protein and energy foods are included in this diet. In most regions, it is customary to feed the nursing mother additional amount of fat (ghee), which supplies energy and vitamin A or some special preparations (daliya, Ladoos of Methi, mung, garden cress seeds) which contain sources of protein, iron, calcium and vitamin B. Besides this, green leafy vegetables and at least two servings of citrus fruit be added.
2. Condiments should be sparingly used. Apart from being harmful may give a flavour to the milk, if used in excess may be repulsive to the baby.
3. Besides three large meals, two small meals may be planned to meet the increased requirements.
4. Fluid intake should be adequate to meet the requirements for milk production.
5. Socio-economic status of the family should be considered, and the selection of food stuffs should be according to the budget of the family e.g. groundnuts, pulses-cereals may be taken instead of meat and milk products for protein sources. Similarly green leafy vegetables may be selected instead of egg and meat products for cut down the cost of the diet.
6. Variety should be provided in terms of color, texture and flavor.
7. Likes and dislikes of the mother should be taken into consideration.
8. Age of the mother be taken into consideration. An adolescent mother, who has not completed her own growth, will need additional food for her own growth.
9. The food should be served in a pleasant atmosphere.
10. Meals should be given 5-6 times with little intervals rather than 3- times.

Important Points :

1. The duration of lactation stage starts with birth of infant and remains till one year or upto infant depends on breast feeding.
2. Milk is enough from birth of infant upto 3 month.
3. The production, secretion rate & its composition depends on the nutrition level of mother.
4. Initially healthy Indian women secrete 850 ml. milk per day.
5. Balanced amount of water and liquid - based foods should be given to mother for milk production and secretion.
6. The extra amount of all nutritive elements are given in the lactation phase so that mother's nutrition level, development and growth of an infant can take place in normal way.
7. The traditional meals provide extra energy and nutrients for the secretion of milk. These also act as medicine, so these are beneficial for health.
8. It is necessary for lactating mother to take all food stuff in balanced amount for the successful breast feeding.

Question :

1. Choose the correct answers for the following questions :
 - (i) An infant is depended on mother's milk.
 - (a) First 3 month
 - (b) First 4 month
 - (c) First 6 month
 - (d) First 1 month
 - (ii) Healthy woman secrete amount of milk.
 - (a) 750 ml. (b) 900 ml.
 - (c) 1000 ml. (d) 600 ml.
 - (iii) The requirement of energy is increases by in lactation period (0-6 months)
 - (a) 400 Kcal. (b) 500 Kcal.
 - (c) 450 Kcal. (d) 600 Kcal.
 - (iv) In today's time lactating mothers do not consume traditional dishes because they might get :
 - (a) Fatty (b) Clumsy
 - (c) Round (d) All of the above

2. Fill in the blanks :
- (i) The lactation period should starts with birth of an infant and remains till
 - (ii) In the lactation stage extra amount of minerals is not mentioned.
 - (iii) The consumption of homemade medicines' during lactation helps in and of milk.
 - (iv) women should increase protein quality by mixing food like milk + pulses, cereal + pulses, cereal + milk should be consumed.
3. Breast feeding is beneficial for lactating mother. Explain.

- 4. Describe the causes of less secretion of milk.
- 5. Which points are necessary to be kept in mind while planning meal for lactating mother ?
- 6. Describe the importance of traditional method of medicines given to lactating mother upto 1¼ months.

Answer Key :

- 1. (i) a (ii) d (iii) d (iv) d
- 2. (i) breast feeding (ii) Iron
(iii) Production and secretion (iv) Vegetarian

18. DIET DURING DIARRHOEA AND FEVER

Diarrhoea and fever are common infectious disease. Diarrhoea occurs due to digestion related ailment and fever due to respiratory infection. Change in season and low immunity people of every age are affected by diarrhea and fever. It is necessary to take advice by doctor. Medicine, hygiene, rest and diet are an important factor for the treatment of this common disease.

The digestive system slows down and patient feels lack of appetite in diseased condition. Patient is not able to take proper nutrient in their diet due to all these reasons. We will study, physical changes and nutritional modification in diarrhea and fever in this chapter.

Diarrhoea :

Evacuation of the bowels in this condition, is watery in nature with increased frequency. The number of stool varies from several per day to every few minutes. Person suffering from diarrhea becomes weak and malnourished. The capacity to do work and immunity both reduces. Physical and mental development of children is hindered. There is excessive loss of electrolytes if proper care is not given to diarrhea patient and it leads to dehydration. It is fatal for neonate and children. Diarrhoea is caused due to unhygienic condition and habits causes infection. Diarrhoea can be classified into two groups based on its frequency and intensity. They are : (i) Acute (ii) Chronic.

(i) Acute Diarrhoea :

This is characterized by the sudden onset of frequent stools of watery consistency with abdominal pain, cramps, weakness and sometime fever and

vomiting. Acute diarrhea sustain for 24 to 48 hours. It is necessary to take care of water and electrolyte in this condition as it lead to dehydration while nutrition necessity is not that much important.

(ii) Chronic Diarrhoea

Diarrhoea can be termed chronic when it persist for two weeks and sometimes even longer. In this type of diarrhea intensity is some what slow. The food is parsed very rapidly through small intestine thereby not allowing much time for the nutrition to be absorb. This result in nutritional deficiencies. Therefore it is important to take care of nutrition and to replenish it.

Dietary management :

Acute Diarrhoea : This type of diarrhoea lead to excessive loss of water and electrolyte causing dehydration. It can be fatal. This situation can be controlled by oral rehydration solution (O.R.S.) or salt and sugar solution could be given as soon as possible.

Along with O.R.S. as patient stabilizes, he can be given water, coconut water, tea, butter milk, rice water, lemon water, dal water, barley water. Mainly water and electrolyte are best way to treat acute diarrhea and to replenish water and minerals.

What is oral rehydration solution (O.R.S.) :

WHO recommend O.R.S. (oral rehydration solution) in order to replenish water and other important salts in dehydrated person. It can be procure from hospitals, health center, clinics, anganwadi centers and pharmacist. One glass i.e. (200ml) of water for preparing this solution is boiled properly and cooled, mix one sachet of O.R.S. (5.7gm) and stir until it get mixed properly. Add one liter of boiled and cooled water for bigger pack i.e.

(28.5gm). O.R.S. should be consumed within 24 hours of its preparation. Prepare fresh solution of O.R.S. every time if required more. Amount of O.R.S. depends on age and intensity of dehydration. 1-2 liter (5-10 glass) of O.R.S. For infants and children and for adult 2-4 liters (10-20 glass) should be given. One liter of O.R.S. contain 3.5 gm. Sodium chloride, 1.5 gm Potassium chloride, 2.9 gm. Sodium citrate and 20.0 gm Dextrose.

Chronic diarrhoea :

Nutritional modification made for chronic diarrhea are as follows :

- **Energy :** 10-12% of energy should be increased to take care of weakness and weight of the individual
- **Protein :** There should be 50% protein requirement for wear and tear and also for the maintenance of body tissue .
- **Carbohydrate :** Complex carbohydrate should be increased to provide energy and less fiber food (1-2 gm) should be given to provide rest to the intestine.
- **Fat :** Fat is not digested due to excessive movement of intestine therefore fat should be given in emulsified form like butter, cream etc.
- **Minerals :** There is less absorption of iron and calcium, therefor, iron and calcium rich foods should be given .
- **Vitamins :** Fat and water soluble vitamins should be given though food.

Diet and dietary modification :

- Food which is soft, blend less fiber easily digestible with low fat should be given.
- Food should be cooked properly and can be given in semisolid and soft form.
- Liquid should be given in small quantity and frequency of food should be 6-8 time in a day.

Fever :

Fever is the elevation in the body temperature above the normal which may occur in response to an infection, inflammation due to unknown causes. The normal body temperature is 98.4°F or 37°C.

It is classify into three categories according to interval and intensity.

1. **Acute fever :** such as in acute infection like cold, cough, chickenpox, influenza, typhoid etc. which last for a few hours or a few days.
2. **Chronic fever :** such as tuberculosis which last from several days to several months.
3. **Intermitted fever :** such as malaria

Physical and biochemical changes in fever :

The metabolic rate increases by 13% for rise of every degree celcius in body temperature. Glycogen and fat stores get depleted. There is an increase in the breakdown of protein which causes an increase in evacuation of the protein wastes by the kidney. There is an excessive loss of body fluids due to increase in excretion of body waste through perspiration and evaporation. There is increased excretion of the electrolytes, sodium and potassium and increase in respiratory rate. There is an extra burden to lymph and circulatory system. Gastro intestinal tract is affected due to fever and loss of appetite. There is delayed digestion and patient feel nauseatic (feeling of vomiting).

Requirement of all nutrients increases in fever. It leads to malnutrition if food not taken for longer time. There is physical weakness and immunity decrease if patient does not take nutrient according to requirement. Balanced diet is to be taken along with medicine.

Dietary management :

Diet depends on behavior and intensity of fever. Demand for energy increase by 50% due to loss of muscle and increase in body temperature. Uneasiness and instability also increases the energy requirement. However, the patients apptite is poor due to fever and digestion may be improper. Easily digestive food should be given to the patient as soon as fever is in control. Just as the calories need increase so does the need of protein, 50% of protein of daily requirement. Protein should be from high quality such as mixture of cereal & pulses, milk, egg etc. Glycogen and fat store in liver is depleted therefore, carbohydrate requirement increases. It should be in the form of simple sugar. Glucose is simplest form, it get absorbed rapidly. It reached every cell and provide instant energy. Therefore glucose should be given at two hour intervals for energy. When patient is able to digest

food properly then emulsified fat like cream, milk and butter should be given as it is easily digested. Much of water, sodium and potassium is lost due to perspiration, hence salt and fruit juices should be given. Fever increases the demand of vitamins-A, C and B-complexes as per calorie requirement. Therefore sprouts, fermented and complete protein (cereal +pulses) should be included in diet. 2.5 to 5 liter of water should be taken to replenish excessive loss of water through perspiration and urine. Water should be given in the form of beverages like barley water, fruit juices, soups, glucose water, milk etc.

Points to be noted while planning meal :

1. Diet should be high in energy, protein, low fat, fresh and easily digestible food.
2. Liquid diet should be given more eg - glucose water, fruit juices, rice and barley water, whey water, vegetable and dal soup.
3. Diet should be according to patient’s choices, nutritious and full of nutrition.
4. Semisolid and solid food should be introduce as patient recover eg – Porridge, Chapatti, Bottle guard vegetable etc and normal food should be given after recovering .
5. Small and frequency of feed should be (2-3 hours).
6. Food containing spices, fried food and roughages should be avoided.
7. Food should be according to season and palatable.
8. Regular check-up from doctor is must along with dietary management.

Important points

1. Diarrhea is that condition in which frequency, intensity and fluidly of stool is more than that of normal, means watery unformed stool is passed many times.
2. Acute diarrhea is for 24 to 48 hours, water and electrolyte replenishment is prime factor to avoid dehydration.
3. It is known as chronic diarrhea if diarrhea persist for more than two weeks.
4. Important aim of chronic diarrhea is to take care of nutrient related requirement and extra requirement too.

5. Diarrhea causes loss of liquid, minerals and protein muscle. Dehydration condition occurs due to loss of liquid and electrolytes.
6. Oral rehydration solution should be given to patient which is recommended by WHO in order to replenish water and electrolytes.
7. There is increase in metabolism, loss of muscle protein, uneasiness, instability due to fever. This all increase the requirement of energy by 50%
8. There is loss of appetite due to fever. High calorie diet should be given as fever is reduced.

Questions :

1. Choose the right answers for the following questions :
 - (i) Which diet should be given in chronic diarrhea?

(a) Less caboose	(b) Less roughages
(c) Less protein	(d) None of the above
 - (ii) Frequency of acute diarrhea is :

(a) 4-5 hours	(b) 14-18 hours
(c) 24-48 hours	(d) None of above
 - (iii) Intermitted fever is.

(a) Chicken pox	(b) Typhoid
(c) Malaria	(d) T. B.
2. Fill in the blanks :
 - (i) week or more then that frequency could lead to chronic diarrhea.
 - (ii) It leads to & depletion if diarrhea present long time
 - (iii) It leads to in body due to loss of liquid and electrolytes.
 - (iv) is to be given during dehydration according to WHO.
 - (v) Requirement of energy is increased by due to increase in body temperature and tissue depletion.
3. What is O.R.S.? How to prepare it.
4. Differentiate between adult & chronic diarrhea.
5. What is fever? Explain physical changes during fever.

Answer :

1. (i) a (ii) c (iii) c
2. (i) Two (ii) liquid, electrolytes (iii) dehydration (iv) O.R.S. (v) 50%

19. FOOD ADULTERATION

Adulteration of food is common in whole world among business class. Consumer wants food stuffs in a cheaper rate. In today's scenario, business man has to maintain their standard, and for the same, they have to fulfill the needs of consumer. This is vicious cycle which never end up. This mainly depends on economy. Consumer can buy commodities easily if economy is good, but due to inflation at individual and national level, they are bound to buy all items. There is an increase in rates of the commodity due to season/disaster and it is not possible for the consumer to buy that product on high price. This is the main reason for adulteration. Retailer add low grade food stuffs in order to make more profit which is hazardous to our health.

It is necessary to know that the government has enacted the prevention of food adulteration act 1954 which was started on 1 June 1955 to safeguard the consumer from the health hazards posed by the practice of adulteration. According to this act it was proposed that what type of food should be marketed.

Definition of Adulteration :

Adulteration means not only intentional addition or substitution or subtraction of substances which adversely affect the nature, substance and quality of food, but also their incidental contamination during growth, harvesting, storage, processing transportation and distribution. Mainly two types of adulteration are done.

(i) To incorporate external and cheap quality product.

(ii) To remove some important material from the food stuff.

Best example for the first is to mix water in milk and for the second remove oil from walnuts etc. Adulteration can be hazardous to consumer whether something is added or removed from food stuff.

Types of Adulteration :

There are 2 types of adulteration :

(i) **Aimful / Intentional Adulteration :** This type of adulteration is done by seller to gain more & more profit & money. The consumer gets robbed & does not attain the proper value of his money. Cheap and harmful external elements are mixed in food materials intentionally in this kind of adulteration. The important valuable and nutritive extracts are substituted from cheap & low quality of elements. Sand, rock particles, wires, colors' etc are found in intentional adulteration. These adulterated elements have harmful effects on health.

(ii) **Unintentional/Emergent Adulteration :** This kind of adulteration mainly occurs due to carelessness, lack of proper facilities accidentally. Emergent adulteration is done because of mixing harmful elements like mercury, extracts of pesticides, existence of crabs in food materials, remnants of animals, infected by microorganism etc. Food materials are adulterated by the contamination of these elements.

Unintentional / Emergent adulterated elements :

- (i) The argemone grass usually grow with mustard. The seeds of argemone mixed with crop of mustard due to carelessness in the process of cutting crops. The seeds of argemone grind with mustard in the process of extracting oil. The mixture of argemone grass with mustard is harmful as it causes epidemic drop disease.
- (ii) Poisonous gas like Chloro oxygen is found in the smoke food & this smoke contaminates food.
- (iii) The lack of clean, appropriate atmosphere & storage facilities during production of food, in the processing and distribution of food elements. This causes contamination of food by waste materials, micro-organisms, fungus, harmful insects, waste extracts of insects etc.
- (iv) The most common emergent adulterated elements which is found in highest quantity is D.D.T.(Dichloro Di Phenyl Trichloro ethane) &

Methane. The contents of these elements are higher than standardized amounts in plants.

Statutory and approved ways can be opted to maintain the quality of food elements :

- (i) Aware public about adulteration of harmful elements in food materials by regular inspection of market.
- (ii) There should be centralized programmes of pesticides management so that farmer can be trained about the use of pesticide. Suggest farmers not to use pesticides for crop before a week of harvesting of crops.
- (iii) Use of safe pesticide like pyrethroid and methane
- (iv) Control of insects by such living organisms which feed on them.
- (v) Fruits & vegetables should be properly washed before eating & cooking them.

Table 19.1 : Food adulterants and their harmful effect

Food items	Adulterated items	Harms
Cereals : Wheat, maize, rice, others. Bajra	Stones,rocks particles, cheap quality of cereals. Argot (a type of fungus)	Not getting the actual value of money. Toxicity
Pulses : Arhar dal Moong dal	Kesari dal, coaltar color- red chromate. Metanil yellow color. Melachite green(green color)	Paralysis in legs, cancer, neuro toxicity. Problems related to digestion, stomachache, chances of wound, cancer. Chances of cancer.
Milk & Milk products : Milk Milk , paneer, khoa, condensed milk Ice cream.	Impure water, removal of fat & cream, Starch. Toxic colors, washing soda.	Digestion problems, not getting actual value of money, less nutritive value of milk. Digestion problems, lowering the nutrition quality of product. Diseases of liver or intestine. Stomach and liver related abnormalities/diseases

Oil related : Edible oil	Argimone oil, mineral oil, castor oil.	Epidemic dopsy, glaucoma, blindness, heart disease, tumor, chances of cancer, liver & stomach related problems.
Ghee	Vegetable oil & animal fats	Not getting actual value of money.
Spices : Black pepper Asafoetida Turmeric powder Red chilly powder Clove Yellow mustard Jaggary Sugar Honey Coffee powder Tea	Seeds of papaya Resin, galevenum, Yellow anelin dye . metanil yellow, tapiyoka starch Brick powder, wood powder, red color. Clove oil is extracted Seeds of argimone Washing soda & chalk powder Chalk powder Sugar syrup Powder of seeds of tamrind & dates. Chikori powder. Used tea leaves(colored & processed)	Stomach & liver disorders. Dysentery Cancerous, stomach disorder. Stomach disorder, cancer Not getting actual value of money. Epidemic dropsy Vomiting, diarrhea. Stomach disorder. Stomach disorders & not getting actual value of money. Diarrhea, stomach disorders, dizziness , pain in joints. Liver and stomach disorders.

Paralysis of legs :

The kesari dal is mixed with lentil (tur) dal. Poisonous amino acid is found in kesari dal. It is



Fig. 19.1 : Paralysis of legs

necessary to remove that amino acid before consumption. The excessive consumption of dal for longer period without its treatment causes paralysis of legs and person is unable to move around.

Epidemic Dropsy :

Argemone is weedy grass. The seeds of this weedy grass is adulterated / mixed with mustards' seeds. The oil which produced from this is further mixed with costly oils (mustard oil & peanut oil). The consumption of this adulterated oil for 1-3 months causes epidemic dropsy disease in humans. In this disease, water retention in body cause odema. This illness starts with digestive problems. The swelling in skin & fever with slow pulse rate are common in this disease. The swelling increases slowly from legs to thighs hands & face. It affects the eyes, glaucoma, increase in size of liver, cancer also take place with the increased duration of disease and person can dies due to heart collapse.



Fig. : 19.2 Epidemic Dropsy

Prevention of adulteration in food materials

As we have studied earlier that there are different kinds of adulteration (intentionally, emergent) in food materials & it has severe harmful effect on health. So there is an urgent need to stay aware & follow these precautions:-

- (i) Consume more and more of fresh food materials.
- (ii) Lesser use of polished food materials, as the food is more polished, the chances of adulteration becomes higher. For example the chance rate of adulteration is higher in grinded cereals than whole cereals. So we should not use polished food and the preparation of food materials should be done at home. For example grinding of whole turmeric, chilly, coriander, ground spices at home.
- (iii) In today's era, adulteration is burning problem. It is necessary that consumer gets education to solve this problem.
- (iv) In this mechanized civilization, it is impossible to low/reduce the dependency of humans on readymade food materials of market. So people should be awarded to purchase standardized pay base food material.

Food security & standard act 2006 :

Earlier, all the food security rules, laws & orders were gathered & consolidated into food security & standard act 2006. This is first rule of regulation of

food materials. It is base for preparing & implementing laws for food security in India. Various laws & orders were popular for food security before this act and they are as follow :

- The prevention of food adulteration act (1954).
- Fruits product order (1955).
- Meat food product order (1973).
- Vegetable oil product control order (1947).
- Food packaging regulation order (1988).
- Solvent extracted oil, de-oiled meal & edible flour control order (1967).
- Milk & milk product materials product order (1922).

All these acts & orders are consolidated into new act F.S.S.A.I.-2006.

Food safety & standard act 2006 :

The F.S.S.A.I. (Food safety & standards authority of India):- The F.S.S.A.I. 2006 contains all the acts which were popular earlier. According to this act, production, distribution, storage, import & human consumption of food materials has established scientifically & in standardized manner. The establishment of FSSAI was done according to food security & standard act 2006. FSSAI is an autonomous body of health & family welfare ministry. It is responsible for development & conservation of public health in India. The FSSAI was organized by Indian govt. on 5 sep. 2008 to the act of 2006. There is a chief head of FSSAI who is non-govt. person. He is appointed by Indian govt. & its post is equivalent to secretary of India. There is 22 members (other than head) in this organization.

The H.Q. of FSSAI is situated in Delhi. It has 6 regional offices which are situated in Delhi, Guwahati, Mumbai, Kolkata, Cochin & Chennai. There are 14 referral laboratories, 72 state/U.T. laboratories & 112 private laboratories are notified in whole nation.

FASSI is a permanent organization & the powers given by act of 2006 to it, are following:-

- (i) To make laws for standards of food security
- (ii) To give guidance in the inspection of laboratories for the security of food materials.

- (iii) To provide scientific & technical knowledge to the central govt.
- (iv) To provide contribution in the development of international standards for food security.
- (v) To collect/gather data of consumption of food material, contamination & possible dangers produced by it.
- (vi) To produce awareness about nutrition & security of food in India.
- (vii) To appoint officers at state level.

Aims/ objectives of F.S.S.A.I :

- (i) To determine scientifically based standards for food security.
- (ii) To regulate the production, storage, distribution & import of food materials.
- (iii) To determine the quality & security of food materials.

Food security/safety is scientifically based discipline on all the activities of food, its production, storage distribution, import & selling. The standard symbol of FSSAI is : *fssai*. It is marked on the production of food materials.

Important Points :

1. Adulteration is a process which changes the basic quality or dimensions of food materials.
2. Adulteration can be aimful/intentional or unintentional/emergent adulteration.
3. Adulteration causes the depletion of quality and purity of food which has deleterious effect on health.
4. Consumer education should be done to prevent the adulteration.
5. Consumer must consume fresh, less preserved and processed food bearing proper standard mark.

Questions :

1. Choose the correct answer for the following questions :
 - (i) External of inferior elements mixed to the food ingredients are called as :
 - (a) Stones, rock pieces
 - (b) Adulterants
 - (c) External elements
 - (d) All of the above
 - (ii) Adulteration being done by seller purposefully is known as :
 - (a) Unintentional adultration
 - (b) Intentional adultration
 - (c) Mineral adultration
 - (d) Microorganism infestation
 - (iii) Seeds of weed mixed with mustard oil are :
 - (a) Mustard seed (b) Onion seed
 - (c) Argimone (c) None of these
 - (iv) Prevention of adultration in food essentially require :
 - (a) Fresh and less processed food
 - (b) Educated and attentive consumer
 - (c) Purchase material with standard mark
 - (d) All of the above
 - (v) Food prevention act is :
 - (a) FPO (b) FSSAI
 - (c) PFA (d) AG mark
2. Define adulteration.
3. Explain the type of adulteration with example.
4. How can you prevent adulteration in food material. Explain.
5. Write down the deleterious effect of consuming adulterated food.

Answers :

1. (i) b (ii) b (iii) c (iv) a (v) b

20. SAFE DRINKING WATER AND FOOD HYGIENE

I - SAFE DRINKING WATER

Safe drinking water is very important for health. Safe drinking water is free from soil, organic and chemical substances. They are translucent and safe. Clean water in simple language is one which is free from dirt and pollution, and is safe for human consumption. Physical properties of water like colour, smell and taste changes due to presence of polluted substances. Water is infected with human and animal wastes and is found to be contaminated by chemical compounds. Unprotected means drinking impure and polluted water leads to diseases such as amoeba, jaundice, cholera, etc. It is said that the life giving water can also be destroyer if it becomes a carrier of water borne diseases.

Water is the basic need of all the creatures. Every day human need about 20-50 litres of pure water, which they use in their daily life for the activities of daily routine such as cooking food, in form of drinking water and for other activities. It is harmful to human health if this water is unsafe. Water is contaminated due to various reasons, such as stool, urine, silt of plants, waste of humans and plants found in water.

The pesticides and fertilizers plants which came from the field in the water, chemicals from the industry contaminated the water. 97% of the available water on the earth is in the form of oceans and sea, 1.8% is in the form of ice and only 1.2% water is potable. Therefore, water is very limited for human use. Water is distributed in the following 4 parts on the basis of quality :

1. Pure water : There is no undesirable element in the water, this purified water also known as natural water.

2. Safe water : Treatment of pure water is made to make it potable, it is cured water. It does not have any kind of undesirable properties.

3. Contaminated water : The water in which the microbes are present is called contaminated water.

4. Polluted water : If the organic, inorganic radiation biological impurities are dissolved in water, the water is called polluted water.

Effect of contaminated and polluted water on human health :

Various microorganisms through the contaminated water produce many disease of digestive tract in the body.

There are many toxic substances get mixed with water coming out of industries such as fluoride, phenol, cyanide, acid, alkali, mercury etc. These substance spread many kinds of disease when entering the human body through drinking water.

The muscles and GIT become weak, central nervous system related disease occur due to consumption of lead water. High levels of fluoride in water causes stains in teeth, pain in joints and knock knees of legs. Problems of fluorosis, especially in ajmer, Jaipur, alwar, jodhpur, barmer, udaipur, nagaur, pali, bikaner district have fluoride polluted water which causes fluorosis.

Drinking water should be free from any kind of unwanted substances and should be pure. United Nations Organisation (UNO) considers Universal access to pure water in the direction of basic human rights and improving quality of life around the world.

S.No.	Disease	Factors	Causes	Symptoms
1	Amoeba(from hand to mouth)	Protozoa aintamivahistolica	Flies, Stools & Unclear water	Indigestion, fatigue, loss of weight, diahorrea, flatus & fever.
2	Cholera	Bacterium Vibro-cholera	Contaminated water by bacterium vibro-cholera.	Diarrhea, vomiting, nose bleeding, high BP.
3	Dysentery	Salmonella & shigella	Salmonella & shigella microbes contaminated water	Chances of bloody dysentery & bloody vomiting
4	Typhoid	Salmonella Typhi	Water contaminated by stools	High Fever upto 140°F, sweating, diarrhea, red spots on chest and stomach, increase in size of liver, if not treated delirium or death.
5	Severe respiratory symptoms	Corona virus	Contaminated water	Fever, cough, physical procrastination, fatigue, digestion related issues
6	Jaundice	Hepatitis A virus	Contaminated food & water	Delirium headache, itching, stomach ache fever & paralysis
7	Laptospirosis	Bacterium laptospiria	Water contaminated by bacteria present in urine of animals	First stage flu, second stage meningitis, jaundice, liver and kidney failure
8	Polio	Polio virus	Water containinated by stools of virus career.	Headache, brain fever, paralysis.

World Health Organization and various National Organizations have set the level of fundamental properties for water. Under which chemical, biological and radiological satellites of pure drinking water are prescribed.

Standards of physical and chemical quality of water given by the Bureau of Indian Standards are given in Table 20.2.

Table 20.2 Physical and chemical properties of water

S.No.	Parameters	Maximum Limit
1	Smell	Non-objectionable
2	Taste	Non-objectionable
3	pH-Power of Hydrogen	6.5-8.5
4	Solid dissolving (mg/ltr)	500
5	Total hardness mg./ltr	200
6	Calcium (mg/ltr)	75
7	Magnesium (Mg/ltr)	30
8	Chloride (mg/ltr)	250
9	Fluoride (mg/ltr)	1
10	Iron (mg/ltr)	0.3
11	Coliform (MPN/100)	minimum
12	Turbidity (NTU)	1

Method of safe drinking water :

Pure and safe water for drinking is absolutely necessary, only then our health can be good. If we consume safe water then you can get rid of the diseases produced by contaminated water.

Water can be made pure and potable by using ordinary methods in the house.

1. Filtering : This method is practically used in every household. The insoluble substances present in the water can be separated by this method. But fine soil, bacteria and chemical substances that get out in water with clothing can not be separated. Thick and clean white cloth should be used for the filtration of water. Clothing should be used on one side so that the dirt trapped in the holes of the cloth does not get in the water. Plastic sieve and filter available in the market for filtering water can be used as per the instructions written on them.

2. Boiling : It is the best method of purifying water. In this method, at high temperatures (100-120) the boiling water is covered in a large vessel. At this temperature, the presence of micro-organism and their eggs are destroyed in the water as well as the temporary hardness of the water is also removed.

Boiling water does not look delicious in drinking but it is a simple and effective way of purifying water. The water should be covered in the same vessel and left for cooling after boiling. The possibility of getting water contaminated by transferring in another vessel.

3. Alum : In this method, the alum is rotated in water four to five times, the water vessel is emptied another vessels in without shaking. The dust particles present in the water sediment in vessel. The alum is a cheap substance available easily.

4. Chlorine : Chlorine tablet is used to destroy the bacteria present in the water. This is an affordable and easy-to-use method. In this method, 0.5gm of chlorine tablet in 20 liters of water is disinfected. Apart from these, various types of equipment are available in the market for drinking water purification now days. Safe drinking water is prepared by UV rays and modern membrane technology.

5. Reverse osmosis method : This is a water purification technique in which water is extracted through high mean pressure, parchment membrane, by which unnecessary ions present in the water is purified by expelling molecules.

6. Ultraviolet rays : It is a technique for purifying water in which short wave length of ultraviolet rays is used to kill the bacteria present in the water or change in their DNA transformation. This is also used in the purification of food and air purification techniques.

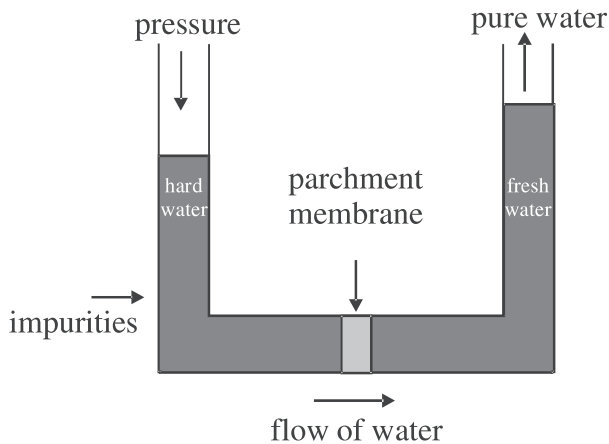


Fig. 20.1 : Reverse osmosis

The following precautions should be taken to keep the collected water safe for further use.

- Do not touch it with hands during transport and storage, Use a clean long handle to remove water or use a vessel having tap.
- Clean the pot of water storage every day with clean water or clean the utensil. Do not use the soil to clean utensils because the soil contains harmful bacteria that can pollute the water.
- Cover the vessel of water and place it high to keep away from the reach of children.

Important Point :

1. Safe drinking water is clean, odorless, transparent and free from biological and chemical substances which are hazardous health.
2. Water is polluted by several factors such as the stool-urine waste discharged by humans and animals, which are also contaminated by the availability of chemicals in water insecticides and fertilizer which coming out from factories to water. Water is also contaminated with rotten trees and plants.
3. Water is divided into four parts mainly pure water, safe water, contaminated water and polluted water

4. Various micro-organisms enter the body through contaminated water and cause many diseases of stomach and digestive tract.
5. Water can made safe by filtered, by boiling, purified by anti-bariatral and ultraviolet rays, by chlorine tablet, by alum.
6. Water should be kept on clean platform after cleaning and hygiene is maintained uptil it is stored.

Questions :

1. Choose the correct answers for the following questions :
 - (i) Safe drinking water can often lead to..... diseases :

(a) Skin	(b) Stomach
(c) Hair	(d) Eye nose and ears
 - (ii) Amoebiosis is caused by pathogens

(a) Corona Virus	(b) Antamoeba Histolytica
(c) Salmonella Typhi	(d) Bacterium Bibers
 - (iii) PH value of water is

(a) 3.5 -5.8	(b) 9-10
(c) 6.5-8.5	(d) none of the above
 - (iv) If the microbes and pathogens are present in water it is called :

(a) Contaminated	(b) Polluted
(c) Unsafe	(d) all of the above
 - (v) Which method is adopted to destroy germs in water :

(a) Ultraviolet rays	(b) Chlorine
(c) Boiling	(d) All of the above
2. What do you mean by safe drinking water? Explain.
3. Write the main reasons for water being contaminated and polluted ?
4. Describe the methods of preparing safe drinking water at home?
5. Explain the side effects of contaminated water on the human body?

Answer :

1. (i) b (ii) b (iii) c (iv) a (v) c

II - FOOD HYGIENE

Food is an important basic need of human being. It nourishes the body through balanced, nutritious, tasty and clean food, and the person is healthy. The consumption of unhygienic and contaminated food causes cholera vomiting, diarrhea, jaundice, typhoid, and other diseases. It is not only harm to the body but sometime it is fatal.

Food hygiene refers to the production of such food items that are safe for the consumer, they can be stored for a long time and remain productive during storage to keep foods clean, avoid them being contaminated.

Foods can be contaminated due to the unhygiene of the individual and the environment in which they are present like dust mites, germicides, food items, and the storage of food items. Rusted equipment may be unhygienic or contaminated due to stagnant foods. It is therefore necessary to avoid harming them so that the physical, biological and chemical reactions of food contamination affect the food and the time it takes for the food to be distorted on the basis of the amount of water present in them. In the food contamination chapter, we have read in detail, so in this lesson we will get to know how to keep food clean.

1. Buy fresh, clean disinfected foods from the market, do not buy rotten and contaminated foods.
2. Clean foods before cooking or storage. For example, wash and dry the perishable fruits and vegetables and store in the refrigerator at the appropriate temperature. Semi perishable food

items like potato. Remove the dirt from the surface and keep it in a well ventilated basket and filter out the essential food like wheat, rice, pulses etc. and collect it in clean box.

3. The place where food items are cooked and the utensil and other equipment are used for cooking can be cleaned, so it is necessary that:
 - (a) The location of the cooking, serving & storage is neat and the place should be cleaned from time to time.
 - (b) Kitchen utensils and equipment used for serving and collecting food should be clean. Food cooked, stored and served in dirty equipment may contaminate food.
 - (c) After serving food, after consuming equipment and utensils, wash as soon as possible with ash or washing powder and wash with clean water.
 - (d) Always cover the food, cook at proper temperature. Always take fresh food. The temperature of food contamination is 5 degrees to 7 degrees. If food is stored for more than 4 hours, in this circumstances at this temperature may be contaminated. It is not suitable for eating.
 - (e) Wash the clothes used for kitchen work with soap.
 - (f) Put the lid of the kitchen waste into the dustbin and do the regular cleaning of the dustbin
4. Physical cleanliness of the person doing cooking food etc. is very necessary so that:

- (a) The cook itself should be clean and healthy
 - (b) Cover the hair and nails of the cook and cover the open hair with clean clothes.
5. There should not be any skin disease nor the boils and lesions on the hand and legs. Otherwise food can be contaminated by this.
 6. Avoid smoking while using food material.
 7. Person suffering from cough, cold, TB or any other infectious disease should not cook or serve the food because sneezing and cough can contaminate the food.

Important Points :

1. Clean food means the production of such foods which consumer can store safely for long period and quality of food is maintained during storage.
2. Buy clean safe and non contaminated food from the market.
3. Cooking utensils and serving material and storage place should be clean. Always store food at appropriate temperature.
4. Physical cleanliness for the person who is cooking serving and storing food is necessary.

Questions :

1. Fill in the blanks:
 - (i) It is necessary to save them from to keep food clean.
 - (ii) Keep wheat, rice and pearls in a dry container after and
 - (iii) Food should always be kept.....
 - (iv) The temperature range for contaminating food is.....
 - (v) Cook himself should be and
2. Explain food hygiene.
3. How food can be contaminated.
4. How food can be kept clean? Explain with example.

Answers :

1. (i) contamination (ii) sieve, clean (iii) covered (iv) 5°C – 6°C (v) clean, healthy

UNIT III - CLOTHING AND TEXTILE

21. CLOTHING AND PERSONALITY

Clothing is one of the basic requirements of human being. Every individual uses clothes to protect themselves from external disasters and to cover their body. Textiles have a profound effect on the human mind. Therefore, it is necessary to have proper type of garments for normal development. Clothing expresses and affects the person's personality. Appropriate types of clothes gives self-confidence that is essential for the development of personality in all age groups. The cleanliness of the clothes, beauty, compatibility, color, variety, style and fashion have a great impact on personality of each of us. The elegant apparel combination makes the entire personality prudent and acceptable.

Wearing beautiful and proper apparel, the person is pleased with himself. It influences on conducting the behavior, so that the entire personality becomes attractive, thus we can say that the person's garment develops personality. So it is not possible to imagine the complete development of a person without clothing. In the daily need, the importance of clothes cannot be neglected. Every day person selects the cloth according to season, availability, occasion, time and need.

The function of garments is mainly of two types:

- (1) **Primary function :** Body safety, comfort and protection from the environment.
- (2) **Secondary function :** Identity, mental satisfaction, social level, praise and diversity etc.
- (1) **Primary function :** The primary function of the clothes is to cover the body. It plays an important role in keeping the body safe from

external environment in air, summer and winter to keep it in normal condition and to protect clothes should be chosen according to season for eg. woolen cloth and cotton are worn in winter and summer seasons respectively. The body remains comfortable after wearing appropriate clothes. Different clothes are used for daily activities such as sleeping, bathing, resting etc.

- (2) **Secondary function :** The over all development of the person is possible through the clothes such as the social, psychological and physical. Person's clothing gives information about the person's occupation for example, the lawyer is identified because of his black coat. Male and female is easily identified through the clothing. Men wear pants and shirts whereas females wear sari and suits. Clothes have become the identity of the person. A beautiful and elegant garment is able to attract persons attention. Thus it gives self-confidence and satisfaction. On the contrary, in the absence of money and ignorance to wear proper clothing by the adolescent and youth, the person is mentally dissatisfied and starts behaving in a problematic manner. So the social importance of the apparel cannot be neglected. The social status of the person can also be recognized through the clothes. Beautiful and clean clothes suited to the personality of person gives satisfaction, happiness and the person becomes eligible for praise. Thus adjusting beautiful clothing apparel bring changes and diversities in the life of a person. The dark

and bright colours clothes make the person's mind happy even in saddest moments. So it would not be wrong to say that the role of textiles is important in making the personality attractive and effective.

In the previous class we have studied about the dyeing and the process of dyeing, but apart from dyeing the clothes are made by printing also. For making clothes beautiful samples and patterns are required for printing on clothes. Further to make clothes more beautiful, its necessary to know about the design or sample, its size, shape, colour and texture. Let us see that what are the points or factors which affect a sample or design or we can say that by using elements of art and principles, pattern or design can be made attractive.

Elements of art:

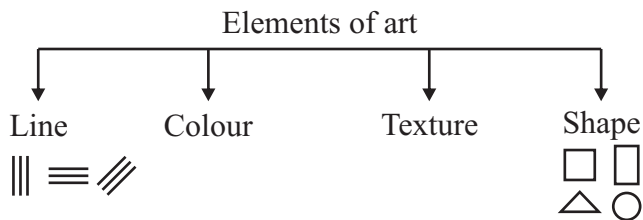


Fig. 21.1 : Elements of art

1. Line : The important place of lines are to make beautiful and attractive designs on garments. The designs are made by adding different lines. The line is used for the variety of designs on the fabric, so that different types of pattern can be made. There are mainly four type of lines:

- (i) **Vertical line :** It increases the length of line. This characteristic of line is accompanied by eyes movement from top to bottom or bottom to top. This line gives an illusion of a person looking tall,so people with short stature should wear garments having vertical lines.
- (ii) **Horizontal line :** These lines are flat and are a symbol of rest. It gives a sense of relaxation, with the direction of eye moving from right to left or from left to right, and also shows the increase in width. Therefore, horizontal line should not be

wore by obese while thin persons with the clothes of these lines appear normal.

- (iii) **Diagonal line :** These lines give the sense of movement. These lines show a sense of increasing in length and decreasing breadth. Through the use of these line, we can enhance the beauty of the clothes.
- (iv) **Curved line :** These lines are curved and show the sense of pleasant, softness, and beauty. These line are used to make semi circle, circle, flower and leaf for design.

2. Shape : Shape is an important element. Through the combination of different lines different shape are formed. Different shapes are used to produce attractive designs on objects. There are mainly four types.

- (i) **Square :** This shapes require both horizontal and vertical line, and these designs are attractive.
- (ii) **Rectangular :** Shape of a design parallel, vertical and opposite horizontal lines are equal.
- (iii) **Triangular :** Shape of the triangular design, one part consists of a combination of one horizontal line and two slant lines.
- (iv) **Circular :** The shape of the design is round, it is used in many curved designs.

3. Colors : A detailed study of colour have been done in the previous class, but the color keeps its important position in the element of art. So it is necessary to know about color and also it adds life. Clothes look attractive due to the colors. While creating a pattern in textiles, colour combination have its unique place. The use of colour depends upon the individual interest. The clothes affect the person psychology because it is a powerful medium to build up its personality. However, a person has many good qualities but if the colour combination is not according to the person, then personality has to suffer. A combination of appropriate colors provides a self confidence to the person wearing the dress. Colors is interesting when used, according to fashion. The

susceptive effect of colors also has a sensitive effect. Different colors have different effects on the person such as:

Red Colour : Eagerness, stimulus, hazard and energetic.

Yellow Color : Joy, coolness.

Green Colour : Relaxation, pleasant, friendship

Orange Colour : Happiness and Enthusiasm

Blue Colour : Peace, colosol, cool, depth

Purple Colour : Effective, bright, satisfaction.

White Colour : Pure, clean, cool, peace, silence.

Black Colour : Old, depression, sad, agitation.

- 4. Texture :** Texture holds its important position in the elements of art. The outer appearance of the fabric is called texture. Surface of the cloth is smooth, rough, bright, soft, which makes it easy to detect by touching and making the pattern. Special attention should be given while making pattern during manufacturing of textile. It should always be consistent in texture like velvet padding on the velvet. Rough design looks good on the rough surface. According to the element of arts, balanced combination of size, shape and texture makes a design. It means imbalance of the combination does not attract pattern. Just as the elements of art are important to form any design, similarly the principles of design are also essential and important in design.

Principles of design : Each type of art have some principle making garments and making designs on garments. Both are themselves an art. These principles should be treated as baseline. These principles should not be neglected. Fashion and specific body shape should suit the appropriate combination of these designs or pattern to the novelty system. These are :

- 1. Ratio :** Ratio is the important principle of design. the different parts in the same design or pattern are seen in the relation to ratio, such as size, texture, color etc. The basis of these can be both numerical and qualitative. Attraction in garments will arise only when the design creates proportion.

- 2. Balance :** Balance gives sense of coolness to fabric or apparel. It always assessed at the centre of fabric. According to this principle, every sense design or garment should be of systematic and uniform so that the texture looks beautiful and balanced. Figures are at the center point. Patterns should be in such a way that same attraction address to the center. Balance give comfort effect. It is of two types :

- (i) Formal balance :** Balance, attraction and creativity is equal in all then it is formal balance.

- (ii) Informal balances :** Central position is in balance towards perimeter but overall design is not balanced.

- 3. Rhythm :** Rhythm is important principle of design. Rhythm means speed as it takes to keep its important position in nature and music, in the same way, eyes moves through colour, line and shape, in order to create rhythm in the garment. Using repetition of structure, shape and line, the combination of design in the whole garment should be such that the eyes moves in rhythmic manner. Attractiveness and beauty is enhanced through creating rhythm in garment.

- 4. Uniformity :** Uniformity is important factor in apparel design. While designing the pattern on clothing, sharing the platform with uniformity in the use of the line, size and texture, the style of all parts should be related to each other.

- 5. Pressure :** Important point should be preferred in garment decoration it is called pressure. In simple words focus, at any one point give special pressure, so that the attraction can be generated in the clothes, if the spaces are left around any design or the design is made around a special place like the neck increases the centre of attraction of textile. If more than one design is made at center of clothing then the attraction and pressure will be less.

It is essential to study of the elements of art and principle of design before decorating the garment. You can increase the beauty and value of cloth by applying the prenciple and art of

design. It can be said that the reflection of the person's personality is the clothing.

- (v) Meaning of rhythm is:
 (a) Shape (b) Colour
 (c) Motion (d) Relax

Important Point :

1. Clothing is the reflection of the person's personality.
2. The primary function of the clothing is to provide personal safety and comfort.
3. Secondary garments are for identity, mental satisfaction, social level, praise and variety.
4. By the use of different lines, length, breadth and softness of the sample is shown.
5. The main source of color is sunlight and the beautiful colour has physiological and psychological impact on person.
6. There is the four elements of art-line, shape, colour and texture. Use of these elements design are made.
7. The principle of design are proportion, balance, rhythm and pressure.
8. A design can be constructed in a pleasant manner through the proper use of the elements of the art and the principles of design.

2. Fill the Blanks :
 - (i) is required for printing on fabric.
 - (ii) The primary function of fabric is and
 - (iii) The combination of lines makes
 - (iv) Texture can find out by
 - (v) Two types of balance are and
 - (vi) 'Pressure' means to give special emphasis on
 - (vii) Clothing Reflects persons
3. What does design means?
4. How colour affects design?
5. What does texture means ?
6. Explain these secondary functions of the clothing?
7. Explain how the balance create effectiveness of the sample?
8. Explain how the sample constructed and how many types are there?
9. Which lines are used to construct a design, Describe in detailed?
10. What type of sari is designed for a short, and healthy woman?
11. What type of clothing should be choosing for a tall girl?

Questions :

1. Choose the correct answer for the following questions :
 - (i) The primary function of the clothing is:

(a) Identity	(b) Protection
(c) Praise	(d) Diversity
 - (ii) The element of art is :

(a) Pressure	(b) Diversity
(c) Rhythm	(d) Size
 - (iii) Horizontal lines are in:

(a) length	(b) Breadth
(c) Height	(d) Depth
 - (iv) The main source of colour is:

(a) Light	(b) Sun light
(c) Nature	(d) None of these

Answer :

1. (i) c (ii) d (iii) d (iv) b (v) c
2. (i) Sample (ii) comfort, safety
 (iii) shape (iv) touch
 (v) formal, informal (iv) center point
 (vii) individuality

22. SELECTION OF CLOTHES

The basic requirements of human being are food, clothing and house, after food person looks for second important need i.e. clothing. People expect much more things from clothing than to satisfy our basic needs. In some societies the clothing is used for expressing wealth, states, age, occasion and gender etc. Selection of clothes should be very judicious so that we can buy best clothes by spending minimum amount of money. The clothes should be compatible to age, personality, and climate and should not be a hindrance in normal working. Some factors affect the selection of clothes, which may vary from person to person as they are influenced by the requirement of the person. These factors are as follows :

Factors affecting in the selection of garments or the point to take care of in the selection of the clothes.

1. Personality : The personality, value and culture of a person can be judged easily from his dress. There are different types of personalities. Highlighting salient features of the personality and camouflaging the figure flaws to some extent is possible through dress. Improper dressing makes person a laughing stock and causes inferiority complex.

On the other hand, proper dresses help in building self-confidence which is essential for the proper development of personality. This affects our behaviour and mannerism and develops harmony and personality. Clothes are an indication of caste, place, state, and occupation of the person. Clothes affect the personality of the wearer. People who are introverts

prefer light and sober colours whereas extroverts like bright and gaudy clothes. Dresses with delicate patterns and sober colours help in enhancing the natural characteristics of tenderness and feminine. On the other hand, big patterns and straight lines go well with regular, dominating and grand personalities. Some uniforms are reserved for certain professions, which help in enhancing their personality, e.g., wearing white coat by doctors and black by lawyers. Clothes indicate your social status and interest. Simple and elegant clothes are hallmark of a serious personality.

2. Age : Different clothes are required for different age groups. Therefore, care should be taken in selecting clothes for a particular age group.

- (i) Selection of clothes for infants
 - An infant sleeps for most of the time, so it is important that his clothes are loose and comfortable.
 - These should be made of soft and absorbable cloth (preferably cotton) as they do not irritate the tender and soft skin of the child. Silken and synthetic clothes should not be used for infants in any case.

Infant's clothes are to be washed quite often, hence, the clothes should be of such material which can be washed and dried easily. The clothes should be unsearched. The seams should be flat; fasteners should not be at the back. Tight elastic should be avoided. Infant's clothes should have openings on the front, back or on upper side and it should be head long and closed neck. Instead of buttons, there should be ties and fasteners at the back of the dress as these may

hurt the infant clothes because inconvenience in and may get torn by sticking someway.

Very tight clothes are not conducive normal growth. If the clothes are shabby, unshaped, not to the liking of their peer group, they may suffer from inferiority complex. They are reluctant to play and with their peers. Hazy and dull colours should not be selected for children. Rather bright gaudy colours are good for them.

(iii) Selection of clothes for adolescents

They like clothes that are in fashion their clothes should be creative, styli and according to the latest fashion. Generally adolescents do not like influences of their parents and regarding their clothes.

(iv) Selection of clothes for adults.

In adulthood, the clothes undergo change. Simple and elegant clothes desirable for mature and elderly. Clothes with design and flowering print look childish. Clothes should be chosen after analysis of the colour of the skin and body figure. In this age, more emphasis should be the profession, occasion, and price than on the prevalent fashion. In absence of any of this consideration the dress would look awkward.

(v) Selection of clothes for old. Some problems are come regarding the clothes of the people.

In this period, there is loss of flexibility in the body which causes inconvenience in movements, hence, clothes should be loose and comfortable. Eyesight also gets weak and hence big buttons with button holes should be used in place of hooks. Use of zip is also convenient. Their dresses should be in consonance with their age. Clothes should be light and easy to wear. They should have simple designs and easy to wear from either side with durable stitching. Clothes should be stain resistant, easily washable and wrinkle resistance as the elders may not have enough energy to launder their clothes frequently. Thus, we find that age is an important factor in selection of clothes.

3. Business : Clothing is associated with profession also. Working people should wear formal clothes. They should be simple, neat and clean. Vulgar and improper clothes should be avoided. Clothes should give a feeling of being smart, active and sober. We all would like to

wear such clothes that may wearer not cause any hindrance in our working.

If you are a physical instructor, your clothes should be loose and comfortable so that you may give a good demonstration. Farmers need strong and durable clothes and should also protect them from sunshine. Businessmen should wear sober and modest clothes. Persons who are going to travelling should wear such clothes which are easy to wash and do not require frequent ironing, e.g., terry cot, decagon etc.

Industrial workers wear special type of uniform. People serving in army, police and railways have their own distinctive uniform. Simple and sober clothes are required in classrooms. Sportsmen need durable and porous clothes for sweat absorption. Doctors and nurses wear white clothes. All these variations are on account of different professions.

4. Climate : The main purpose of clothes is to cover the body. Clothes protect us from heat and cold and help us in maintaining body temperature in adverse circumstances. Hence, knowledge of selecting the clothes according to the climate is essential. Warm, thick and bright coloured clothes should be used in winter whereas cool, soft and light coloured clothes in summer. These should have sweat absorbing quality. In rainy season, we need such clothes as may dry up soon and are wrinkle free e.g., nylon. Clothes compatible to a person should be soothed both to the user and onlooker, e.g., a person wearing silken clothes in sultry summer is irritable to the wearer as well as the onlooker.

5. Occasions : Clothes should be suitable to the occasion. If they are not in accordance to the occasion and place, they would look odd. Therefore, in the selection of clothes, care should be taken about the occasion on which they are to be worn. Expensive clothes like brocade, banarasi and silken with bright and gaudy colours may be used on special occasions like parties, marriages and celebrations. Simple clothes of black, white or dull colours are generally used in mourning or death. Clothes used in travelling or playing should be flexible, comfortable, and easily washable and sweat

absorbing. While doing household jobs one should normally wear old clothes, as good ones may get spoiled.

- 6. Fashion :** Sometimes it is commented that so and so person is very fashionable. What does it mean? In simple words it means that a person follows latest trend in fashion in color, shapes and design keeps on changing from time to time. For moving along with the latest trends in fashion, one must have the freedom, money, time and knowledge about latest innovations in clothing.

For example sometimes back, loose gent's trousers art fashion and few years' later, tight ones come into fashion. Often people are influenced by fashion which is natural. Person wants to wear clothes of hence, its consideration is in the selection of clothes if a person changes his clothes very frequently, wastage of money. It is true, especially in case of youths.

In the selection of clothes, it must be kept in mind that all not suit everybody's figure. Personal low of an individual are of prime the selection of clothes, but fashion should done within limits of decency and cult

Therefore, it is obvious that selected clothes depends on a number of factors, choice of clothes enhances personality the blind imitation makes people look and turn into a laughing stock.

- 7. Gender :** Gender is also an influencing factor while choosing clothes. Clothing is selected according to gender; clothes for men and women are choosen according to their physique, age, interest etc. Pant, jeans, shirt kurta, pajama, sherwani, coat jacket etc for men and sari, suits frock etc for girls. Clothes for women and girls should be dark and bright color, white light colored clothes are selected by men and boys. The design of garments should also be taken according to the men and women.
- 8. Income :** Family economic situation influences the selection of garments In the current situation, the purchasing power of individuals in general is increasing, but we should keep in mind that if we

go to buy clothes, then pay attention on income and budget should be considered. Mind your income and budget expensive, clothing is available in market and are more beautiful and attractive, but we buy clothes according to our income, budget, wisdom, wiseness and flactuation in market price then good cothes in less amount can be purchased. If we look at our previously purchased garments and make sure that what kind of clothes are actually required, if we are already aware then the poor shopping and filth can be avoided. Selection of clothes can be easy and well organized.

It becomes easy to choose clothes if all the above points are taken care of when choosing clothes.

Purchasing of clothes : Even after purchasing clothes, it is equally important to take care of certain points, as it is necessary to ensure that when buying, the amount of money that we have given to purchase the clothes is almost the same price and the appropriate amount of clothing have been received.

The following are the points that if taken care then purchase of clothes becomes effective :

1. The quantity of clothing must be determined in advance to make garments and costume. The cloth is measured in meter. To make any garment, how much meter clothing should be required, it should be assumed earlier, like in order to make simple kurta take of normal stature girl, we should take 2 to 2.25 meter cloth, but if any design is made then 25 to 50 cm, extra should be taken. Width of the clothing should also be taken care with length, width of the textile affects the design of clothing.

Cotton textiles 36" silk garments 39", woollen garments 54"-60" and man-made fibers are meant to be 35" to 72". In such a way the designer can design finish garment more easily with width.

2. Our income affects when we buy clothes, so before buying clothes, it is very important to know the value of clothing. On the basis of price, we will choose clothes which we can afford to wear the same suit in our budget.

The cost of garments is measured per meter and this price gives the opportunity to test the type and quality of the clothes. The price of good high quality garments will be high, whether it is of any kind like cotton, silk etc. Textile made from high quality silk fabrics are expensive from cotton and cotton textiles are also expensive due to their personal properties. Cost can be find out by looking at the label. Shopkeeper also tell the price.

3. There is a need to be aware of the quality of the clothes on the basis of what the cost is being told, whether the quality of clothing is there or not there are some common point for checking the quality of the text, on that basic quality can be checked :

- (i) You have read about different fibres and its identification, so on that basis it can be examined that of which fibre the clothing is made and what the shopkeeper is telling is exactly same or not because artificial and mixed fibre are more is then of now a days.
- (ii) The textile knitting, wear and the surface of the textile should be carefully examined. Many times the design is not complete on surface of the clothes. Similarly, due to incomplete weaving, the threads are unwoven giving rough texture on the surface.
- (iii) Fastness of color should also be examined to check whether the color of the fabric is firm or not, to check the color fastness press coloured cloth on white napkin. If the color bleeds, then the color not fast.
- (iv) To check the robustness and durability of the fabric, stretch the garments slightly with your hands, if the clothing remains the same, then the texture is durable and strong. In contrasted if weaving is not proper and it deforms on stretching then texture is not strong and durable.

- (v) The entire surface of the garment has to be uniformly checked to assure decoration.
- (vi) The labels on the clothes should be read to know the cost of the costume, garment manufacturer, its address, business signs, or the instructions for use, the quantity of two fibres use in making garments.

The factors affecting the selection of clothing and purchasing has been studied, so the selection of textiles requires analysis of the following points for proper and appropriate purchases :

- (i) Does clothing really needed?
- (ii) Is it necessary and useful for me?
- (iii) Will it be used on different occasions or will it be used only on one occasion?
- (iv) Is it within my budget and income ?
- (v) How long will it last, and is it according to fashion or not?
- (vi) Is it according to my physical structure?
- (vii) Is it possible for me to maintain it?
- (viii) Is it possible that garments have same colour and design which already posses ?

Important points :

1. Personality, Age, Climatic, Business, income, are the factors that affect the selection of clothes.
2. The person should wear clothes according to location and climate.
3. Clothing is the identity of the workplace and business of a person.
4. Body structure, fashion trends, colour and design of clothes influences personality and selection of clothes.
5. The person should wear clothes according to his work.
6. Income and age should be considered while selecting clothes.
7. The quantity, quality and cost of clothes should be considered at the time of purchasing.

Questions :

1. Choose the correct answer for the following questions :

- (i) It looks graceful on tall person :
- (a) Vertical line garments
 - (b) Horizontal line garments
 - (c) Diagonal line garments
 - (d) None of the above
- (ii) Clothing appropriate for infants
- (a) Silk and dark colour
 - (b) Artificial fibre and thick cloth
 - (c) Cotton, light and soft
 - (d) Woollen and heavy
- (iii) Clothing appropriate for fire fighters:
- (a) Terylene (b) Woollen
 - (c) Waterproof (d) Fire proof
- (iv) Clothing for sad and mourning period:
- (a) Dark colours
 - (b) White and light colours
 - (c) Bright colours
 - (d) Special designs
- (v) Things to know while purchasing clothes:
- (a) Quantity of clothes (b) Quality
 - (c) Cost (d) All of the above
2. Fill in the blanks :
- (i) Dark skin people should wear coloured garments.
- (ii) People living in cold climates clothes are suitable.

- (iii) The person's occupation is identified by his
- (iv) The influences of fashion is seen in the clothings of
- (v) The of the family affects the selection of clothes.
- (vi) Information about the cloth can be obtained by looking at the
3. What does the importance of clothing mean?
4. Clothing selection should be done according to location and climate. Why?
5. What type of clothing will be suitable for the adult and the elderly?
6. Explain the economic situation in the selection of clothing.
7. Fashion affects selection of clothing. Explain.
8. Explain points to be considered while selecting clothes for school going boys and girls.
9. Explain the quality of the clothing affects its value?
10. Which questions will be analyzed when buying clothes?
11. Explain in detail what points should be kept in mind while purchasing.
12. Write an essay on the choice of cloths?

Answers :

1. (i) b (ii) c (iii) d (iv) b (v) d
2. (i) Light colour (ii) Warm and woollen
- (iii) Cloths (iv) Teenagers
- (v) Economic condition (vi) Lable

23. STITCHING OF GARMENTS

In ancient times, the primordial man used to protect his body from the natural disasters. Animal hides, tree bark, leaves etc were used to cover the body. It was suitable for the protection of all things and disasters but as the culture and civilization developed, the human being also developed in thinking, rights, socialization. The desire to wear a systematic way, interlocking the grass awakened and trying to make garments according to the size of its body. Gradually, human started to knit garments. From the fibers to the process of making garments, it was done with human hands, without cutting the clothes they started to wrapped on their body. Man went on developing as time passed. In the same episode of this development, the cloth was seized by their own hand cut according to its physical structure and size cutting and stitching was developed. Then the mechanical era began. The invention of sewing machine was first invented by an Englishman in 1790, followed by a French man in 1830. These machines did not become objects of general household use. Success in this area was achieved by the machine manufactured by Elias Haas and in 1846, he also obtained the copy rights. Many people made significant contributions in the field of making the sewing machine more beautiful, in which the names of AP Wilson and Isaac Merit Singer are legible. Singer later made the sewing machine operated by the feet, making the fabric easier to sew.

Usha Sewing Machine factory was established in India in the year 1935. In the twentieth century, the sewing machine industry has developed countless new technologies. The sewing machines of many

companies are also available in the market in varying prices from high to low.

Modern sewing machines are currently complete with many facilities. In addition to sewing and embroidery, cutting of the button, dyeing, darning, binding of open edges and lace apply etc. Now the sewing machines are being operated by electricity. Where excessive amount of apparel is stitched, machines are operated by electricity. This saves time and labor. At present, home-based sewing machines are essentially used, which are used for sewing and repair of textiles. Therefore, get general information about the parts of the sewing machine so that we can cure minor defects in the machine itself.

Different parts of a sewing machine :

1. **Pressure foot rod** : This is made of an metallic rod. The pressure foot is below it.
2. **Presser Foot** : The presser foot applies pressure consistently on the fabric as the sewing takes place. It is like pair of shoes and is called foot. It attached with needle bar.
3. **Needle bar** : It is an upright bar, adjacent to the pressure bar. The needle is attached by means of a clamp to its lower end.
4. **Clamp screw** : This is used to attach needle into the needle bar. By loosening the screw needle can be moved up and down. When inserting the needle, the round part of the needle fits the outside and the flattened part inwards.
5. **Spool Pin** : The Spool pin holds the spool of thread. It can be horizontal or vertical in place.

6. **Pressure foot bar lifter :** The pressure foot lifter is the device used to raise the pressure foot. It must be lifted before inserting or removing material off the feed rod.
7. **Thread tension device and disc :** This part controls the tension of the thread. In this there is a screw on the front between two round leaves in a spring. The tension of thread can be reduced or increased when tightened. That's why it's called a thread tension device. The chakras behind them are called thread tension discs. The front thread is removed from the back of the chakras and removed from the tape lever and threaded in the needle.
8. **Take up lever :** The take up thread lever is a lever above the tension disc or regulator. The thread is passed through an opening at the end of the bar and as the lever moves up and down, it releases the thread to be interlaced with the thread from the bobbin to form a stitch. The stitch is tightened when it is in the raised position.
9. **Face plate :** The face plate or throat plate is the metallic plate directly under the pressure foot. It has opening for the feed rod, and the needle to move up and down.
10. **Slide plate :** It is a metallic squared shape part of a sewing machine and connected with a needle plate. The bobbin can be attached and removed easily by moving it left .
11. **Needle plate :** This is a steel plate situated below needle and 'pressure foot'. Through the hole in the plate thread is taken up from the bobbin. While stitching, through this hole the needle moves outward and inward and makes a stitch. Just below it is the "blades" that helps fabrics move forward after a stitch.
12. **Bobbin binder :** This is situated on the right side near the wheel. The needle is disengaged before winding the bobbin by loosening the fly wheel with the help of the bobbin winding latch.
13. **Stitch regulator :** The stitch regulator is a screw located above the tension spring. It is used to lengthen shorten the size of a stitch. It

can also be manipulated to stitch forward or backward. The range on this machine is from 0 to 5. The stitch width increases as the number increases from 0 till 5 meaning that the number 5 has the longest stitch and the stitch width decreases as the number descends from 3.

14. **Fly wheel :** It is a round tyre that allows the machine to run. By rolling the fly wheel stitching can be made possible on the machine. It is rolled with the help of a handle.
15. **Bobbin and bobbin case :** It holds the bobbin thread and the bobbin case holds the bobbin in the machine and regulates the tension of the bobbin thread.

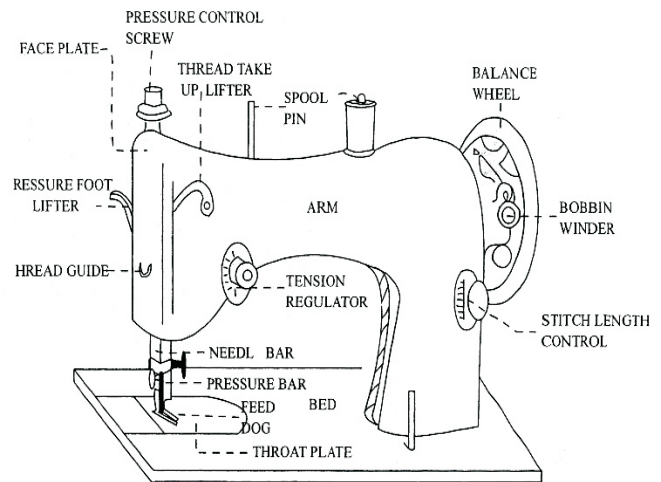


Fig. 23.1 : Sewing Machine

Maintenance of a sewing machine :

1. The machine should be kept in a dry and warm place. By keeping the machine in a moist place, some parts of it may get affected by moisture thus increasing the chance of rusting.
2. It is necessary to clean the machine from time to time. Clean the machine every time before stitching and afterwards, remove dust and soil regularly. The threads of the clothes are stuck inside, they should also be removed after working and cover the machine.
3. Thread from the needle after the stitching work is complete should be removed and stuff some old clothes underneath the pressure foot.

4. Apply the oil only after cleaning the machine. Keep the machine under sunlight for some time after oiling.
5. Open the machine parts from time to time for cleaning, oil them and keep them in sunlight for some time and the reassemble the parts.
6. The machine oil should only be poured in the holes meant for it. Oil should not be used in huge amount. Only a few drops are enough for total cleaning. Oil should also be applied to all the moving parts of the machine. The machine should be run for few minutes after oiling .

A sewing machine is not the only requirement to sew the clothes. But for the best sewing, many other accessories are also needed. These tools should be of high quality. These are following :

Measuring devices :

- I. **Measuring tape :** The stitching process is measured before starting. These are called ‘inch tape’ in general language. They are of flexible and soft nature and are capable of turning according to the body texture. On one side there are 1 inch to 60 inches, 1 to 162 cm mark on the other side. Brass edging are on both sides of the lace. Each 1 inch lace is divided into eight parts. There is a large line between the inch indicator digits. One half inch in diameter is divided into 10 centimeters each. Centimeter is a large line between the indicator digits which measures the size of half centimeter.

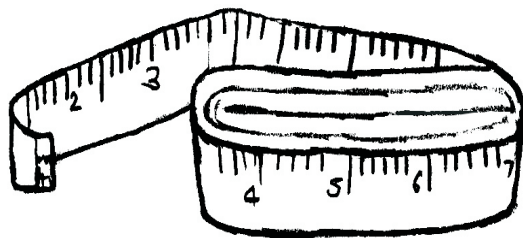


Fig. 23.2 : Measuring tape

- II. **Pencil, eraser and notebook :** Notebook and pencil are required to record after taking measurement. In order to correct any mistakes erasers are used.

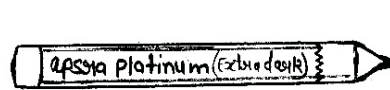


Fig. 23.3 : Pencil

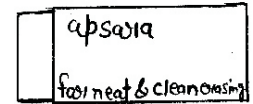


Fig. 23.4 : Rubber

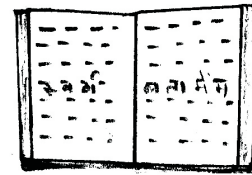


Fig. 23.5 : Notebook

1. Cutting and drafting devices:

- I. **Cutting and drafting table :** Drawing and cutting table texture is of special type, its surface should be smooth, non-paired. The millstone cloth is pulled tightly around it. Its height should be 3: 00 to 3: 30 feet and the length should be 5 feet, which should be suitable for drafting of long clothes such as pants, house coats, nighty. Drawers should be made on the left or right side of the table, so that the necessary material can be kept in it.
 - (i) **Drafting paper :** First, the drawing of fabrics is made on the entire paper and then the outline on the clothes. After that, cutting of fabric is done. This process helps save the fabric, even if there appears a mistake thus saving wastage of fabric. There is only a wastage of paper.
 - (ii) **Tracing wheel :** It is used by the dress maker for tracing or to transfer pattern. Usual choice is serrated edge wheel, suitable for most fabrics. Smooth edged wheel makes firmer markings on hard to mark fabrics and also protect delicate smooth ones.
 - (iii) **Tailor’s chalk :** is used for marking, for constructions and fitting alterations. It comes in several colors. Its edges should be kept sharp with a knife. Mark lightly. Left over piece could be sharpened and fitted into cast away pen barrels. It can be erased easily after use.

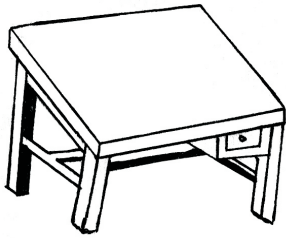


Fig. 23.6 : Cutting and Drafting Table

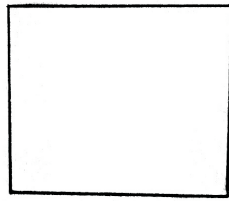


Fig. 23.7 : Brown Paper

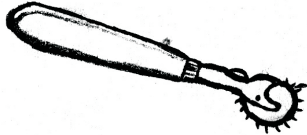


Fig. 23.8 : Tracing Wheel

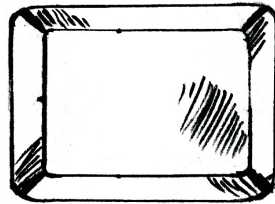


Fig. 23.9 : Tailors Chalk

1. Cutting devices :

- (i) **Simple Scissor and Shear :** Different types of scissors are used to cut different types of garments. 4-inch to 6-inch scissors are used in common to cut ordinary cloth. Six-inch to 9-inch long scissors are used to cut thick and heavy and woollen cloth. They are called shears. The handles of these shears are slightly inclined. For the good grip of the fingers it has wide end. There is no need to lift large scissor while cutting the cloth.
- (ii) **Small Scissor :** Small scissors are needed for hand as well as machine stitching. They are used to cut garments and trimming the edges, hemming, embroidery, while hinging buttons.
- (iii) **Pinking shears :** This is a special type of scissors. They are excellent for finishing seams and raw edges on many types of fabrics and also for decorative use. They should not be used to cut out patters. After cutting with pinking shear scissors their is no need of locking, interlocking of edges.



Fig. 23.10 : Scissor

2. Stitching devices :

- (i) **Sewing machine :** Sewing machines are used for stitching garments. Nowadays, in market, other than hand driven, foot driven and electricity driven, sewing machines used for different purposes like button hole sewing, button stitching, embroidery and raffu are available.
- (ii) **Needles :** The needle should be selected according to the fabric. There are separate sewing needlesfor hemming and stitching clothes. For light and thin clothes fine needles are used while for heavy clothes thick needles are used. The tip of the needle should be sharp and not be rusted.

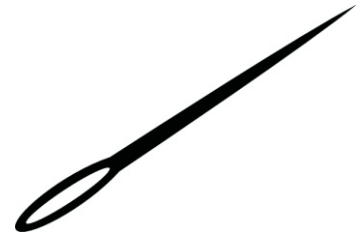


Fig. 23.11 : Needles

- (iii) **Thread :** Threads used are of different types for stitching. The colour of the thread should match with that of the garments. For making stitches and embroidery, different types of threads should be used. The thread should be strong and colour should not bleed while washing the clothes.
- (iv) **Thimble :** This protects the middle finger while hand sewing. These are made up of plastic, metal, leather, rubber etc. and it should be worn according to the size of the finger.

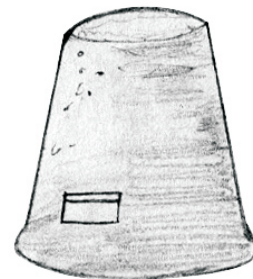


Fig. : 23.12 Thimble

(v) **Pin cushion :** it is a safe, handy place to store pins. Keep them accessible. Some have an emery pack attached for cleaning both pins and needles.

3. Ironing devices :

(i) **Iron :** It is used for pressing to remove creases and flattening clothes, especially seams. The lower surface of the iron is smooth. Hot iron is used to press clothes. Heating is done either by the use of coal and electricity. It is available in different types such as simple, automatic and steam.

(ii) **Ironing table :** Table is required for ironing on which clothes are spread and pressed. Tables may or may not be cushioned. Table that are not cushioned a thick cloth may be spread for ironing.

Other tools such as sponge, brush and bowl for holding water etc. are also used. Before pressing the clothes are brushed and moistened lightly with the use of sponge.

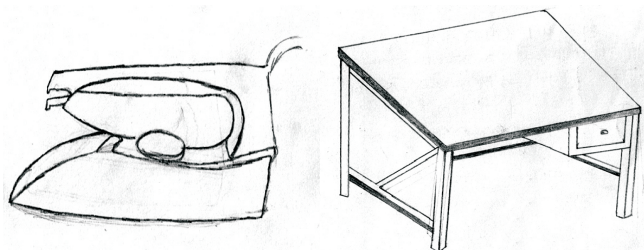
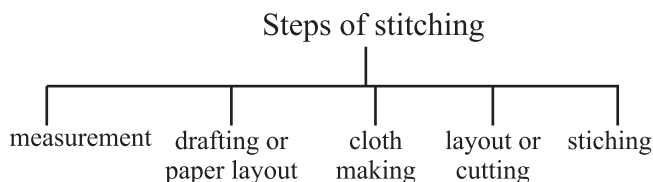


Fig. 23.13 : Iron Fig. 23.14 : Ironing table

Steps in stitching :

After basic information about sewing related equipment and sewing machine, it is important to know about the important steps for best sewing of textiles. Keeping the stage in mind will be able to do good sewing and will also be avoided from wastage of time and energy. These are the following steps:



(i) **Measurement :** It is necessary to measure the size of the dress of person who is going to wear before stitching. The right fitting of the ward is based on the right measure of the body. Therefore, before stitching, the measurement of the body should be taken carefully. Textile

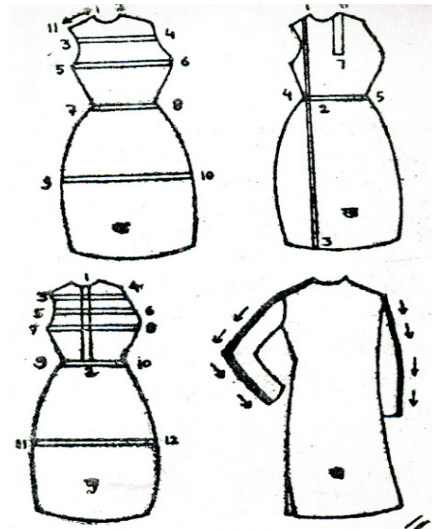


Fig. 23.15 : Horizontal and vertical measurement

fittings mostly depend on the willingness of the wearerr to go tight fittings or loose. There is a difference in the physical structure of each person, so it is necessary to measure the person’s body measurement. It is necessary to keep the following points in mind while measuring any person’s dress.

- ❖ When measuring, the person should stand upright and not be bowed down.

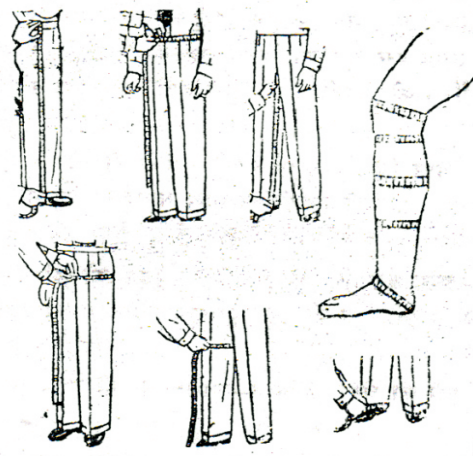


Fig. 23.16 : Under the belt measurement

- ❖ The person should stand in a normal position, neither bow down nor leave the body loose.
- ❖ The measurement should be taken from one side to the other, from left to right or up to down. Person should not be rotated repeatedly.
- ❖ Use soft inch tape for measurement. Keep in mind that the tape do not get twisted else there will be error in measurements.
- ❖ Measurement should be taken according to the costume.

All necessary measures such as length, width, shoulder, waist, length of arms, width of cuffs, depth of the neckline etc. should be taken accurately and should not be taken hastily.

(ii) Drafting and making paper layout : Drafting should be made on news paper and brown paper, which can be corrected on any kind of mistake. Depending on the measure taken after the measurement, the shape of the dress is made on brown paper or old newspaper. This is called diagramming or drafting. Pencil, rubber, inch tape and scale are required when drawing a diagram. All curve, roundness and depth should be made well. If the drawing is correct then ready dress will also be made perfect. Therefore, after complete satisfaction, the drawing should be cut. After the cutting, the pattern or figure that comes in our hands is called the paper pattern.

- (a) Small scale drafting: this type of drafting is made on notebook or file. For this small scale 1 inch= 1 cm is assumed.
- (b) Whole scale drafting: this drafting is taken in inch or cm on brown paper or newspapers.

1. Cloth making : It is necessary to prepare cloth before cutting and stitching. Most cotton fabrics are shrunk after washing. In such cases, if the cloth is not washed before stitching it may shrink and it is washed afterward, measurement decreases due to shrinking of clothes. As the length decreases, the texture is shrunk by

shrinking from the width, so first of all, dip the cloth in the bucket in such water so that the clothes are submerged at least 2 hours. After that remove the cloth from the water, squeeze properly and then dry them. When the cloth is still moist, press them. Prepare for cloth layout.

2. Layout and cutting : Lay the cloth in cutting table or plain surface properly so that it does not make any fold. The cloth should be laid lengthwise, then place the prepared paper pattern over the clothes. After the pattern has been laid, mark th outline with a chalk. While laying paper pattern the line of the cloth, checks or prints should be considered. Location of lines and prints etc should also be considered. Before cutting it should be noted if all the patterns are placed appropriately or not so that anything might get left out. Only after this the layout should be cut with a scissor. When patterns are placed on cloth, two lines are made such as the line where stitching is to be done and the other which is supposed to be cut. Between the stitching line and hemming line Half to 2 inch lines are made which is called cutting line.

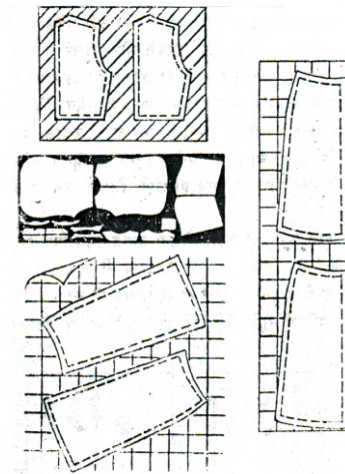


Fig. 23.17 : Pattern

The secret of correct cutting and fascinating fitting is pattern or drafting.

(i) Stitching : All the marked parts of the cloth should be attached with one another on the running lines and stitch together after correct cutting with cleanliness. Complete the apparel using the stitches as required.

Important points :

1. For stitching all kind of apparels sewing machines are used.
2. Needle plate, slide plate, pressure foot, take up lever, thread tension device, spool pin, bobbin and bobbin binder, bobbin case, fly wheel, and handle are some important parts of a sewing machine.
3. The machine should be cleansed from time to time.
4. The machine should be oiled from time to time.
5. When not in use, the machine should be covered with a cloth.
6. For garment making, sewing machine, cutting to measurement, iron and other devices are also required.
7. For correct and appropriate stitching the important steps include measurement, drafting, cloth making, layout cutting and stitching.

Questions :

1. Choose the correct answer for the following questions :
 - (i) Singer machine was invented on:
(a) 1830 (b) 1848
(c) 1891 (d) 1935
 - (ii) In the year 1935, factory of which machine was established:
(a) Simple machine (b) Singer machine
(c) Usha machine (d) None of the above
 - (iii) The thing on which threads are wound:
(a) Bobbin (b) Bobbin case
(c) Spool pin (d) Bobbin binder

- (iv) The first important step in stitching is:
(a) Measurement (b) Drafting
(c) Layout (d) All of the above
2. Fill in the blanks:
 - (i) While sewing by hand on the middle finger is worn.
 - (ii) To fit needle to the machine is used.
 - (iii) Placing of paper pattern over the cloth is called
 - (iv) For measurement, is used.
 - (v) The machine should be from time to time.
 3. What is spool pin?
 4. Explain the different important parts of sewing machine: pressure foot bar lifter, take up lever, bobbin binder.
 5. What do you understand by scissors and shears?
 6. List the different parts of sewing machine and explain them.
 7. What is drafting?
 8. Why is it important to take measurement? What are the points to be remembered while taking measurement?
 9. What do you understand by cutting of fabric?
 10. What do you understand by layout of cloth? Explain.
 11. Describe briefly the correct and appropriate steps of stitching.

Answers :

1. (i) c (ii) c (iii) a (iv) d
2. (i) thimble (ii) clamp screw
(iii) layout (iv) inch tape (v) oil

24. READYMADE GARMENTS

Rapid and fast growth in the textile industry has taken place as compared to any other industry. In the field of textile science, selection and the purchase of goods are more important than the sewing of the object. Cloth is not meant only covering the human body but it also needed for comfort. The sewing of clothes was in the house in ancient times. Necessary and basic clothes were stitched at home by house wife. Invention of the sewing machine gradually increased. Some clothes like, underwear, pajama, undershirt, petticoat, simple frock, and kurta were stitched at home, but special some clothes which was wear by men like, shirt, jacket and coat and the special items for women such as blouse, fancy frock, designer salwar, suits etc. were stitched by tailor. The requirements of the family's costume were fulfilled but for making above costume, spends lots of time, power, and also wastage of money.

Time changed, readymades garments were available in the market. Garments technology development and industrialization increased the demands of readymade garments and their availability. Present time people likes to wear readymade garments. The trend of readymade garments has increased so much that varied companies and brands are available in the market. This change has come for many reasons, like the dress not prepared on time by tailor, working of both men and women fashion, design which saved time, labour. The biggest reason behind readymade garment is its availability in each and every size, shape and physique. All this reasons have given recognition to readymade garments.

Simple and easy language readymade garments are those garments which we get in less time, with available money, proper measurements, easy to care immediate fulfill our requirement, comfortable and according to person's personality.

Basis for selection and buying of readymade garments :

- (i) **Age :** Readymade garments are available in the market according to the measurement of the body as well as according to the age. When buying a readymade dress, it is necessary to know the exact age of the child, otherwise the costume of children will small or large, which increases the exercise of change or return, for this both time and energy will be wasted.
- (ii) **Physical measurements :** Right age and body measurement of the person, child is necessary to know before buying, because two children of same age can have different physical measurement, such as length, chest, back, shoulder, waist and so on. While going to buy readymade dress, it is necessary to take measurements of the body, such as for purchasing child's shirt and jacket, measurement of shirt, chest, length, length of arm, shoulder etc (measurement of shoulder) should be taken. For measurement of jacket, length and back should be taken. With exact measurement of a child it will become easy to choose the appropriate dress for the child.

Points for checking ready made garments :

In addition to the above two important base, there are

many points which should be check before buying dress.

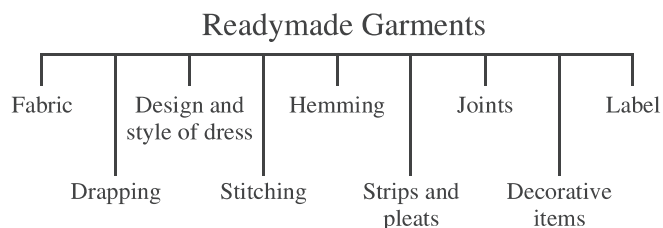


Fig. 24.1 : Readymade Garments

(i) Fabric : Characteristics of weaving, coloring, printing, etc. are known process and you are capable of identifying the fibers. So on the basis of all these characteristics, check the following properties in the fabric :

- (a) Fiber of the clothes.
- (b) Design of the clothes
- (c) Fastness of colour.
- (d) Decoration, strength and stability of the clothes
- (e) Vertical cutting of the clothes
- (f) Demand of clothes according to fashion, print and colour.

(ii) Drapping : Dresses shopped from shops or showrooms should have trial rooms, so that we can know about the dress whether the clothe, color, fitting, style suits you or not. Take opinion of your mother or friends, so that they can help you to choose your dress. If trial room is not available then just put the dress on yourself and see it.

(iii) Design and style of a dress : Dresses available in the market are in many color, print, design, style. In that case it will become difficult to select the dress. Along with the demanding fashion & our interest we should take special care of our physique in selecting the dress; so that we can get satisfaction, otherwise instead of looking attractive it looks ugly.

(iv) Stitching : The stitches of readymade dress is check from the back side. For example :

- (a) The color of the thread should be according to the garment.

- (b) The color of the thread should be fast and strong.
- (c) Stitches should be strong, equal and neat.
- (d) The type of stitches should be used properly and it would be adjusant to each other.
- (e) Yarn is interlocked from the edges.
- (f) Adequate amount of cloth should be left so that alteration of length & width of the dress can be done.
- (g) Stitches for decoration should be neat & clean because they are visible in the garment very clearly.

(v) Hemming : Hemming is a important stitches in readymade garment. These stitches should be checked wheather they are at equal and uniform distance and should be precise and graceful. Stitches are closely tied. The thread of hemming should be fast and stable so that hemming of a garment do not open quickly. 2-3” spun is left in the dress, so that it can be opened when required.

(vi) Strips and pleats : Pleats, strips & button are important in readymade dress. Strips of neck, arm, back, front of shirt button should be checked carefully. Pleats should be in adequate amount and attached with cleanliness. Stitches should be graceful, straight, equal and on uniform distance. Up and down both strips are in proper length.

Pleats are used to give fullness or volume to the garments. Pleats are used in frock, skirt, lengha etc to make it beautiful. Palette are carefully stitched on equal & uniform distance should be checked. Enough clothes towards stitching side should be left so that equal pleats can be made. Equal, Uniform distance & graceful pleats make the garment attractive.

(vii) Joints : Button strips should be checked for appropriate joints in a dress. Because these joints are used to attach two sides of the garments.

- Button and buttonhole on the dress should be check properly like color of the button according to the dress; buttonhole is

neither too large or small. Extra button is attached with the garment or not. So that required same button can be stitched.

- Hook and thread loop of the dress, is matched with the dress color. Hook and thread loop is stitched strongly and gracefully on uniform distance and it would not be up and down.
- Jeans, pants, jackets, special kurt etc dress is attached with the zip. Zip should be checked by opening and closing more than two times. The width of the zip is matched with the dress color and firmly armed.

(viii) Decorative items/ornamental : In order to make these costumes attractive and beautiful, some decoration can be done, like striped, embroidery, striped muslin (doriya), thicket (jhalar) etc.

- Striped, lace, striped muslin color must be fast.
- It is attached with the dress gracefully and properly.
- Decoration is according to dress, that is on cotton clothes cotton lace, on the clothes of nylon, nylon lace is stitched.
- Striped on the garment should be gracefully cut and stitched elegantly.
- Embroidery on the dress should be attractive and harmonious. Colour of thread should be deep and fast.

(ix) Label : Readymade garment have label. On that label important information is there, on that basis we can take care of garment. Like measure, number, price tag and direction to use care. It must be read carefully before buying the dress.

In this way on the basis of above mentioned points one can purchase good quality ready made garments.

Till now you studied information related to clothes, selection of clothes, sewing & readymade garments.

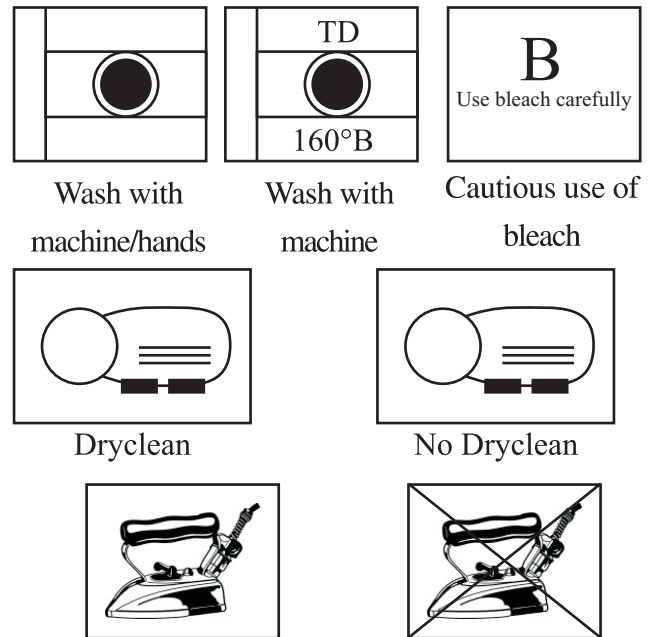


Fig. : 24.1 Direction on Cloth

Important points :

- (1) Buying readymade garments save time and energy.
- (2) Readymade garments must have proper measurement, easy to care, fulfill the requirement, according to personality and along with that it should be comfortable too.
- (3) Selection of the dress on the basis of personality and age.
- (4) These points should be kept in mind while buying readymade garments like clothes, design, style, sewing , hemming, button striped, joints, decoration and label.
- (5) Label on garment give instructions like measure, number, type of yarn, price and care of clothes.

Questions :

1. Choose the correct answer for the following questions :
 - (i) Quality to check the readymade garment :

(a) Yarn	(b) Design
(c) Deep color	(d) All of the above
 - (ii) Children of the same age their measure can be:

(a) Same	(b) different
(c) approximately same	(d) none of the above

- (iii) To check the stitch of the garment :
- (a) Opposite (b) Triad
(c) Straight (d) All of the above
- (iv) Readymade garment should be :
- (a) Comfortable (b) Attractive
(c) Difficult to care
(d) According to personality
- (v) Readymade garment save the
- (a) Income (b) Time
(c) Labored (d) Time and energy
2. Fill in the blanks :
- (i) Before buying the dress for individual it is necessary to know and
- (ii) is there for the general information of the new costume.
- (iii) Keeping in mind select the design of the garment.
- (iv) Readymade garment industry give a shape

3. What is the purpose of the readymade garments?
4. Explain why the trend of ready dress is increasing ?
5. How to check the fitting of ready dress ?
6. What points to be considered while selecting the dress ?
7. Which points should be kept in mind while buying shirts for the father or brother and how?
8. Explain the qualities of appropriate and good readymade garments.
9. While selecting the dress for children which points should be kept in mind.

Answers :

1. (i) d (ii) b (iii) a (iv) a (v) d
2. (i) Age and body measurements
(ii) Labels
(iii) Popular Fashion
(iv) Business

25. STAIN REMOVAL

Suddenly unexpected stains, unseen stains are natural to smudge on the garment. Try to remove stain quickly and spot when it comes on dress because we know about that stain and spot so removing the spot is easy, but if spot is old then it becomes tough. Secondly we can't remember about the spot. In that case removing of spot become difficult and for

removing the spot if wrong chemical is used then the yarn of garments gets damaged.

The following point is important in the process of removing the stain, that it is important to identify the stain and choose the suitable medium to discard, then use the stain removal procedure or method.

Classification of stains

Animal	Vegetable	Greasy	Mineral	Colour	Grass	Others
milk	tea	oil	ink	warnish	grass	sweat
curd	coffee	ghee	medicine	colour of printing, dyeing and drawing	leaves	burn
egg	honey	butter	rust			
blood	fruit	cream				
meat	vegetable	grease				

Identification of stain : Identification of type of stain can be done by following three methods :

- (1) **On seeing:** : Unknown stain can be identified by its color and size or by looking at it like blue ink, tea, coffee, turmeric and nail polish. When the cloth is stained with oil spreads, ghee or spot of ink it spread while paint or nail paint is thickened on that same place.
- (2) **Smelling :** Identification can be done by smelling specially intense and clear smell like sweat, perfumes, paint, pickles, shoes polish & nail paint etc.
- (3) **Touching :** Identification of some stain and spots can be done by touching, like egg, custard

milk etc spots become dry and hard. Paint and nail paint spot get thickened on cloth. Chewing gum and chocolate spot are sticky.

- (1) **Animated spot :** Animated food substance like milk, yoghurt, egg, flesh and blood is associated with it and fall in this category. Coming in contact of heat, protein gets coagulated on layer of cloth and makes it hard. This type of stain should be removed with cold water.
- (2) **Vegetable spots :** Tea, coffee, fruit, juice, honey, vegetable, coco etc spots come in this category. Generally it is acedic in nature, to remove this type of stain alkaline product are used.

(3) **Oily spots :** Ghee, oil, butter, hair oil, etc. fall in this category. It can be removed from the clothes by absorbents and solvent.

(4) **Organic spot :** Organic substances are found in

this type of spot. It is a medicinal, rust and ink spot. Firstly it removes by acedic solution, after that alkaline solution is used to make it free from acidic effect.

Table 25.1: Methods of Stain Removal

S. No.	Use	Method	Useful substances
1. Solution	Use to remove fat soluble stains	<ol style="list-style-type: none"> 1. Remove the dirt & dust over the clothes 2. Place the stained part of cloth on towel or bloating paper 3. Apply solution in circular motion with the help of sponge or cotton ball 4. Stain is soaked by bloating paper and clean through this process 5. This process is called sponge method. 	Petrol, Methylated, Spirit, Acetone, Linseed oil, Kerosene, Benzene, Carbon tetra chloride
2. Absorbents	Use to remove greasy stains	<ol style="list-style-type: none"> 1. Sprinkle absorbent on stain, it will absorb the oil/fat 2. Apply wet absorbent on both side of stain and keep aside, it will absorb the grease & remove with brush after drying. 3. Rub wet bread on burn stain to clean it. 	Wheat flour, Refined flour, Bread crumbs, Talcum powder, Chalk powder, Salt and Wet bread
3. Chemicals	Use to remove stains not cleaned by above two methods or stubborn kind of stains	<ol style="list-style-type: none"> 1. Remove stains by sponge method and dilute solution of chemical reactants. 2. Dip the spotted part of clothes in chemical or sprinkle few drops on stain to remove it. 3. Use chemicals very cautiously. 4. Rinse the garments repeatedly with water to make chemical free. 	Sodium perborate, Borax, Hydrogen peroxide, Water, Lemon juice, Oxalic acid, Suhaga.

(5) **Color spot :** Nature of color is of different types, some are alkaline, acidic, and other neutral. One should know the nature of spots then only start process for removing spot.

(6) **Spot of grass :** It is made up of chlorophyll. It is in separate category of vegetable spot. It can be remove from soap water when fresh and if it is old use methylated spirit for removal.

(7) **Enamel paint or varnishing spot :** The nature of enamel and varnishing paint is different from other spot. Therefore, kept in the separate category.

(8) **Different and unknown spot :** Spot of sweat is not kept in the category of animated spot because protein is absent. It contains acidic spot. It can be clean with cold water or solution

of ammonia. In the same way the spot of burn does not come in a special category. So it is categorized in others class. When cotton clothes come in the contact of intense heated iron, turns into brown or burn spot which can be removed by washing clothes and bleached.

Some of the spot cannot be recognized due to the reason of old & dry, which change the color shape, smell, everything, in that it cannot be recognized. Such type of unknown spot can be removed by chemicals.

Different types of chemicals are used to remove the different type of spots :

(1) **(i) Oxidation and oxidizing reagent :** Oxygen is the important part of oxidizing reagent, it comes in the contact of spot in free form and make it colorless compound. This reagent is good for white clothes, but not suitable for colored clothes. If it used on the colored clothes it destroys the color of the cloths. oxidizing reagents are following:-

a) **Sunlight, air & grass :** Natural reagent are easily available. From that linen and cotton clothes become white and free from stains and spots. After washing of stained clothes, spread them under sunlight. In the presence of oxygen and moisture removal of chlorophyll become fast. Spots are removed and cloth become clean and white.

b) **Sodium hydrochloride :** It is a powerful reagent which is also known by name "jewel water". It can be prepared at home by using washing soda - 250 gm, boiled water - 500 ml, lime - 250 gm and cold water - 2 liter and store in glass bottle. By mixing the equal parts of hot water stains on cotton and linen clothes can be removed.

c) **Sodium perborate :** This chemical is used to remove the stain and spot. It is also a powerful reagent. Oxygen released after mixing in hot water. Mix the sodium

perborate in hot water (boiled) and sponge it. It removes stains very quickly.

d) **Potassium permanganate :** It is used to remove the spot of fungus, color and sweat. In half liter of water, half tablespoon of potassium permanganate mix to make solution to remove the spot, but due to potassium permanganate color of the dress becomes brown, which can be removed by oxalic acid or hydrogen peroxide.

e) **Hydrogen peroxide :** This agent is good for the clothes made up of animal fiber. It's a soft type of reagent which is used on all types of clothes. The ratio used is one part reagent and six part of cold water. After using this reagent rinse the cloth with clean water and remove the effect of reagent.

(ii) Bleaching Agent : When this agent is used, it removes the oxygen from the spot and disintegrate the spot to remove stain. It is used for animal fiber. They are of following types :

a) **Sodium bi-sulphite :** It is good for the clothes which is made up of animal fiber. It is an effective reagent. After coming in the contact of clothes, it releases sulphur -di - oxide. Which breaks oxygen and remove the spot. After using this, quickly rinse the clothes in clean water and save the clothes from the harm of reagent.

b) **Sodium hydro-sulphite :** This agent is available in the market in powder form. It can be used for all types of clothes. Dissolve this reagent in water and wash the spotted clothes. It clean the spot by action of oxygen. Wash the clothes in clean water after using this. .

(2) **Acidic reagent :** As the name indicates it is acidic by nature. It used on spot which is alkaline in nature. They are following :

a) **Oxalic acid :** This reagent is used to remove the spot of rust and flower sap. It is granular, poisonous, and chemical

substance. So, it should be used carefully. The clothes should be neutralized with ammonia after removing the stain and spot otherwise clothes degrade. It should not be used on those clothes which are made up of animal fiber.

- b) **Lime salt** : It is also called sorale salt. It is used similar to oxalic acid.
 - c) **Acetic acid** : Dilute solution is used to remove the spot. In one pint of water 1 tea spoon acetic acid is sufficient. vinegar can be used in place of it.
 - d) **Oleic acid** : It is used to remove the greasy spot from cotton clothes. It cannot be used in colored, silk, & woolen clothes.
- (3) **Alkaline reagents** : As the name suggest nature of this is alkaline. It should be used only on cotton & linen clothes. Alkaline reagents harm the animal fiber when used in high concentration. While dilute solution can be used on clothes made up of animal fiber. Others are as following:-
- a) **Washing soda** : It dissolves in hot water. It is used to remove the greasy and acidic spot.
 - b) **Borax** : It is a light alkaline absolute and is in the form of powder. It dissolves easily in water. It is used on all types of clothes. It is used for spot neutralization after removing the acid.
 - c) **Ammonia** : It is used to remove the greasy spot etc on animal made fiber. It is a fast acting alkaline agent. The smell of ammonia is pungent and strong. It is always used in dilute form.
- (4) **Greasy absorbent reagent** : It is in the form of powder, like talcum powder, flour bran, bread crumbs, refined flour and salt. It absorbs the greasy spot and clean them.
- (5) **Greasy solution reagent** : This removes the greasy spot. It is expensive and flammable. It is used in dry wash i.e. dilute petrol, benzene, acetone, methylated spirit, oil of tarpane, kerosene and carbon tetrachloride.

Guidelines and precautions for removing stains :

- (i) Identify the spot by seeing and touching and smelling.
- (ii) Type of clothes
- (iii) Nature of clothes and spot then select the process of spot removing.
- (iv) Light solution are used on color linen, woolen, silk and rayon.
- (v) Wash the clothes in clean water to release the effect of reagent quickly.
- (vi) Check the spot is deep or raw before removing the spot.
- (vii) Take care of fire while using the flammable chemical substance.
- (viii) Select the right process from dilute, absorbent and chemical process.
- (ix) First use homemade solution such as soap, cold hot water, yoghurt, salt, lemon, raw milk etc to remove the spot. When the spot is not release from homemade solution then use chemical reagent.
- (x) Stain removal from chemical substance should be done in open air.
- (xi) Absolute dilute solution of reagents should be used.

Important point :

1. Spot on the clothes are smudged incidentally and unknowingly.
2. Identify the spot by seeing, touching and smelling.
3. Fresh stain are removed easily.
4. Use dilute, absorbent and reagent to remove different types of spots.
5. Nature and type of clothes and stain should be known only then select the process and method of spot removing.
6. Types of spots are animated, vegetable, greasy, mineral, color etc.

Questions :

1. Choose the correct answer for the following questions :

- (i) Types of vegetable spot :
- (a) Blood (b) Sweat
(c) Milk (d) Turmeric
- (ii) Category of medicinal spot is :
- (a) Animal fiber (b) Plant fiber
(c) Mineral (d) All of the above
- (iii) Egg spot is removed by :
- (a) Hot water & soap (b) Cold water & soap
(c) Salt & soap (d) All of the above.
- (iv) Spot of the grass:
- (a) Vegetable category (b) Mineral
(c) Animal fiber (d) All of the above
- (v) Spot of fat is removed by use of :
- (a) Solution (b) Chemical
(c) Absorbent (d) All of above.

2. Fill in the blanks :

- (i) greased spot can be removed by using &

(ii) Animated spot is identify by

(iii) Flour is substance.

(iv) Alkaline absolute is.....

3. Write the name of absorbent substance

4. Why it is necessary to remove the spot of clothes?

5. Differentiate between alkaline and acidic absolute?

6. Write the category of spot

7. What is the main process of removing the spot?

8. What do you mean by absolute reagent? How many types are there ?

9. Alkaline and acidic absolute is used for which types of spot and clothes.

10. Write general rules for stain removal ?

Answers :

1) (i) d (ii) c (iii) b (iv) d (v) c

2. (i) solution, absorbent

(ii) touching (iii) absorbent (iv) ammonia.

26. CLEANSING MATERIAL

Water is required along with cleansing material to wash the dirty cloths. Dirt, dust, stains, grease and other impurities act adhered on the surface of clothes. We can get clean, white and spotless cloths to wear again with the help of suitable cleansing material along with water. The selection of cleansing material depends on the type of fabric and adhered dirt and dust on clothes. Besides cleaning clothes attention be given on the impact of cleaning material on fibre and to reduce the harmful effect on clothes.

These cleansing material are of different types like ritha, bran, sea foam, soap and detergent etc. In general, the use of soap, detergent and liquid soap is more.

In general terms, cleansing material are the substance that, together with water, removes the dirt of the cloth and makes them clear, bright, clean and shiny. Defining the cleansing material, Mrs. Sukhiya's statement. "Wash clothes only with water does not remove dirt, especially greasy and sweating stains." If soap is used in washing, then the clothes are completely cleaned. Using the detergent, the dirt starts floating on the water surface and it leaves the cloth in the form of emulsion and gets into the water. There are many types of purifier substances, similarly textiles are also made from different fibers. There is a difference in the cleansing related characteristics of all fibers and the fabrics made from them. For cleaning the clothes, the cleansing material should be such that:

- (1) Cleaning of clothes can be done well.
- (2) Do not harm clothes and fibers in any state.
- (3) Eliminate the dirt of clothes in such a way that in

squeezing and wringing of the clothes, they should go out with water.

Soap : The most popular substance for washing clothes is soap. It is able to remove dirt easily from the surface of the fabric. Soap is compound of fatty acids and alkalies. Salts of fatty acids are called soaps

In ancient times, the wood ash was dissolved in hot water and washed clothes. The presence of sodium, potassium hydroxide and nitrate in the ashes of the tree enables it make it alkaline and form a cleansing material. Thus, years ago, unknowingly cleansing material was manufactured by mixing wood ash and adibe oil.

Types of soap based on application :

- (1) Washing soap
- (2) Bath soap
- (3) Disinfectant soap
- (4) Shaving soap
- (5) Transparent soap

Various fragrances and colors are used to make all the above soaps attractive.

Types of soap based on form :

- (1) **Soap bar :** It comes in solid form in square and rectangular shape. This soap bar comes in a moulded fixed weight and size wrapped in a paper. The name of the company soap and cost is printed on soap.
- (2) **Soap jelly :** The remaining soap pieces are dissolved in warm water and form a thick solution and filled in bottles. It can be used as

per the requirement. The remaining pieces of soap are not thrown as a waste pieces.

- (3) **Soap flakes :** Thin film of low-alkalina soap is broken into small flakes and packed in a box. Famous companies manufacture them
- (4) **Soap solution :** Many brands of soap are available in the market in liquid form. It is less alkaline.
- (5) **Soap powder :** Various types of soap powder are available in the market. These are alkaline nature. Sodium carbonate, sodium perborate, such as alkali and soaps are mixed in it. Clothes are cleaned quickly but they damage the fibers and clothes.

Making of soap :

Following ingredients are used for making soap:

- 1. **Fat :** The major part of fat is fatty acid and glycerine. Two type of fat are used in making soap.
 - (a) **Animal fat :** It is called hard fat. It is used for making soap. It contains fatty acid and has similar structure. It gives less lather but clean clothes properly. Lard is an expensive fat which is used only in the manufacturing of bathing soap.
 - (b) **Vanaspati fat :** Coconut oil, flax seed oil, linseed oil, soybean, olive, mahua, ratanjot, and castor oil are used for making soap.

Mixing animal and vegetable fat is less costly in making soap. Based on the quality and characteristics of the oil used, the cost of soap making is affected.

- 2. **Alkali :** Caustic soda or caustic potash is used in the soap manufacturing process. Caustic soda is used to make hard soap, whereas caustic potash is used for soft soap formation. It is more commonly used to make homemade soaps.
- 3. **Sodium Silicate :** It is an alkaline substance. It is bright granular substance. It available in solid and liquid form. Sodium silicate consists of excellent cleansing and purifying properties. But when making soap, it should be used only in the prescribed quantity.
- 4. **Starch powder :** Starch powder turns into sticky jelly form on addition with water. In soap making process, maida, cornflour or gram powder are used as starch.
- 5. **French chalk and soap stone :** French chalk soft marble powder is used to increase the quantity and weight of soap and the used quantity is 15 to 20%. They dont bear any purifying or cleansing properties.
- 6. **Salt :** In making soap the amount of salt used is 12.5 percent of oil used.
- 7. **Resin :** It has no cleaning property but used order to increase the weight of the soap. Excessive resin caused yellowness in the clothes.

S.No.	Soft soap	Hard soap
1	The soap made in cold process are soft	Soaps made in hot process are hard
2	It dissolves in water easily	It takes time to dissolve in water
3	It produces more lather	It gives less lather by excessive scrubbing
4	It is made with the inclusion of caustic potash, light alkali and oils (olive and linseed oils)	It includes caustic soda, hard fat, alkali (stearin, pomedin fat).
5	Saves time and energy using this type of soap.	More soap, time and energy wastage
6	It is best used to wash soft and special care clothes, silk and woollen fabric	It best for washing thick and rough clothes

Composition of soap :

Mainly, fat and alkali are main constituents of soap. However, sodium silicate, french chalk/ soap stone, starch, salt and resin etc. are also used to increase the weight and property of soap.

Soap in washing process :

When the soap is applied by wetting the cloth, the resistance power of the upper surface of the cloth reduces. Soap breaks down dirt and grease into small particles. These particles float on water in the form of emulsion, leaving the cloth. They then rinsed in clean water, thus, the clothes are cleaned.

Quality of good soap : The best quality of soap has the following properties:

1. The good quality soap easily dissolves in water and produces more lather.
2. Excessive use of alkali make the cloth turn yellowish. Therefore, good soap does not contain much alkaline and resins.
3. Good quality soap contains 30 percent water and 61 to 65 percent fatty acid.
4. Good quality soap should give soft and shiny result on using in cloth and skin.

Detergent

First of all, detergent was first created in 1907 by hydrocarbons obtained from raw petroleum. Detergent is synthetic carbon organic compounds, which are made of special type of chemical substances, in which special properties of humidity deflection and emulsification.

Detergent are divided into three categories based on the quality :

- i) First class detergent are those in which cleansing and hygiene properties are presence, but they are expensive.
- ii) In the second class, detergent are not adulterated but their cleansing property is good and they are cheaper than the this first class detergent.
- iii) In the third grade, some chemical substances are added, which increases their purifying capacity, It is dark colored and cheap.

Constituents of detergents : Six main constituents of detergents are :

1. **Active product :** The appearance of some element in the detergent remains to form while other to remove dirt. It is powerful enough for simple light household washing, but not for heavy washing.
2. **Constructive elements :** There are some constructive elements which increase the extra refinement capacity for detergent. These constructive elements are both organic and inorganic. Constructors of inorganic class are mainly phosphates that do not produce foam. It only enhances the cleaning capacity. Organic constructor provide foam stability for active production
3. **Deposit reflective elements :** Detergents also contains deposition repulsive elements, which separated dirt from the garment and the dirt does not stick to clothes again, therefore they also remain in repetitive action. Dirt remain suspended in liquid and flows along with water only.
4. **Sodium silicate :** Machine parts are made of aluminum. Aluminum metal is used to make agitator fan and wash basin of washing machine. Sodium silicate is added to prevent any loss of work and other effect of detergent. Therefore sodium silicate is important constituent of detergent.
5. **Bright or optical bleaches :** There is a element in detergent which bring brightness in the clothes after washing. The use of any other bleach is not required separately after the use of detergent.
6. **Anti rust elements :** Non-corrosive or anti-rusting elements are mixed in detergent to protect the skin of hand and metal.
7. **Aroma:** Aroma is added to bring fragrance to detergents .

Process of detergent making: Detergent can be mixed in cold-hot and hard - soft in all kinds of water. Due to bearing the excessive wetting property, dissolve easily in water. It reduces the surface pressure of the water or the resistivity of the cloth, so that it

reaches the fabric fibers together with the water and cleanses the dirt completely and provides brightness.

Properties of best detergent :

1. High quality detergents are not alkaline.
2. It works equally in both cold-hot and hard-soft water.
3. They have wetting property.
4. Provide protection to machine parts and hand.
5. It does not harm the clothes
6. Reduce the surface tension of water and resistant capacity of the cloth and do it quickly.
7. These are excellent emulsifiers of fat.
8. Smoothly clean white and colored fabrics.
9. Saves energy, time and money.
10. Detergent does not allow the dirt to deposit again on the clothes. Dirt particles remain suspended in water.
11. Washing clothes from detergents is easy because it is easy to rinse the clothes.
12. It is used, according to the requirement, save it from wastage.
13. It destroys the micro organisms.

Table 26.2: Differences between soap and detergent

S.No.	Soap	Detergent
1	Soap is made from natural fat and alkali	Detergent is made from chemicals and petroleum products
2	It is less effective	It is more effective than soap
3	It is less active in hard water but gives more lather in soft water	It is active in both hard and soft water
4	The use of soap requires more energy	Its use saves time and energy
5	Soap does not include bleaching agent, so other elements are used to bring brightness in white clothes.	In detergents, bleaching agents are added, so for brightness no other elements are used.
6	Soap does not kill any micro organisms	Detergent kills micro organisms
7	By continuous scrubbing on the clothes, soap destroys the fibers of the garment	It does not damage clothes
8	Stains are not removed easily	The stains are removed easily and quickly
9	Soap brings harm to hands	Detergents does not
10	There is a chance of color fading while washing	There is less chance of color fading from the cloth during washing.

Detergent demand on the basis of all the above characteristics is increasing day by day and save time, energy, money. It completely destroys micro-organisms it promotes pollution because these are not degraded biologically. Therefore, excessive use of them increases pollution.

As per the above information, a conscious consumer needs to buy soap and detergent as per clothes. Some cleansing material in the market are more effective, some are in accordance with the nature of textiles and fibers, some are cheap while others are

expensive. Selection of substances should be done without the influence of external advertisement.

Important points :

1. Cleansing Material are used for the laundry of textiles. Soap, reetha, detergent and seaweed are cleansing materials.
2. Soap is the salts of fatty acids.
3. The hard and soft - two types of soaps are based on the construction process.
4. Detergent is synthetic organic compound.

5. The composition of soap and detergent differs.

Questions :

1. Choose the correct answers for the following questions :

- (i) This is used to wash dirty clothes:
(a) Fabric whitener (b) Starching agent
(c) Bleaches (d) Cleansing Material
- (ii) It does not dissolve in hard and soft water :
(a) Detergent (b) Soap
(c) Purifying substances (d) All of the above
- (iii) Telo and lards are :
(a) Hydrogenated oils (b) Chemicals
(c) Animal fat (d) All of the above

2. Fill in the blanks :

- (i) Detergents are equally active in and water

- (ii) Fat and alkali are important elements of making.
- (iii) Detergents surface tension of water.
- (iv) There are components of detergent.
3. What are the Cleansing Material? Explain.
4. Differentiate between detergent and soap.
5. Describe the properties of the best soap and detergent.
6. Define the characteristics of soap and its classification.
7. Write the methodology of detergent and soap.
8. Write composition of soap.

Answer :

1. (i) d (ii) b (iii) c (iv) d
2. (i) hard and soft (ii) soap
(iii) reduce (iv) six

27. STORAGE OF CLOTHES

The basic knowledge of proper collection and safety of garments is essential for every person. Clothes are closely associated to each and every individual all time. In this case, the proper storage and maintenance of garments are more important and necessary steps than their shopping, selection, sewing, washing and ironing. In the absence of proper care and storage along with their maintenance, both the costly and cheap clothes are spoiled and turned from precious to not worth wearing. Well-stored garments can only be obtained through proper apparel scheme at the right time. But sometimes due to lack of time and faulty habit, clothes are treated badly, they are not hanged or folded properly nor they washed or stored properly in box or cupboard. The clothes kept in this manner cannot be worn again and thus they become unfit to wear. In such a case, if we have to go to a party suddenly, and we have to get ready and dress up, we are compelled to wear the dress that is dirty, without press and with missing hooks or buttons and even matching hand kerchief is dirty, tie not pressed, the socks are not in place. The mood for attending the party and having fun gets spoiled due to all these reasons. At the same time, we don't reach to the party in time. Therefore, it is very important that the clothes should be looked after and stored properly.

Steps of Storage :

1. Place : It is mandatory to select a place for usage and proper storage. The portion of house in which the clothes are kept should be free from moisture and water. All garments have to be stored for short or long time duration, depending on their nature and variety. A box-wardrobe is

used to keep clothes. This can be of wood, iron or steel. Apart from this, the clothes can also be stored in almirah which are made in an open wall in the house. Clothes can also be kept in the suitcase of different sizes, but the wardrobe is a place which is considered more suitable for garments, but according to the weather, chest or box are most suitable. The place where the clothes are to be stored, i.e. the chest, box, closet etc. should be clean and dry.

2. Sorting of clothes : The sorting of clothes is essential in storage. First of all, it is necessary to make sure that what clothes are used at what time, which one are required according to the occasion regularly. Separate the clothes which are stored for a long time, such as, according to the season, clothes for winter and summer, also separate them according to special occasions and also the clothes of daily use.

While sorting, separate clothes to be home washed and dry-cleaned, should be taken care of stain spots too and separate them from clean clothes. While sorting out garments, check the hooks, buttons, fingerprints, and chains etc. among them. Clothes should not be torn or damaged. Also check the decoration such as laces, falls, designer buttons etc. be on clothes.

3. Clean storage and immediate repairs : It is necessary to wash clothes in a proper and appropriate manner after sorting of garments, but most important is to repair the clothes, all the garment buttons, hooks, etc. should be fitted well and they should be intact, if required. In

damaged clothes, darning and mending is necessary. Do not store stained clothes at any cost and firstly get rid of them. Washing, drying, pressing, etc. are necessary steps to be completed before storing the clothes .

On the basis of the above points, we will be able to collect the garments properly and also be able to save them from damage. In the final process of collection, it is appropriate to sort clothes according to their use and utility. As per requirement clothes should be sorted as used round the year, occasion, in addition to all this, the clothes are stored according to the members of the house.

1. Storage of garments to be worn regularly throughout the year : Textiles are an integral part of our lives. The daily activities of our life can't be imagined without clothes. The toughest task in storage of garments, is to collect and maintain the regular and daily use garments. Since these garments are used regularly, their storage should be at such a place that we can use the clothes without any hassle as and when needed.

Clothes are used in everyday life as home wear, night wear, school uniforms, napkins ,socks etc. and it is essential to wash them daily. Drying clothes properly, creasing and pressing them in proper way and arrange the clothes.

There is no place more suitable than the wardrobe for the storage of clothes because there are many sizes of racks and shelves in it. Clothing can be kept in the wardrobe rack and shelf according to the size of the garments. The clothes that cannot be folded in the closet are also in the cupboard and they can be hanged. Hangers should be used according to clothes like sarees, coats, pants, shirts etc. In such a way, the folds of the clothes are maintained and they are accessible at the right time and in good condition.

There are small racks in the cupboard where small cloths can be kept, such as napkin, socks, vest, and underwear etc. When needed, all these small clothing are found in one place.

To keep the garment accessories there are small racks in the cupboard, in which tie, tie-pin, cup-

genders, kurtas, buttons etc. can be kept. By doing so, these small and important things are easily available on time. At times, we wish to wear the used clothes again, before doing so we should dry the sweat in clothes by hanging them in air. Never store dirty clothes with clean clothes while collecting.

2. Storage of garments according to the occasion : There is a tradition of wearing apparel according to the occasions in Indian culture. Precious clothes are kept for the marriage, festival and special functions. Banarasi, Brocade, Genuine georgette and precious gemstone etc. require special care and storage as they have to be saved for a long time and for this, the trunk, briefcase and closure wardrobe can be used. They should not be kept with woolen and warm clothes. The real gold-silver-work clothes, the precious sarees, the brocade, the clothes with jari work should be wrapped in a silk cloth properly. We prevent them from getting dirty by doing this and also the blackening of stones and gems in them. The place where the clothes are stored, such as a trunk & wardrobe should be cleaned first and then firstly lay neem leaves and a clean cloth and store precious clothes. Zari clothes should be exposed to air time to time. This keeps the quality of the clothes intact. Silk fabrics should also be preserved in the same way like above garments. The crease of these clothes should also be changed from time to time and also spread them in open air at regular intervals. Silk textiles are too delicate and precious, so special care is required in storing them.

3. Storage of garments according to the weather : Clothes are preserved for a long time according to the season. All warm clothes should be washed and dried properly before storing. For woolen clothes storage, diwan with wooden box is most suitable of all. By cleaning the chest, the newspaper should be laid down in it. Dry leaves of neem or naphthalene should be kept with clothes. Now, keep the clothes with proper crease and shape making layers one above another, putting naphthalene tablets in

between these layer of clothes. Dry cleaned clothes should be wrapped in the newspaper while coats, jackets, leather jacket, fur coat etc. should be kept in the cover and then hang them in cupboard so as to maintain their press and crease and safely enclosed in cupboard.

Storage of blanket quilts etc. should be done as soon as the winter season is over. Before storing them, remove the cover of the quilt and blankets, then they should be exposed to sunlight properly, washed or dry cleaned well after that the quilt should be kept with the naphthalene balls in the bed-box. The cover of quilts and blankets should be washed with dettol water and then they should be drained well. Naphthalene balls should be kept in between the sides of these clothes.

Following points should be kept in mind while storing the garments :

1. Clothes should be sorted out before storing.
2. Repair and clean clothes should be done before store.
3. Clothing should be removed from the adornment material which can be removed.
4. The place of storage should be clean and dry.
5. Clothes should be dried well in sunlight before storing .
6. Ensure that no dirt or stain remain on clothes.
7. Clean clothes should not be stored with dirty ones.
8. Expensive clothes such as silk clothes, brocade and banarasi clothes should be exposed to air on regular interval and crease should be change at regular intervals.
9. Woolen clothes should be wrapped in newspaper to preserve them from insects.
10. Garments used once should be dried in air and store seperately.

Advantage of storing clothes :

1. The durability and age of clothes increases.
2. Clothes are safe and available in good condition as and when required.
3. Expensive clothes can be maintained new, lively and saved from destruction.

4. Money and efforts are saved by storage.
5. Clothes are not misused by storing them.

Important points :

1. Storage of clothes is an important process.
2. It is necessary to clean items that are worn regularly.
3. The storing of garments is done on the basis of their need and utility.
4. When storing the clothes, they should be clean, free from dust, moisture and dirt.
5. Almiraha and closet should be closed after storing clothes.
6. The first stage of the collection is the key of the proper location, the splash of clothes, the clean storage and instant repairs etc.

Questions :

1. Select the correct answer for the following questions
 - (i) Storage of clothing saves:

(a) Time	(b) Money
(c) Effort	(d) All the above
 - (ii) Which clothing folds should be changed from time to time by spreading in open air for :

(a) Woolen clothes	(b) Cotton clothes
(c) Silk clothes	(d) All the above
 - (iii) Newspaper saves clothes from :

(a) Insects	(b) Moisture
(c) Fungus	(d) Decay
 - (iv) Clothes are stored as per season for

(a) Short duration	(b) Long duration
(c) One month	(d) None of them
 - (v) Storing clothes in trunk and wardrobe should be:

(a) Clean and wet	(b) Bid and open
(c) Clean and dry	(d) None of the above
2. Fill in the blanks :
 - (i) By storage of clothes, they can be saved from
 - (ii) Storage of clothes increase their and

- | | |
|---|---|
| <p>(iii) clothes should not be stored with clothes.</p> <p>(iv) balls should be used while storing clothes.</p> <p>(v) Firstly clothes should be and then they should be stored.</p> <p>3. Why storage of garments is mandatory ?</p> <p>4 Write importance of neatly stored clothes ?</p> <p>5 What points should be remembered while storing clothes properly ?</p> <p>6. Why clothes should be exposed to sunlight and air at regular intervals. Clear it?</p> | <p>7 Why mending and sorting of clothes important before storing them ?</p> <p>8 Why cleaning of daily use clothes is mandatory. Discuss it ?</p> <p>9. Discuss the process of storing expensive and premium clothes.</p> <p>Answer :</p> <p>1. (i) d (ii) c (iii) a (iv) b (v) c</p> <p>2. (i) Destroy (ii) Durability, Age
(iii) Clean (iv) Napthalene (v) Sorting</p> |
|---|---|

UNIT IV - FAMILY RESOURCE MANAGEMENT

28. FAMILY INCOME

Money is a very important to meet the needs of the family. Life becomes very painful, miserable and tense in the absence of money. The person is not able to meet its essential requirements in its absence. Thereby affecting his efficiency. On the contrary, the family is happy, and prosperous with adequate wealth, and if the family income is high then its level of living will be high. Every family has to do some or more financial work to earn money in order to meet the needs of the family.

Therefore, the income earned in a given period is the amount of money received as a result of economic efforts and in which other facilities such as free houses, free medical, free education, travel expenses etc. are included.

Definition :

According to Nickel and Darcy, 'Family income is the flow of money, goods, services and satisfaction that comes in the right of the family to meet its needs.

Money is the means of purchasing power and regulation at present. We can achieve the object or service and fulfill the requirements by regulation. We have included all the benefits and services that are received in a certain time. The income of each family is not the same.

Family income does not just mean money or cash, but it is a fraction of the total income, if any item or service such as housing, education, medical service etc. is received free, then it is also a part of family income. So, family income is the amount of money earned in a given period of time and resources, by

using it the family receives satisfaction as per their needs and desires.

The person makes happy and rich life by satisfying the more and more necessities or in other words, the level of living of the family whose income is high is also excellent.

According to the Gross and Candle, 'Family income is the flow of money, goods, services and satisfaction, which comes in its right to fulfill the needs and desires of the family and the discharge of the responsibilities.

The purchasing power of money is the medium of power and regulation. We can achieve the object or service through regulation and only then can meet the needs of the family. Income includes all the benefits and services that are received in a certain time. People earning high fall in the category of high income and low-income earners fall into the category of low income.

Types of family income :

Family income is classified into three types :

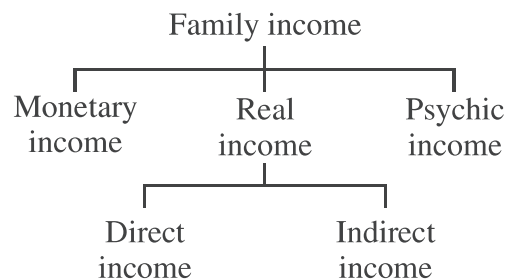


Fig. 28.1 : Family income

1. Monetary Income :

Monetary income is the purchasing power in rupees during a given period of time. Money income is one of the important resource material of the family. It is said, “Money is a matter of function to accomplish four activities, a medium, a measure, a standard and store”. Some people say that “We cannot catch money, but we cannot eat without money.” According to D.H. Robertson, “Money is anything which is widely accepted in payment for goods or in discharge of other kinds of business obligations.” Money income of the family includes all the earnings which come to the family in terms of rupees, coins or notes in a specific period of time, daily, weekly, or monthly through hereditary, rent, salary, wages, gifts and lautory.

2. Real income :

Real income is the flow of goods, services and community facilities available for a specific period of time. According to Donaldson, “The real value of income received is the goods, services, security and well-being, that income (money) will purchase.” The concept of real income is very much important for family living. Real time consists of both producers and consumers ‘goods. Family receives these services either from their family members, friends or free services like medical services, gift, house etc.

The real income may be of two types :

(i) Direct income :

It means a family receives different facilities without paying for them. For example, free well-furnished house, telephone at residence, vehicle for private use, hospital facilities, vegetables from kitchen garden, free accomodation etc. Public services like park, liberary, police management etc.

(ii) Indirect income :

It refers to the commodities and services received by the family members on payment as define by Gross and Candle. For example, vegetables from the kitchen garden, milk from the dairy farm earn money after selling them in the market. It is income through which one can get services by spending it or earn money by selling things.

3. Psychic income :

This income is the flow of satisfaction derived by the family from the use of money income and real income. This income is intangible and qualitative or subjective. This income is also called as Enjoyment income, experienced over a given period of time by the proper utilization of money income and real income. We must maximize psychic income, because our ultimate goal is to derive maximum satisfaction and peace from life. It is not measurable money as defined by Nickle and Dorsey.

Real income is directly utilized so it is called direct income. Money income cannot be directly utilized, but it is used as a medium of exchange for obtaining goods and services. So it is called as Indirect income of the family. Money income is mainly based on the earning capacity of the members, but the real and psychic income depends on the skill that is exercised in management of everyday living.

Different sources of family income :

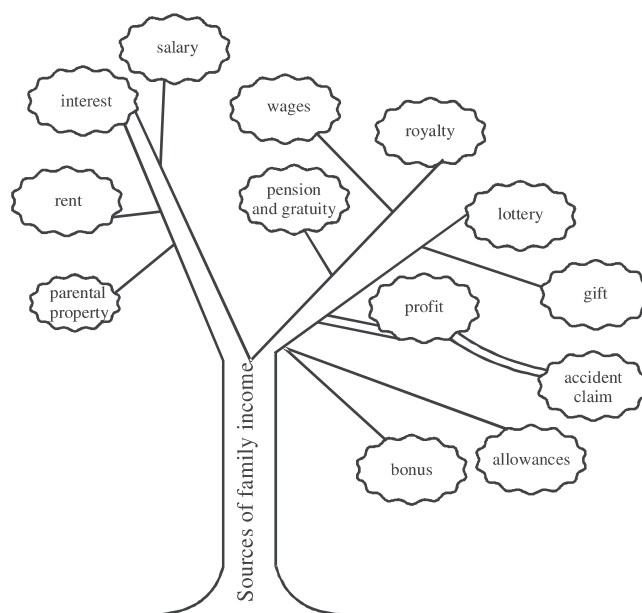


Fig. 28.2 : Sources of income

1. **Wage :** A wage is monetary compensation (or remuneration, personnel expenses, labor) paid by an employer to an employee in exchange for work done. Payment may be

calculated as a fixed amount for each task completed (a task wage or piece rate), or at an hourly or daily rate (wage labour), or based on an easily measured quantity of work done.

2. **Salary** : Mental labor has to be done with physical labor to accomplish many tasks. The income received in its return is called salary. It meets the person's skill, education, attitude of work, experience, diligence and position. It is necessary having mental skills to get more salary. Salary is usually given monthly. Salary increments are annual. Pay includes dearness allowance, house rent, travel allowance, vehicle amenities etc.
3. **Interest** : It is payment from a borrower or deposit-taking financial institution to a lender or depositor of an amount above repayment of the principal sum (i.e., the amount borrowed), at a particular rate. It is distinct from a fee which the borrower may pay the lender or some third party. It is also distinct from dividend which is paid by a company to its shareholders (owners) from its profit or reserve, but not at a particular rate decided before hand, rather on a pro rata basis as a share for the reward gained by risk taking entrepreneurs when the revenue earned exceeds the total costs.
4. **Rent** : Acquiring money through renting a house or a land is also one source of income. Rent is a source of income.
5. **Profit** : Some people invest their money as a business. They sell their produce for money. The money that is remaining after incurring all expenses is called the profit. Profit depends on the type of business and management. Profits may be low or high.
6. **Pension and gratuity** : A person receives money per month after retiring from a job which is known as pension. The amount of pension also depends on the amount of salary that the person was drawing during his job. The pension receiving by a person is 50 percent of his salary. A person also receives a fixed amount of money from the institution at the time of retirement as gratuity. This is provided at one time unlike

pension which is provided monthly. Pension and gratuity is the best source of income for old aged people.

7. **Bonus** : The employees receive an additional amount of money once in a year in various companies or corporations as a bonus. This serves as an extra income for a person which depends upon the benefit of the company. It is offered mainly during festive seasons like Diwali. For example, on Diwali festival the employee is paid additional one month salary as his bonus.
8. **Allowances** : An employee is provided various types of allowances other than salary. For example, travelling allowances, dearness allowances etc.
9. **Medical and accidental relief** : Some corporations offer relief to its employees for accidental or medical situations. This is known as medical or accidental relief.
10. **Royalty** : In publishing sector, the amount of money given to a writer depends on the sales of the published book. This is known as royalty. This amount is fixed in certain percentages between the writer and publisher before the book goes for sale.
11. **Gift** : The money received from the relatives and friends on birthdays and festivals is known as gift. It also helps to increase family income. However, it is not a continuous source of income. The amount in the gift may differ depending upon the types of festivities and nature of relatives.
12. **Lottery** : Awards in cash or kind from lottery is also a type of family income. There is a profit for both the seller as well as the buyer of lotteries.
13. **Inheritance of property** : After the death of a parent the property is transferred to their offspring or relatives. This is also a source of income.

Increase in family income :

Human needs are limitless, which cannot be accomplished by his fixed income. Every person makes a financial effort to meet the different needs of his family members. A person can take help of his

family members in spare time. Nowadays women can increase the income of their families, women are no longer limited to domestic tasks. Making economic cooperation side by side, which may take the family's economic situation to greater heights and inspire a partner to adopt a higher level of living, thus creating and maintaining high family living standard.

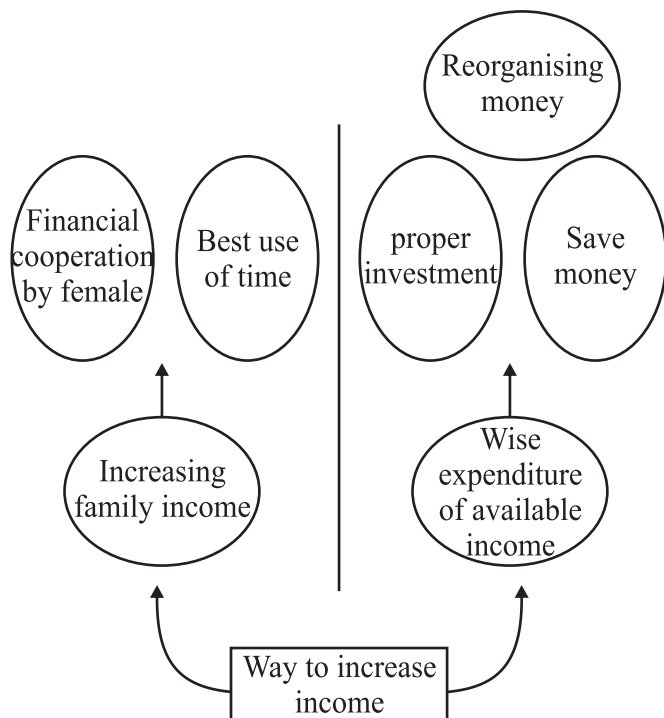


Fig. 28.3 : Way to increase income

Family life status has improved in two ways :

1. Increasing family income.
2. Wise expenditure of available income.

1. Increase family income :

i) Making economic contribution by women : Now a days considerable change in the situation of women is seen. Along with the domestic responsibility, she is also doing job outside the house and improving the economic condition of the family. The Home Industry Department provides money, help, and training facilities to the women for earning the money to produce the different items made from milk, poultry farming, rearing of silk worms are the main

source, and the other sources such as preservation of fruit and vegetables, soap making, badi and mangodi making, tuition and stitching are used as various income generating sources.

ii) Best use of time : Establish a good coordination between domestic and office work, free time can be used in other activities to earn money by accomplishing the domestic work in given time frame. Don't waste time, use best management skill for best utilization of time.

2. Wise expenditure of available income :

(i) Economic value for money : We require money to buy every item but if money is used in the systematic manner, then only income of the family can increase. It is also important to invest money in a proper way to increase the level of economic value.

(ii) Money savings : Money is a limited source on which the entire needs of the family depends. Money, even though limited, is able to meet maximum needs. One should not waste money carelessly, rather spend every rupee in a systematic way.

(iii) Investment of money : Every person should save some amount of money for future. It should be saved in such a manner that we receive some interest amount from it as well. This benefit can be availed from bank, post office etc.

Important Points :

- Human beings require money to fulfill various material needs.
- A person receives some amount of money through employment in return to fulfill his needs. This return is known as income.
- There are three types of family income: Real, Psychic and Money.
- Family income can be achieved from various sources such as salary, agriculture, pension, profit etc.

- Family income is dependent upon the education, number and abilities of the family members.
- In future, in order to increase the family income it is required to invest money, employment of women in small scale cottage industries.

Questions :

1. Choose the correct answer for the following questions :
 - (i) Family income are of types
 - (a) 2
 - (b) 1
 - (c) 3
 - (d) 5
 - (ii) Source of family income is ?
 - (a) Tax
 - (b) Gratuity
 - (c) Labour
 - (d) All of above
 - (iii) The flow of goods, services and community facilities are available for a specific period of time is
 - (a) Real income
 - (b) Money income
 - (c) Family income
 - (d) Daily income
 - (iv) Psychic income is related to:
 - (a) Services
 - (b) Self-satisfaction
 - (c) Money
 - (d) Goods
 - (v) Income generating source is:
 - (a) Proper use of money
 - (b) Proper use of time
 - (c) Cottage industries
 - (d) All of above

2. Fill in the Blanks:
 - (i) The flow of goods, services and community facilities are available for a specific period of time is known as
 - (ii) The amount of money received by the writer depending on the sales of book is called
 - (iii) Human needs are which are fulfilled within a source of income.
 - (iv) Is a medium for purchasing power and investment.
 - (v) Income received through sale of goods and services is
3. What are the types of family income? Write in brief
4. Write about four main sources of family income.
5. Explain about income generating sources.

Answers :

1. (i) c (ii) d (iii) a (iv) b (v) d
2. (i) real/money income (ii) Royalty
(iii) unlimited, limited (iv) money
(v) indirect

29. HOUSEHOLD ACCOUNT

The person meets the needs of his family through family income, for which he has to spend his income. Each person has his own separate income and his daily needs are also different. Every person, according to his own income, determines the expenditure on his own needs, how and where he declares his income, is called family income, which means that it is a part of the income earned by a family person who has spent a certain amount of time on the goods and services to meet the family needs.

According to Kanti Pandey 'the amount of money that the family acquires from various economic efforts, and how much it spends is called expenditure.

Family expenditure is divided into two parts-

1. **Consumption expenditure :** The part of the income that is spent on various essential materials for consumption, is called consumption expenditure. Every family needs to spend a certain amount of their income per month on food, clothes, etc. Essentially, most of the income expenditure is on the household activities.
2. **Saving :** The amount of money left after consumption is called savings. Savings are used for future needs, it is kept safe or money is used for investment .

Types of Consumption expenditure :

1. **Fixed expenditure :** Those which repeat for a certain period like house rent, school fees etc are covered under the fixed expenditure. Items of this expenditure are equal in a month.

2. **Semi-fixed expenditure :** It changes according to the income and circumstances, if income is high, then it can be spent on high-quality food and clothing. Similarly, the expenditure can be reduced if there is a low income. The items of comfort and luxury fall under this expense. The expenditure on festivals and special occasions also fall in this category.
3. **Other expenditure :** This expenditure is undefined. This expenditure depends on the income and desire of the person. such as entertainment, jewelery, clothes, etc. The person spends on these as per their income.

Need of family income and expenditure :

Families get satisfaction using the services on various items to meet their needs. Income and expenditure are a continuous process. Every person earns income according to his qualifications and work capacity and determines what he wants. Man is the core unit of economic activity and the consumption expenditure is the operator of economic activities.

Requirements are endless for which the family consumes. The speed and quantity generated also increases when the demand for consumption of goods increases. The person can get the goods he wants through the exchange of manufactured goods. Person generates his income by distribution of manufactured goods, and through exchange of income, he can consume the necessary items and thus the process of income and expenditure continues to run. On this basis, various economic activities are conducted in the world.

Income and expenditure details (budget) :

Every person wants to get the maximum satisfaction of using their income properly. It is important to make proper arrangements for managing the income utilization, for this, it should make a family budget before expenditure of income. In the family budget, a detailed account of the income and expenditure of the family is given and the special period of relationship occurs from one month or one year.

Definition :

In the words of Kanti Pandey, 'the budget is said to have a detailed explanation of the estimated income expenditure before a certain period'. Prior to expenditure, to get maximum satisfaction from income, total estimated details should be prepared in various items according to income.

In simple terms, a detailed explanation of the income and expenditure of a family in a particular period is called a family budget.

Importance of budget :

It is important for every family to develop happiness, prosperous and satisfaction with the help of a family budget which is balancing the income and expenditure, the housewife can easily fulfill the requirements by meeting the income-expenditure. Therefore the budget is important for various reasons

- It is very helpful in prioritizing the budget requirements, it is useful to make the budget necessary to meet the necessity and non-urgent needs.
- It is the budget's role in expressing the economic goals of the family, whether short-term and long-term target budget can be ensured by distribution of current and future needs.
- The budget teaches individual's income and expenditure by giving knowledge regarding his limitations.
- Budget is the knowledge about the methods of a family's expenditure. It helps in increasing the income.
- A family should build a family budget to reinforce their financial condition.

Main points of budget :

The following points should be kept in mind while making a family budget for each family.

1. Every person making a budget must have complete knowledge of family's income, no member should disclose or increase their income.
2. Family should not spend more than the income received.
3. Must spend the first time on the most essential item.
4. The distribution of income should be done in such a way that the needs of all the family members are met.
5. There should be flexibility in the budget so that changes can be made, if necessary.

Types of family budget :

1. **Balanced budget :** It always keeps balance in family income and expenditure. This is called a simple budget. The estimated income and proposed expenditure are the same.
2. **Saving budget :** This type of budget is less than family income, so it is considered ideal budget. In this, the family gets financial security in the future.
3. **Deficit budget :** In this budget, the family's expenditure is higher than the income. Deficit is fulfilled by borrow or debt.

Different budget items :

- Food : Cereals, Spices, Ghee, Oil etc.
- Cloth : Wear clothes, household clothes, blanket etc.
- Housing: house rent, house building, washing, painting etc.
- Education: school fees, hostel expenses, copy books expenses etc.
- Health: Doctor's fees, medicines, hospital charges etc.
- Traffic : vehicle, petrol, bus fare etc.
- Entertainment: Walking, Sporting Goods, TV, Picnic etc.

- Other expenditure : extra expenses, Servant’s salary, electricity expenses etc.
- Saving : Part of the income to be kept safe for the future

Method of making budget :

The family budget is made for one month. The person should include income from all income sources in monthly income to make a budget. Then the family

members should determine the different items, to spend. It should be determined according to the circumstances and type of situation. The fundamental principle of budgeting is that as much income will be reduced, more percentage will be spend on the individual the essential needs of life. On this theory, economist Ernest Angel has set a percentage of the level of living-fit spending on various needs of life, which we can understand easily by the table.

Table 29.1 Percentage income expenditure on different items

S. No.	Items of expenditure	Percent of expenditure		
		Lower class	Medium class	Higher class
1	Food	60	55	50
2	Cloth	18	18	18
3	Housing	12	12	12
4	Electricity and light	5	5	5
5	Education, Health & Entertainment	5	10	15

According to the above table, the expenditure on food consumption decreases with increase in income, But expenditure on education, health and entertainment increases.

Ideal budget :

Family expenditure is less than income and some part of the income is saved and kept for the future, called ideal budget. Both income and savings increase, there is no provision of savings in the theory of angle, whereas in today’s era, savings are essential items.

Including savings by changing the angel theory, an estimated budget of three classes in which the number and age of the members belong same given in table.

The budget principle helps in creating a successful ideal budget by determining the percentage of household income expenditure on different items.

The budget presented is an approximate budget. The family’s requirement changed according to the circumstances .

Household account :

Family members requirement be fulfilled by keeping this fact in mind household activities can be organised and run smoothly by maintaining the expenditure and record keeping of income. Housewife come to know whether expenditure is done according to budget by writing the account of expenditure. It is easy to maintain the balance between income of expenditure and also control the unwanted expenditures by record keeping. Thus, at the end of the month, savings are also made as per the budget. Household can be curtailed wisely and unnecessary expenditure is banned. The habit of accounting is beneficial for the present and the future.

Table 29.2 Estimated budget for families

S. No.	Expense items	Income groups (Rs./months)					
		Lower (5000)		Medium (20,000)		Higher (60,000)	
		expenditure	%	expenditure	%	expenditure	%
1	Food	300	60	10,000	50	27,000	45
2	Clothing	750	15	3000	15	9000	15
3	Housing	550	11	2200	11	6600	11
4	Electricity, light & water	250	5	1000	5	3000	5
5	Education	100	2	800	4	3000	5
6	Health	100	2	800	4	3000	5
7	Entertainment	50	1	800	4	3000	5
8	Saving	200	4	1400	7	5400	9
	Total	50000	100	20000	100	60000	100

Requirement of household account :

- | | |
|--|----------------------------------|
| 1. For money management. | 3. To stop unnecessary expenses. |
| 2. For the information of expenditure incurred at the time of each item. | 4. Thinking carefully to spend. |
| | 5. For achieving family goals |

Types of household accounts :

1. **Daily book:** - The details are to be calculated on a daily basis.

Table : 29.3 Daily book keeping

Date	Item	Quantity	Expenditure
01.09.2016			
02.09.2016			
03.09.2016			
04.09.2016			

2. **Weekly/monthly record book :**

Account details are calculated at the end of the week by adding details of the expenditure per day. Similarly, monthly details are added by adding the expenditure of the week.

Table 29.4 Weekly/monthly record book:-

Month January, 2016

Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
First week							
Second week							
Third week							
Fourth week							
Total							

3. **Annual book record** : Details of the year are maintained.

Table 29.5 : Annual book record

Month	Income	Expenditure	Less/more expenses than income
January			
February			
March			
April			

Types of records :

1. **Market expenditure** : Keeping the account of the market is very important for the housewife because the main part of the income is to bring food items, fruit, vegetable, cloth etc. from the market. Everyday records of expenditure on these items should be kept in the diary. Account for the market expenditure should be written in the evening every day.
2. **Record of milk** : The amount of milk is calculated by the end of the month. Housewife should keep the details of the expenses incurred on milk every day. There is no discrepancy in accounting when the details of milk expenditure are written systematic and distributed.
3. **Record of laundryman** : The details of the clothes being washed by the washer is kept in this account. The female account holder records the number of clothing given and date wise clothes given to the laundryman. Apart from this, the clothes given for the woman are kept in account and if dry wash is done then its account is also kept. So that there is no difficulty by the end of the month. There should be a fixed copy or a diary of the laundryman, so that there is a favor on writing account with the laundryman.
4. **Property records** : The purchase of house, car, scooters etc., the receipt of depositing, car insurance etc. is kept under this type of account. The receipt of bill deposits is kept by creating a file.

5. **Record of insurance or other savings instrument** : When the funds are to be used in the insurance bank or post office or any other savings account, the receipts related to all are filed in a place arranged in a particular place. The details of loan letters, fixed deposits etc. are also written in this account.

Method of records :

1. **Page method** : It is a very simple, flexible method, writing the amount of expenditure on one page, putting it on the door or on a board, as the cost is spent, it is noted that by adding the expenditure at the end of the week or at the end of the month, it can be about expenditure estimated as per budget or not.
2. **Envelope method** : In this, the envelope is made by keeping the amount in accordance with the amount to be spent, which is written for expenditure. Apart from this, separate envelope can also be kept for each item.
3. **Note book method** : A copy will be written as a date or period or calculation of expenses according to the calculation. Thus, expenses can be accounted for a long time and can be evaluated.
4. **Card filling method** : Family members are given funds according to different expenses. They keep account of the expenditure on a card for a month. All members can keep a record of their expenses for a month's card.

Important points :

1. Whatever money is earned in the family, how much to spend and how to spend is called expenditure.
2. There are certain expenses in every family like food, education, clothes, houses etc. and some semi-fixed such as marriage, party, entertainment etc.
3. Details of income and expenditure are called budget, which is necessary for every family.
4. Creating a budget can be saved for the future.
5. Budgets are mainly of three types, but the budget of savings is called ideal budget.
6. Family income and expenditure changes.
7. Household account is to spend the family income in a systematic way, which is written daily, weekly or monthly.
8. Every family spends their income on different items, according to Angel Rules, the expenditure on food decreases as income increases and expenses of luxury needs are increase.
9. There are four main ways to keep a record book. Page, envelop, note book, or card filling.
10. Keeping a household account book can reveal income expenditure, can be saved, unnecessary expenses can be reduced.

Question :

1. Choose the answers to the following questions:
 - (i) The expenditure that is repeated over a certain period is :
 - (a) Consumption expenditure
 - (b) Fixes expenditure
 - (c) Semi fixed expenditure
 - (d) Family expenditure
 - (ii) Increasing demand for consumption items increases :
 - (a) Speed of production
 - (b) Speed and volume of production
 - (c) Volume of production
 - (d) None of this

- (iii) The meaning of budget-
 - (a) Family income details
 - (b) Details of family expenses
 - (c) Detailed expenditure statement
 - (d) Expenditure on various items
 - (iv)is the type of household account book
 - (a) Market expenditure
 - (b) Account holder
 - (c) Account of property
 - (d) All the above
2. Fill in the blank :
 - (i) is the operator of economic activities.
 - (ii) The amount of money left after consumption is called
 - (iii) expenditure changes according to income and circumstances .
 - (iv) Make a budget before spending the income.
 - (v) It is easy to maintain proper balance of at home.
 3. What is family expenditure? How many parts can it be divided, explain?
 4. Explain about consumption expenditure with its types.
 5. Income and expenditure is a continuous process. How?
 6. Write the definition and type of budget.
 7. Write the requirement for a household account book.
 8. Write the names of the main methods of writing a household account book and explain it.

Answers :

1. (i) b. (ii) b. (iii) c. (iv) d.
2. (i) consumption expenditure
(ii) saving
(iii) uncertain
(iv) family
(v) Income-expenditure

30. SAVING AND INVESTMENT - I

Saving :

Saving money is important to meet future needs, long term goals, at the time of financial crises and accident etc. It is difficult to predict what will happen. In order to overcome these problems money saved will deal with these situations. Money only, gives us support, so we should save some part of our income for the future.

Those who save their income to fulfill the future needs is called savings. The difference in income and expenditure is called Savings.

$$\text{Income} - \text{Consumption/expenditure} = \text{Saving}$$

The prosperity and development of any nation depends on the savings of its citizens. The main purpose of saving is to provide financial security to the family.

Definition : According to J.M. Keng “Current income is more on current expenditure called savings.” Savings should always be done thoughtfully, so that there is no impact on present needs. Tension and frustration can be seen among the family members if not done accordingly.

Difference in savings and deposits :

Savings are always kept in productive form. Income can be increased by investing saved money.

The meaning of deposit is also to save money but it is kept unproductive, there is no benefit from this.

Need and importance of saving :

- 1. Increase in income :** Dividend can be earned by the proper investment of the amount saved. Bank, post office and insurance etc. where money can be kept safe by depositing. It can increase the income of the family by availing the benefits of interest.
- 2. Reducing unnecessary expenses :** Savings impede unnecessary expenditure in the family. The person should spend money wisely. Budget has to be prepared for saving and according to that, unnecessary expenses are deducted.
- 3. Meeting emergency needs :** Accident can happen in the family any time, such as sudden onset of disease, the death of a family member, theft and robbery etc disturbs the family. It should be safe to save at least one month's salary for unwanted expenses. Families which regularly save are free and are able to successfully face the adverse situation.
- 4. Mental satisfaction :** The family is mentally satisfied by saving and do not worry about the future. It increases the spirit and the courage. The person becomes nervous if there is no saving and gets frightened during casualty and accidents.
- 5. Economic protection in old age :** Person becomes old with time and becomes physically and mentally weak in this stage. He depends on the members of the family to meet his needs. The family also helps only when they know that the person has wealth, so saving can help in the time of old age.

6. **Death of the earning member :** The future is uncertain, it is also not certain that when a person will die. The entire family may have to face the financial crisis and mental tension if a person who earns, die suddenly in the family. Time of this crisis can be successfully faced if saving are kept for the future .
7. **Long term requirements :** Every family has some long term goals such as children's education, marriage, houses etc. A lot of money is needed to achieve these goals which is possible only by savings.
8. **Increase in standard of living :** The increase in income by saving leads to a reduction in unnecessary expenses and the person saves lot of money, so that he can provide higher education, land, property and house etc to family members which raises the standard of living of the family. The family's life can be pleasant, full of joys and satisfied by saving.
9. **Social status :** The standard of living is high by saving and person receives honor due to high status in the society. Respect can also be received in society by donating some part of saving for social work.
10. **Purchase of fixed assets :** More money is required to purchase permanent property, house, store and land etc. Therefore, one should save a small amount of money from the beginning, so that permanent property can be purchased. It increases real estate and income.

Elements of saving

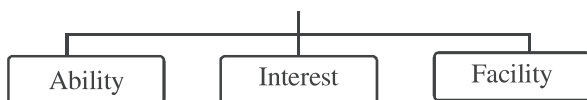


Fig. 30.1 : Elements of saving

11. **Economic security at retirement :** The income of the family is reduced to half after retirement. Some times, income is stopped and health also deteriorates after retirement. Therefore, expenditure increases on food, fruit, meal, medicine to maintain good health, hence save money for old age.

12. **Help in the operation of national plans :** The person receives dividends by investing his saved money in various schemes. The government operates various national schemes from that money, so that the nation can progress.

Investment : In the general sense, investment means to purchase those objects in order to get profit or to invest in the business.

Every person save some money from his income, which he either puts in locker at home or invest in any financial institution such as post office, bank, life insurance etc. thus increase the income by earning interest from the saving. Money kept at home can be stolen and it does not give any interest, but investing money in reputed company keeps money safe. Therefore, invest saved money to get profit is called investment.

$$\text{Investment} = \text{saving} + \text{interest}$$

Currently, there are many resources available money investment, but money is kept safe by investing in government institutions. Always invest money in those institutions where the interest rates are good, safe and more liquidity is there.

Important points :

1. In current circumstances, saving is necessary to run life smoothly and for family's economic and social security
2. Part left after consumption/expenditure from the total income is called Savings
3. Saving depends on the income, family members, standard of living and means of investment.
4. Money is safe by investing in right place and there is an increase in basic wealth.

Questions :

1. Choose the correct answer for the following questions :
 - (i) The part of the income which is reserved for the future is called :

(a) Money	(b) Deposits
(c) Saving	(d) Investment

- (ii) Saving is necessary for :
 (a) Travelling (b) Old-age
 (c) Purchasing clothes (d) None of these
- (iii) It is said that money should be used in right place to get profit :
 (a) Saving (b) Debt
 (c) Investment (d) Money
2. Fill in the blanks :
 (i) When expenditure is subtracted from the total income, the remainder is called
- (ii) The person gets interest on saving is known as
- (iii) The person increases in society by saving.
- (iv) Savings receive security after retirement.
- (v) Unproductive form of money is known as
3. Give detailed description of the following :
 (i) Investment
 (ii) Saving
 (iii) Increase in income by savings
 (iv) Deposits
4. What is the need of saving.
5. Explain importance of investment.
6. How does saving plays important role in operation of national plans ?
- Answer :**
1. (i) c (ii) b (iii) c
2. (i) Saving (ii) Investment
 (iii) Prestige (iv) Economic
 (v) Deposits

31. SAVING AND INVESTMENT - II

Every family wants to put the amount of their savings in such productive activities, which will give maximum benefit and if necessary, then get the money immediately.

Investment can be done mainly in three formats.

(1) Short-term investment : When a person wants to receive money by investing his savings in productive activities for a short period of time, and if he can get back the money when needed, then small investment be done. Bank, Post Office, Savings Bank are its best tool, Interest is very low but money is safe.

(2) Long-term investment : It is done for a long time. Interest rates are higher in this but its benefit is only on completion of a fixed term. Its main means are : Life Insurance, National Savings Bank, Farmer Development Paper, General Provident Fund, State Sector, State Insurance etc.

(3) Lifetime investment : Person utilizes his savings for a lifetime. The benefit is to the family members, and provides them financial security. The person secure his future by investing money in this scheme, for example, life insurance.

Method of saving and investments :

The following means are important in terms of income and security,

Bank is the most popular and safe method of saving and investment .

(1) Bank : It is a financial institution that lends money. A person can get interest by depositing his savings in the bank and can also be withdrawn if required. He can also get loans for land, ornaments, house, education etc.

Definition : According to Professor Kinley, the bank is an institution which gives loan to such people, who requires money, and those who have extra money can deposit it in.

Main function of bank :

- Deposit money
- Give loan

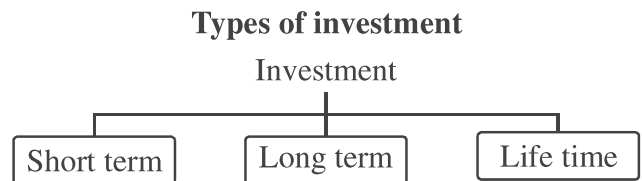


Fig. 31.1 : Types of investment

The bank also offers the following other facilities-

1. Facility of cheque and demand draft, which facilitates the payment of money safely.
2. Locker facility is also provided by the banks where all valuable items, papers, land and property etc can be kept safely.
3. The passenger cheque is available in order to avoid the risk of losing cash in travel.
4. There is the credit and debit card security, so that anytime anywhere buy items 24 hours and the money can be withdrawn.

Types of bank accounts :

(i) Savings account : This account encourages short-term savings in which the person deposits the money as much as possible. To open this account, the person have to deposit the minimum amount that is

vary for every bank. The account holder gets cheque book and passbook after opening the account . The details of the transaction are kept in the passbook and cheque book. He can easily withdraw money. Bank provides the interest on deposits. The rate of interest varies from time to time. The current interest rate is 4%.

(ii) Current account : This account is good for traders. The main purpose of this account is to provide convenience in the transaction of money. This type of account is not given interest on deposits. The account holder can deposit or withdraw money regardless of the time and number.

(iii) Fixed term account : In this type of account, the funds are deposited for a fixed period and the depositor can withdraw only after the completion of the term. The interest rate is higher than the other accounts. The interest rate varies from time to time.

(iv) Recurring deposit scheme : The main objective of this scheme is to encourage people to make small savings by making them economical. In this account, a certain amount of money is required to be deposited in a month for a certain period of time, after a certain period, the deposited money gets added to the interest. It can be applied for long term purposes, in this case, it receives 7.25% interest on deposited amount.

(v) Home savings account : This account can be opened by anyone at any time at the house. The bank's employees come home and take the money. They give the receipt. This account teaches the people to save money in which money can be added every day basis for a weekly or monthly This account is more beneficial for the housewives.

1. Open the account in bank : It is very easy. It can be opened by filling a form and selection of the type of account, along with the submission of 2 photos and residence certificate. The account number and printed passbook is provided by the bank. The bank gives interest on the amount deposited in the account which changes from time to time. Senior Citizens get 0.5 per cent interest more from each bank.

2. Postoffice saving bank : It was set up by the Government of India to promote post office savings bank whose main objective was to encourage the public for small savings. The only way to save money in villages where there is no facility of bank. Post office facility is available at all places. An uneducated person can also open the account easily.

Type of account in post office :

(i) Postoffice savings account : Anyone can open an account with less money in their name or joint name in the post office. You can deposit the money any time in the savings account, but can withdraw only twice. The money deposited in the post office gives more interest than the bank.

(ii) Postoffice monthly income scheme : The person has to deposit a fixed amount per month in this plan. Rate of interest varies per year.

(iii) Postoffice term deposit scheme : Under this scheme, the person can open an account for 1 year upto 5 years. Payment of interest is made in this account every year. If required, the account needs to be closed early then the rate of interest is 1 to 2% lower and the account holder gets the all deposits.

(iv) Postoffice recurring deposit : A certain amount has to be deposited at regular intervals to open this account, and the whole money is returned with 7 to 8% interest after 5 years of completion.

(v) National savings certificates : This scheme is meant to encourage small savings. It is an important scheme of post office. The person can purchase savings certificate by investing the amount as per his desire, in which a certificate is provided by the post office after 6 years. The certificate can be shown by the person to the post office. Money can be withdrawn, with interest. Detailed information is given on the National Savings Certificates. One can buy form back from post office which bought the certificate from person.

(vi) Kisan vikas patra : This is a scheme similar to the National Savings Certificates, in which the postmaster has to fill up a form. The development letter is issued after the investigation, in which the deposit amount doubles after 8 1/2 years and its payment is also fixed that occurs after the period.

3. Life insurance : Life insurance is a very important instrument and its purpose is. “Your welfare is my responsibility”. Today’s life is very stressful and miserable and it is difficult to tell when the accident will and with whom. Life insurance person brings light to life and provides financial security to the family. Life insurance is nationalized by the Indian government. Life insurance company was established in 1956, several schemes for each group to secure the indefinite future is running today.

It is a sure plan that it is the only such institution which by providing protection, reduces the risk factors. In case of accidental mishappening or due to the death of the insured person, the amount of money insured by him is given to the respondent by life insurance.

Life Insurance is financially safe for a person, 75% of the deposit amount can also be borrowed if it is needed, income tax is exempted, small savings are encouraged, There are certain conditions at the time of making life insurance such as the person should be physically and mentally healthy, there should be no hereditary disease. The insurance company has the time period and amount of insurance plan.

In this, the person pays the premium in 3 months, 6 months or 1 year for a certain period. In return, a letter is used in the name of the policy, which also has detailed information of the plan and also the information of the insured bonus get back.

Types of life insurance :

Life insurance : In this plan, the person deposit installement throughout of his life. dependant get all the money on the death of the insured person . The insured himself cannot take advantage of this scheme.

Endowment insurance : This plan is for a fixed period of time. Money is paid back after completing time. If in the middle of the plan, the insured person dies without completing the plan, then the amount will be paid to the successor. Life insurance plans change according to time. Nowadays, schemes such as Jeevan Anand Pension Scheme, Jeevan Surbhi

Children and Plot Policy GrahLaxmi etc. are going on. Nowadays, many insurances plan are prevalent in medical field in which the entire expenditure on sickness of the person is beared by the insurance company.

4. Unit trust of India : It was set up by the Government of India in 1974, in which people’s savings are invested in the industries and 90% of the dividend received is distributed among the appointees. In this scheme, one unit is of 10 and one person is required to buy at least 10 units and these can be purchased from post office,bank, agents anywhere.Its income is free from tax.

5. Provident fund : This scheme is mandatory for the employees in the government and non-government sector. Every month a certain amount is deducted from the person’s salary and is deposited in the provident fund , which is at the rate of 8% interest rate at the time of retirement. If the person needs money in the middle then he can also withdraw money from the account where money is exempted from income tax.

Selection of Investment method: Nowadays, there are a lot of means for investment, but the choice of the tool should be thoughtfully invested in the government institutions, which are safe. It should be invested according to the time of appropriation, which is easily paid every month. Money invested in which interest rates are good and funds can be easily withdrawn if required.

Important points :

1. The person saves for the academic need of the future.
2. The amount of savings should not be kept in the house, and should be invested in the financial institution, which increases the income.
3. The main three instruments of investments are bank, post office and life insurance.
4. The person gets interest on the savings amount, with the increase in income, the person’s future remains financially secure.

Questions :

1. Choose the correct answer for the following questions :

- (i) The main means of investment are :
(a) Bank (b) Postoffice
(c) Life Insurance (d) All of the above
- (ii) Savings that are mandatory for job seekers :
(a) Unit trust
(b) Lottery
(c) Life insurance
(d) Future fund scheme
- (iii) The account in which the dealer is transacted :
(a) Saving account
(b) Recurrence deposit account
(c) Current account
(d) None of the above
- (iv) The government has established the institution to encourage small savings :
(a) Bank (b) Life insurance
(c) Postoffice (d) All of the above
- (v) The insurance in which the person himself can not take advantage of his own :
(a) Life insurance
(b) Endowment insurance
(c) Postoffice
(d) None of these

2. Fill in the blanks :

- (i) Under the deposit scheme, the person deposits a fixed amount in for a fixed period of time.
- (ii) Account is opened by by the bank in which the transaction details are kept
- (iii) Lump sum funds are available in the plan during retirement
- (iv) Life Insurance was founded in the..... year
3. Give the definition of Investment.
4. Write the importance of life insurance in the life of a person
5. Explain what to take care when investing in any organization
6. Write a brief comment on the following :
(a) Bank Savings Account
(b) Unit Trust of India
(c) Life Insurance (d) Post Office

Answers :

1. (i) a (ii) d (iii) (iv) (v)
2. (i) (ii) (iii) (iv)

32. CONSUMER PROBLEMS

A person who purchase or consume any kind of good or services available in the market is called the consumer. It becomes even more difficult to choose items due to available in different variety, prices and quality in the market. The goods vary in the qualites due to the greed of making more money by the producers and increasing competition. Hence, Adulteration, increasing inflation, increasing trend of advertising,bad presentation, mal practices of measurements, misbranding are increasing day by day, There is a lot of emphasis on promotions and advertisements instead of qualities of goods, so that manufacturer may attract consumers interest in the item and earn more profit.Foods are also adulterated which affects the health of the people. Some people are becoming patients of severe diseases such as dropsy paralysis, blindness, etc. Consumers

unknowingly attracted due to false advertisements and free gifts, and sometimes purchase substandard goods . Therefore, the goal of the producers is fulfilled, but the consumer can not get satisfaction by using the goods. This is the reason that consumers are facing so many problems. These are as follows:

Problems of the consumer :

1. **Illiteracy** : Most people in India are illiterate, there is still literacy of 50 to 60% in men, but the rate of literacy in women is very low. Cheating & misleading illiterate people is very easy for the seller.Illiterate people can not read the labels on the object and seller take the advantage of this and sells more low/substandard goods. Sometimes the seller also gives the goods to the illiterate consumers. He can not read it and buys the item.

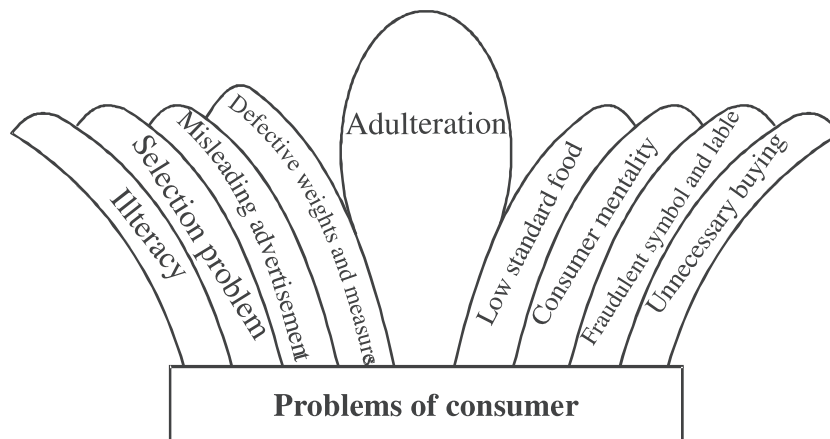


Fig. 32.1 : Problems of consumer

2. **Selection problem :** Today, variety of the same types of item available in the market causes very difficult to make the choice. The consumer gets confused by considering the different brands of the same item. The one item available in the market in different brands with different price for example shampoo is available in the market in many brands, which create problem to consumer for selection.

3. **Misleading advertising :** Advertising is the art of selling objects that affect the sentiments of consumers. Misleading advertisements give wrong information to the consumers. Consumer finds himself surrounded by misleading position due to the numerous fake advertisements of commodities for common consumption. The expenditure of advertisement recover by consumers and its value is added to the value of the item.

Advertisements are presented through many mediums such as Video, Cinemas, Posters, Fair-Exhibitions, mobile vehicles, TVs etc. in a very attractive manner to the consumer, so that consumers not seeing the merits or demerits of goods and buy goods by being influenced by advertisement. Especially young people, children, educated people and women are influenced by such advertisements and buy low value items.

4. **Defective weight and measurement :** Before independence, there was different systems of weight and measurement in different states of India which was something weighed in kilos, grams while somewhere used ratti, tolaa and masa. Similarly, in some places, mann, ser, chataank ets are used. In this situation, consumer get confused and the traders used to take advantage of the situation. They did not weigh properly and cheated the consumers. It was felt that the common system of measurement should be used throughout the country. Therefore, the Central Government passed the Standard of Weight Act on March 28, 1939, but it was not implemented, due to the commencement of the Second World War. It was implemented for the first time on 8th July,

1942, with effect. Even after using the weight and measurement system from all over the country, the business class has found such methods to cheat the consumer in unbelievable way. Some vendors and shopkeeper cheats the consumer with the skill of their hand. While weighing weight, weighing 1 or 2gm less or measure less while cutting clothes, put magnet under weighing balance etc. so that consumer get cheated in different ways. Even after giving full value to it, the goods with correct weight is not available.

5. **Adulteration :** It is a routine matter of daily adulteration in food items. It is becoming a big problem, which is also very harmful for health, such as brick powder in red chillies, pebbles and mud in pulses, dried papaya seeds in black pepper, chalk powder in flour. In the same way mixing water in the milk, removing the cream and selling it. The adulteration of linseed and yellow dhatura oil in mustard oil, selling bark of other trees in the name of cinnamon. Similarly, kerosene and lead are mixed in petrol, which result in permanent defects in machines of vehicles.

6. **Low standard items :** Many items of the same use are available in the market; some of these things are of high quality, while some items are of low. It is difficult to identify which item is of high quality or which is of low quality for the general consumer. The grading system of goods has been adopted by the Indian government in which the goods are given the best, ordinary and lower grades according to their quality but most items are not classed. Quality of most items are known by common consumer only after the use of the many items available in the market, and dissatisfaction occurs if does not fulfill the need of consumer.

7. **Consumer mentality :** Most consumers believe that expensive items are better and in this delusion they buy expensive items, even if this item is not more beneficial and useful for them. There is also a saying by our elders that cheap often repeatedly cry, but this is not always true, many times good quality things are also available at cheap prices.

8. Use of fraudulent symbols and label : Many sellers or producers mislead by using fake symbols and labels. They make a small change in the names of reputable companies and use it on the packet. There are duplicate items in the packets, thus uneducated and unsophisticated consumer trapped easily by vendors.

9. Unnecessary buying : Nowadays, the problem of unnecessary purchasing is also increasing. Consumers go for the purchase of the item even if they need those items or not. All this is due to the exhibition of all items in the mall. It is a new system of marketing and productivity of the vendor in which the consumer gets trapped and purchases unnecessary items because the items attract the consumer.

10. Dependent on market conditions : The biggest and major problem of the consumer is that it has to buy the available items from the local market, whether the item is of poor quality or the high quality. This problem is mostly with the rural consumer, because a lot of time, power and money are spent in buying goods by going away from the city. Going out to the city is costly for them, so whatever item is available in the nearby market, purchase to satisfy their need.

In this way, there are many problems that the consumer use to face in the present day. The present requirement is that they should try united and strongly fight for these problems. Although the government is also trying in this direction, but it will not be redressed until the consumer himself becomes aware.

Important points :

1. The consumer is the person who purchases and uses the items.
2. All items are easily available to the consumer in the market.
3. The consumer has to face many problems while purchasing an item from the market.

Questions :

1. Choose the correct answers for the following questions:

- (i) A person who consumes goods is called:
 - (a) Producer
 - (b) Seller
 - (c) Consumer
 - (d) All of the above
 - (ii) The adulterant in black pepper is :
 - (a) Papaya seed
 - (b) Coal
 - (c) Pebbles
 - (d) All of the above
 - (iii) The rod of the weighing balance should be :
 - (a) Flat
 - (b) Round
 - (c) Slanting
 - (d) Long
 - (iv) The value of the item become high when the item is bought from :
 - (a) Cooperative stores
 - (b) Ration shop
 - (c) Unknown shop
 - (d) Reputable shop
2. Fill in the blanks :
 - (i) The manufacturers sell products of the famous brand and sell them at the cheapest prices in the market.
 - (ii) If there are many brands of the same object, there is a problem in the of the object.
 - (iii) The consumer is king of himself, he should be happy to buy it.
 3. Describe briefly:
 - (a) Misleading advertising
 - (b) Problems in selection of goods
 - (c) Adulteration
 - (d) Fraud marks and label
 4. Define consumer.
 5. What are the problems faced by consumer while selecting the goods?
 6. What should the consumer do to avoid such consumer problems?
 7. How do false and misleading advertisement cheat the consumer?
 8. Why lack of education is a problem of consumer ? Explain.

Answer :

1. (i) c (ii) a (iii) a (iv) d
2. (i) fraud (ii) selection (iii) king

33. CONSUMER PROTECTION AND AID

I - CONSUMER PROTECTION

Consumer education :

Consumer have to face a lot of problem nowadays. Vendor, dealer, producers are more coherent behaviours with the productive consumer. Consumers lack of awareness are the main reasons for exploitation. Consumers do not get organized and not get education, law, etc. The consumer can deal with his problems only when he becomes secretary aware of his/ her rights. Therefore, the ways in which consumers can protect their interests are called consumer protection. Knowledge of consumer education is essential before providing protection to the consumer. Only then will be able to buy the high quality items by avoiding the manufacturer's defect. It should be aware of the items in the market; there should be enough information about price, measurement and weighing, quality, etc. This will be possible only if they think carefully and make wise decisions to buy. The main objective of consumer education is to provide the consumer awareness that is the level of protection to the consumer. Consumer education means that all the information about any object or service was to be able to make the right selection and use it.

Consumer education means learning to be fully informed about any object or service so that the right selection of the object can be consumed. The main objective of consumer education is to provide protection to the consumer, to make the consumer aware, that is to raise the living standards of the people. This will be possible only if he carefully thinks about making a conscientious purchase, he should be aware of the available items in the market, there should be enough information about price, measurement, quality,

etc. Only then will he be able to buy high quality items by avoiding the fraud of the manufacturer. Consumer can become intelligent from consumer education.

Consumers receive the following information by consumer education :

- (1) **What to buy :** Consumer should make a list of all its requirements, the necessary items must be completed first, according to the family budget value answer should be decided which commodity to buy. If possible, buy only the high quality items for you to go to various shops and after the comparative study of the product quality , quantity, utility durability etc. should be decided .Where the item should be purchased from authenticated goods from the market. Which is safe, before purchasing the object, it should be clear in the consumer's mind, why it is buying what is the usefulness of the item.
- (2) **Where to purchased :** After deciding to buy anything, the consumer decides where to buy from a careful and aware consumer know that in which market, at which shop the item will be found at reasonable prices, time, power is not wasted . Therefore, the consumer should have complete knowledge of the market, after selecting the market, he should choose the shop where the item is to be purchased, the consumer should buy goods from the same shop which is registered and if it is possible to be a licensed, the wholesaler or co-operative consumer Items should be purchased from the stores and should also see whether the seller should change the item when necessary after giving it. Whether or not the

service will be served in many cities, there is a whole market of an object such as utensils market, textile market, if possible, the goods should be bought from the specific market, the choice can be easily done.

- (3) **When to purchase :** Things are purchased as needed, but there is a good weather or year to buy everything but when to buy it is only available in some things is what the nature of the object that depends on the particular season be well as expensive . Some objects are cheaper in some season, like peanut oil is cheaper in December as it joins affordable good quality. In summer, cooler , refrigerator, fan are expensive while geyser, heaters are cheap. Sometimes traders found on various occasions on the festival send goods cheap for sale, so the consumer would buy items by looking at the time weather, etc.
- (4) **How much to buy :** Buying depends on many elements. The number of members in the family is required, the nature of the object, etc. Some items can be purchased for a year such as wheat rice, sugar, etc. It is also cheap in the weather. It does not even get spoiled, but there are some things that are quickly spoiled, they are not meant for long shelf life like fruits , vegetables, cheese cream, etc. should be purchased as needed. The item gets spoiled by buying more than the required is wastage of money.
- (5) **How much to spend :** On which item should be spent, the family income habits depend on the standard of living and mentality. What should he do by planning? Consumers should also plan budget for time and energy as well as saving money. Nowadays consumers in order to increase the tension, merchants have many sales systems themselves, where in the absence of money the consumer is easily provided with goods on installments. In essence, the consumer should have all the information before virtually doing it, in which the trader can cheat him for consumer education. There is no formal institution for you, but the knowledge of your own intellectual is the use of others' experiences. What an educated consumer can adopt in the same things that gives

him the maximum pleasure, the satisfaction he receives is the consumer's knowledge of his rights and responsibilities by consumer education, so that if he ever becomes a victim of fraud then he will be in the consumer forum Considering the importance of consumer education, nowadays many private government and non-governmental organizations will be able to compensate the seller. Workshop seminar on education is organized so that the consumer can become vigilant, he will be able to utilize his liability rights, the value of the quality of the educated consumer, his property will be furnished according to the requirement, the goods will be purchased before buying any item. When purchasing goods, by obtaining complete information, attractive packing of the deceptive advertising object, Incentive to shop, etc. will not be affected.

Quality of educated consumer :

- (i) What does price of the item do to the merchandize according to its merits.
- (ii) When buying an item, it will not be affected by attractive packing of a deceptive advertising object that the shop owner's offer,etc. decide to buy using your intelligence.
- (iii) When deciding the object, special attention will be given on label, brand, weight, value, usage, date etc.
- (iv) When purchasing the item, prioritizing the guaranteed goods will keep the warranty card from the vendor and keep it on hand.
- (v) After buying the item, every item will be billed by the shopkeeper so that if needed, use will as a document.
- (vi) He will be aware of his rights and responsibilities, consumer rights will be taken to help the consumer for compensation qualities of educated consumer:
 - (i) Will by according to price, quality and need.before buying he will collect the information about the product.
 - (ii) Will not influenced by faulty advertisement,attractive packing and

promotional strategy. will buy using intelligence.

- (iii) While buying give special attention to label, brand, weight, cost usefulness and date.
- (iv) Will give the priority to guaranteed products in keep guarantee card after filling by shopkeeper.
- (v) Will always demand bill, when needed it can be used as document.
- (vi) Will be aware of his rights and responsibilities and get help from consumer forum for the compensation of damage.

Consumer rights :

Vendor, businessmen exploit the consumer because they do not know the information about their rights Sometimes the consumer does not remain in the absence of time, consumer benefits of all these, and exploits the consumer if the consumer is aware If he has to, he will be able to do his own. For this, the consumer should have complete knowledge of his rights.

If the consumer is aware then he will be able to do his own self. For this, consumer should have the complete knowledge of his rights.

Under the Consumer Protection Act, 1986, the following rights have been given to the consumers :

- (1) **Right to selection :** Consumer have the right to choose the right item at the right place, if the items are low level the they can return or complain.
- (2) **Right to safety :** The adulteration of food items is common, causing many health problems related to the consumer, therefore the right to be informed is the right to receive protection against the sale of harmful items for life and property.
- (3) **Right to be informed :** It is his right to get the full information of any object, in case of suspicion, it can inform the logistics officer, the right to indemnify, if the seller cheats the consumer in any way, giving more value to less expensive goods. Providing fake goods with real value, the consumer has the right to damage the manufacturer from the manufacturer's consumer

(4) **Right to complain :** If the seller cheats the consumer in any way by giving more value to lesser adulterated goods giving the fake goods with the real value, the speaker has the right to complain.

(5) **Right to be heard :** Get hearing right have his hearing and bring the consumer to the right to court or consumer platform for your problems.

(6) **Right to a safe environment :** Every person has the right to live in a clean environment so that his work capacity can lead to a happy life. If a person is having business that affects the environment it has an impact on health then he has the right to complain about the person in consumer forum.

(7) **Right to consumer education :** The consumer has the right to receive consumer education. To remain as a consumer ,he has the right to acquire full knowledge and ability to know about the object . Consumer can do their own self to get information about all these rights. And the deceiver himself can teach lesson to the seller , but if the consumer is not conscious or wants to use his rights. For this reason the salesman make them stupid and earn good profit by offering low-quality goods and services.

Important points :

- 1. Consumer information is called consumer education by obtaining information about various commodities.
- 2. From consumer education it is known to the consumer that when and from where things should be purchased, and how much to buy.
- 3. The wise consumer will be able to buy the best quality items from the fair price shop.
- 4. The educate person will buy the receipt after buying the item
- 5. The exploitation of educated consumer is relatively less to illiterate
- 6. Consumers have many rights under the Consumer protection Act,1986. Act, under which consumers forum can go to the court and get compensation when needed .

7. Consumers should be organized and aware and must be fully informed before doing the same so the seller and manufacture could not deceive them.

Questions :

1. Choose the correct answers to the following questions :

- (i) The main objective of the choice of consumer education
 - (a) To provide cheap goods
 - (b) To make available the goods in the market.
 - (c) Provide protection to the consumer
 - (d) None of these
- (ii) Consumer should purchase the item :
 - (a) From the ration shop
 - (b) From the super market
 - (c) Registered and authorized shop
 - (d) All the above
- (iii) Consumer education is earned from the :
 - (a) Neighbor (b) Journals
 - (c) T.V (d) All the above
- (iv) Which of the below mentioned is not the right of consumer information :
 - (a) Hearing (b) Punishment
 - (c) Selection (d) Information
- (v) The main reason for fraud with the customer
 - (a) Industrialization
 - (b) Decrease of income
 - (c) Decrease in item
 - (d) Ignorance

2. Fill in the blanks :

- (i) Consumers protect their rights, they are called.....
 - (ii) On festivals and occasions merchants sell more from
 - (iii) After selecting the market, the consumer should choose the
 - (iv) The right to know the adulteration in food items is.....
 - (v) The consumer is being exploited due to lack of.....
3. Write a brief comment on :
- (a) The importance of consumer education
 - (b) Right to selection
 - (c) When to purchase an item,
 - (d) Write briefly about the rights of consumers?
4. Write about any of the two consumer rights.
5. What should be kept in mind when purchasing an item to the customer
6. How to make the consumer aware and organized

Answers :

- 1. (i) c (ii) d (iii) d (iv) b (v) d
- 2. (i) consumer protection (ii) sale
(iii) shop (iv) right to security
(v) consumer education

II - CONSUMER AID

New products are constantly introduced in the market due to mass production. Consumers find it difficult to determine the uses for which they are fitted and to select them wisely because advertisement, attractive packaging, display and mass media are extensively used by manufacturers to push goods on consumers. Not all producers and sellers are honest. The desire for profit lead some manufacturers to cheat consumers by offering adulterated and poor quality products in the market. In short consumers in India are worst sufferers of the economic exploitations and unfair trade practices. It is therefore necessary for consumers to educate themselves about their rights and seek protection from exploitation with the help of government and voluntary organisations.

Main consumer aids are :

1. Label
2. Standards
3. Advertisement
4. Competition
5. Consumer law and act

1 Labels : A label may be a piece of paper with information engraved or attached on to the packaging of a product. It gives you the following important information about a product.

- Name of the product
- Brand name
- Manufacturer's name and address inclusive of all taxes
- Contents/Ingredients
- Use of the product
- Directions for use, care and maintenance
- Dates of manufacture and expiry
- Dosage in the case of medicines
- Maximum retail price (MRP)
- Warning and precautions
- Guarantee period

Once we get into the habit of reading labels it will be very beneficial. This way we get information about the consequences of various consumer

products. We can also save ourselves from substance abuse, eg tobacco, alcohol. For example, if you read a label on the cigarette packet it reads "Smoking is injurious to health". Reading this can encourage you not to smoke.

2. Standards : A standardization mark is a mark given to a product which meets certain standards with respect to the quality of the product in terms of material used, method of manufacture, labeling, packing, sale and performance. Currently following standardization marks are prevailing in our country.

- (i) ISI Mark :** This is a certification mark of the Bureau of Indian Standards (BIS) which was earlier called as the Indian Standard Institution (I.S.I.). Indian standards cover food items such as vegetables, fruit and meat products, spices, and condiment, processed foods, cereal and soya products, candies, beverages, print paper, etc. For the consumers, certification marks ensures that the product is cheap, safe and pure.

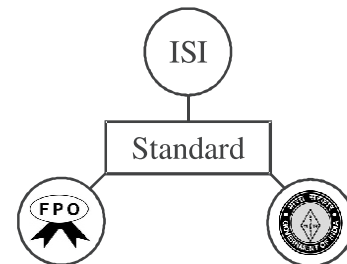


Fig. 33.1 : Standards

- (ii) Agmark :** The 'Agmark' is a trade mark of quality levels of agricultural commodities set up by the Directorate of marketing and Inspection of the Government of India. 'Agmark' seal can be seen on food stuff such as edible oils, butter, ghee, eggs, cereals, pulses, oil seeds, legumes, etc. This helps the consumer in selecting foods and offers him protection with regard to quality. So far, standards have been prescribed for about 142 agricultural,

horticultural, forest and livestock products, like wheat flour, pure ghee, honey, and spices.

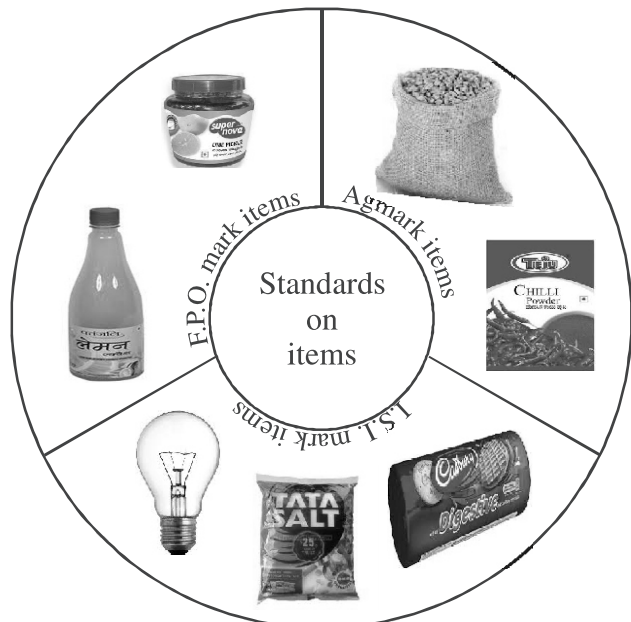


Fig. 33.2 Standard mark

(iii) **FPO** : This mark requires all manufacturers of fruit and vegetable products to acquire a license for their production and sale after meeting the FPO standards. Products like jams, pickles, squashes, juices and ketchups are given FPO mark.

3. **Advertising** : Advertising is an audio or visual form of marketing communication that employs an openly sponsored, non-personal message to promote or sell a product, service or idea. Sponsors of advertising are typically businesses wishing to promote their products or services. Advertising is differentiated from public relations in that an advertiser pays for and has control over the message. It differs from personal selling in that the message is non-personal, i.e., not directed to a particular individual. Advertising is communicated through various mass media including traditional media such as newspapers, magazines, television, radio, outdoor advertising or direct mail; and new media such as search results, blogs, social media, websites or text messages. The actual

presentation of the message in a medium is referred to as an advertisement or “ad” for short.

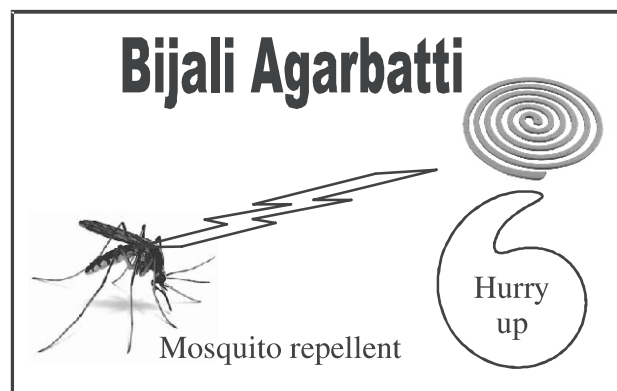


Fig. 33.3 : Advertisement

Commercial ads often seek to generate increased consumption of their products or services through “branding”, which associates a product name or image with certain qualities in the minds of consumers.

What is advertisement ?

The purpose of an advertisement is to inform the consumers about the availability, use and special features of a particular brand of product. A good advertisement should give you correct information about a product and not mislead you. Some advertisements persuade you to buy things that you may not need. As a conscious and alert consumer, you should judge a product by actually examining it and not on basis of its advertisement alone. An advertisement is a message that promotes a product or a service or gives information to the public. Advertisements may take many forms; such as press advertisements in newspaper or magazine, television and radio advertisements or signs in the shops. Advertisements can also be transmitted directly to you by mail, fax, e-mail or text message. Advertisements are mostly made to encourage consumers to buy particular products or services.

Medium of Advertisement :

Advertising is the promotion of a businesses service, product or event carried out primarily to increase brand awareness, improve sales or raise awareness about certain products and events. Advertising is an essential part of any company or

business, and is usually allotted considerable support, resources, strategy and funding. There are many different advertising mediums, all of which serve a variety of different purposes in different locations.

Advertising is mainly centered around achieving the following aims and goals for the majority of businesses:

- Increasing the buzz-value of the brand or the company.
- Increasing the sales of the product/service.
- Introduction of a new product, service or event.
- Creating and maintaining a brand identity or brand image.
- Communicating a change in the existing product line.

The main forms of advertising used to achieve these are print, broadcast and outdoor advertising.

- Print Advertising (Magazines, Brochures, Newspapers, Fliers)
- Broadcast Advertising (Internet, Radio, Television)
- Outdoor Advertising (Flags, Banners, Building/Fence Wraps, Billboards, Events)

Competitions :

Competition is in general, a contest or rivalry between two or more entities organisms, animals, individuals, economic groups or social groups etc, for territory ,a niche for scarce resources, goods, for mates, for prestige, recognition, for awards for group or social status, or for leadership and profit. It arises whenever at least two parties strive for a goal which cannot be shared, where one's gain is other's loss.

It is often associated with business competition with least one other firm over the same group of customers. Also competition inside a company is usually stimulated with the larger purpose of meeting and reaching higher quality or services or improved products that the company may produce or develop.

Important points :

1. It is necessary for consumers to educate themselves about their rights and seek protection from exploitation with the help of government and voluntary organizations.

2. A label may be a piece of paper with information engraved or attached on to the packaging of a product.
3. A standardization mark is a mark given to a product which meets certain standards with respect to the quality of the product in terms of material used, method of manufacture, labeling, packing, sale and performance.
4. Consumers should read the label well before purchasing the item.
5. Indian standards cover food items such as vegetables, fruit and meat products, spices, and condiment, processed foods, cereal and soya products, candies, beverages, print paper, etc.
6. Mainly three types of marks Agmark, ISI, FPOs are used in our country.
7. Advertisements are an effective means of consumer support through which they get many information about the products.

Questions :

1. Choose the correct answers to the following questions :
 - (i) Which of the following is used for consumer support on packed item?
 - (a) Advertising
 - (b) Competition
 - (c) Label
 - (d) All of the Above
 - (ii) Which of the following should be labeled?
 - (a) A glass of water
 - (b) On green vegetables
 - (c) Filled with fresh milk
 - (d) On the pack of pickle
 - (iii) Which of the following is not printed on an label?
 - (a) Maximum Retail Price
 - (b) Wholesale Price,
 - (c) Including all types of tax,
 - (d) None of the above

- (iv) Who will be the culprit if the information on the packet is not written,
 (a) The manufacturer who makes it
 (b) A wholesaler who buys multiple quantities at once
 (c) The retailer who sends it to the customers
 (d) All of the above
- (v) It is compulsory to mark thecolor on non-vegetarian food.
 (a) Yellow (b) Green
 (c) black (d) Red
- (vi) Which standard mark is used on the pickle, marmalade
 (a) ISI Mark (b) AGMARK,
 (c) FPO (d) None of the above
- (vii) Which standard mark is placed on the packet of biscuits?
 (a) Agmark (b) ISI
 (c) FPO (d) All the above
- (ix) Who benefits from advertisement:
 (a) Merchant (b) Consumer
 (c) Manufacturer (d) All the above:
- (x) If you are confused about advertising then where do you complain?
 (a) Indian Standard Institute
 (b) Consumer Protection Forum
 (c) Indian Advertising Standards Institute
 (d) All of the above
2. Fill in the blanks :
 (i) To confuse the consumers..... temptation is given.
 (ii) Many items are prepared at the domestic level, is mandatory to apply on them.
- (iii) 134 items are covered under mandatory standardization which can not be sent withoutmark,
 (iv)mark is applied on spices.
 (v)Marked on food items manufactured by fruits and vegetables,
 (vi) Advertisements should be made so that the common consumers can easilyby misleading advertisement.
 (vii) Due to prices of goods and services came down heavily for the customer.
3. Write a brief comment on the following :
 a) Consumer protection b) advertising
 c) Competition d) Standard
4. Why the consumer needs consumer support?
5. What type of specification should be given at an ideal label.
6. How standards are providing protection to the consumer? Provide appropriate examples
7. Advertising is a powerful way to give information to consumers, confirm the statement
8. How to protect yourself from misleading Advertising
9. Explain how competition is beneficial for consumer.
10. What do you mean by intelligent shopping?
- Answers :**
1. (i) c (ii) d (iii) b (iv) d (v) a
 (vi) c (vii) c (viii) b (ix) d (x) c
2. (i) advertisement (ii) label
 (iii) ISI (iv) AGMARK (v) FPO
 (vi) confused (vii) competition

34. CONSUMER PROTECTION ACT

Today consumer has become more aware and conscious through consumer protection. But vendors, merchants, producers and retailers, cheat consumers in different ways. Producers cheat consumers easily by adopting various methods and techniques like adulterated food, defective equipment, wrong measurement, use of fake standard marks, etc. Government has made some amendments and rules to counter track and stop these frauds. Every effort is made by government so that the consumer is not exploited by the vendor or businessmen. These rules evidently provide protection to the consumers.



Fig. 34.1 Consumer Protection

The various laws made by the government in the interest of the above are as follows:

1. The prevention of food adulteration act (PFA) 1954 :

Indian parliament enacted a law called "The Prevention of Food Adulteration Act" in 1954. It came into force from 1st June 1955. The P.F.A lays down minimum standard requirements for all categories of food. Later, this rule was amended in 1968 and 1973. Any food stuff that does not come up to the minimum standards specified by the PFA rules is considered adulterated. The government takes following action through this rule:

- (i) Ban on adulteration and misrepresentation
- (ii) Educate consumer about the consumption of commodity
- (iii) Supply pure and original food to the consumers
- (iv) Punish businessmen who are doing adulteration
- (v) Protect consumer from using adulterated commodity
- (vi) To maintain minimum standard requirements of food products

Central government has established committees to certify the standard of food grains i.e. central food grain laboratories, all India cleanliness and health agencies. The main work of these agencies is to analyze the food grain samples and to certify them. Food analysis laboratories are set up at every district level, where the analysis is done, so that any person can get analysis of food samples. If analysis report suggest some adulteration in the food product then consumer can legally claim the producer/businessmen.

2. Drugs and cosmetics act 1940 :

This Act was passed to protect consumers from drugs and cosmetics of substandard quality by preventing them from being manufactured and marketed. This includes every drug and cosmetic which are made in India or imported to India. They should have proper labeling. Label should include, ingredients used in making drugs and cosmetics, their amount, method to use, manufacturing date, expiry date, producers name, brand and address, etc. This information is being given to guide the consumers. It lays down that no person or firm can stock, sell or distribute drugs unless they have a proper license issued by the state government for the purpose. It is mandatory that every dealer must issue a cash memo for the drug sold to the consumer under this law .

3. The standards of weights and measures act 1956 and 1976 :

This act was established in 1976 by Indian government. It includes an international system of units (metric) for weighing and measuring, formulation of specifications for weights, measures and equipments used for weighing and measuring and approval of models of equipment before they are manufactured. Weights and measures without seal or verification stamp are not genuine under any circumstances.

- Weighing and measuring act- 1976
- Weighing and measuring standards (packaging material rule) 1977
- **Weighing standards act 1985 :**

According to above mentioned rules and acts, use of wrong weighing and measuring standards, alteration in weighing and measuring standards, incomplete information about the package and interrupting the work of officers can be a serious offence.

4. Market and categorization act 1937 :

This act was passed by Indian government in 1937. This act is mainly meant for fruits, fruit products, potato, rice, coffee, butter, wheat, wheat flour, jaggery, vegetable oil, cotton, jute, metal, tobacco, wool, sandal wood, raw leather, etc. Consumer products are categorized and ranked according to

their purity and quality attributes in this act. Either A, B, C, or 1, 2, 3, or export quality is to be mentioned on the packet.

5. The agmark act 1937 :

The 'Agmark' is a trade mark of quality levels of agricultural commodities set up by the Directorate of marketing and Inspection of the Government of India. 'Agmark' seal can be seen on food stuff such as edible oils, butter, ghee, eggs, cereals, pulses, oil seeds, legumes, etc. This helps the consumer in selecting foods and offers him protection with regard to quality. A standard has been prepared to maintain the quality and nutritive value of all the food products according to this act, which guarantees that consuming products having this standard will not result any adverse, harmful or fatal effect on our health. Products are being categorized on the basis of their purity and nutritive value. Merchants, who are allowed to use this act, can use AGMARK on their product or commodity, but this sign is given only when the food item meets all the conditions related to the standard set by AGMARK.

6. Indian Standard Institute Act 1952, Bureau of Indian Standards (BIS) 1986 :

It is the most important institution of the country, whose main objective is to maintain the quality control and standards of the product. Items such as food products, drinking water, electrical goods, electronics goods, utensil, bicycles etc., are included under this act. Certification marks ensures that the product is cheap, safe and pure for the consumers. Institute provides ISI mark to the determined standard of the product. Institute provides license to only those merchant who promises to protect the consumer rights. This mark is not used for alcoholic beverages and drugs.

Special attention is taken towards the quality of the products, their properties, consumer protection and techniques of analysis, etc. ISI mark has been assigned by the Indian standard institute to the merchants, for that it is imperative to pay daily attention on quality control of the products from raw material to its final stage and also during storage. Investigations are scrutinized by the inspectors from

time to time. Any kind of negligence or inadvertent can cause difference in the quality of the products, the license is canceled if the complaint is found or found guilty. This act guarantees that if any complaint or guilty has been found in the ISI certified item, then the goods will be replaced by the merchant. There is a provision for harsh punishment by law if a producer uses fake imitation of ISI mark to cheat the consumer.

7. The Monopolies and restrictive Trade practices Act, 1969 (amendment year 1984):

This act was implemented by the Indian government in the year 1976 in order to stop the monopoly of seller, producers or manufactures in the market. Manufacturer charges arbitrarily from the public if he holds monopoly on something. Hence, considering the interests of the consumers, this Act was created so that no vendor/ manufacturer could arbitrarily draw money from the consumer. Market with healthy competition can also be established and the consumer has the facility of selection of the item.

8. Essential Commodities Act, 1955 :

Under the provision of the Act, the central and state government has been empowered to regulate the production, supply, distribution, and processing essential commodities such as cattle fodder, coal, iron, steel, paper, cotton and woolen textile, petroleum, petroleum products, drugs, foods, raw jute and cotton, etc. Ration shop is opened in every ward under this act. Its main objective is that in whole country, the public can get all the necessary ingredients in good quality at low prices. It has been mandatory for the traders to make a list of inventory and price list which has been set by the government in the Essential Commodities Act. It provides punishment on any hoarder, black marketer and profiteer. The offenders can be imprisoned for 3 – 5 years.

9. Electrical equipment (quality control) Act 1976 (amended in 1981) :

Indian government has implemented this act for consumer protection keeping in view the increase in accidents due the use of low standard electrical home appliances. Its main objective is to ensure that only those equipment are sold in the market which are safe.

As per this rule merchants cannot produce and sell equipment which do not have ISI standard. As you have studied that government has implemented consumer protection through different laws and acts and have made appropriate amendments as per the time. It was thought that consumer won't be harassed due to these laws and there will be good coordination between consumers and producers. Although these laws have provisions of imprisonment, fine and license cancellation of vendors but consumers don't get any sort of relief. Amount of money spend by the consumers get wasted and they have to face physical injuries many times due to fault products or services. government apart from these laws has made one more law to get rid of such situations and for protection of consumer rights "Consumer Protection Act 1986". As per this law consumer's right, objective and loss will be discussed in detail in the next chapter.



Fig. : 34.2 Consumer Awareness

Important Points :

1. Consumer has to seek help by consumer protection laws whenever he is cheated .
2. Government has made many laws towards protection of consumer.
3. It is the government's responsibility to facilitate the provision of basic household items at a reasonable price.
4. Informative label, wrong presentation of quality and quantity should not happen, opening up of ration shops, certification etc are done by the government so that consumer's problems can be resolved.

5. Government has implemented many laws towards consumer protections. These are as follows :
- The prevention of Food Adulteration Act (PFA):
 - Drugs and Cosmetics Act – 1940
 - The Standards of weights and measures Act 1976
 - Market and Categorization Act 1937
 - The Agmark Act 1937
 - Indian Standard Institute Act 1952, Bureau of Indian Standards (BIS) 1986
 - The Monopolies and restrictive Trade practices Act, 1969 (amendment year 1984):
 - Essential Commodities Act, 1955
 - Electrical equipment (quality control) act 1976 (amended in 1981):

Questions :

- Choose the correct answer for the following questions :
 - If the drugs found below the determined standard :
 - Sale of drugs will stop in market
 - Consumer will get alert
 - Producer will lose the right of manufacturing
 - All of the above
 - Laws under Weight and Measures Act are :

(a) 2	(b) 5
(c) 3	(d) 7
 - This act determines lowest standard for all the food products :
 - BIS 1986
 - Agmark 1937
 - Consumer Protection Act 1954
 - Prevention of Food Adulteration Act 1954
 - Quality of goods is assured by:
 - Category and marks
 - Standardization and certification

- Symbols
 - All of the above
- Weight, shape and capacity of items should provide convenience in consumption, under the objective of :
 - Categorization
 - Adulteration Control
 - Regulated Business
 - Certification
- Fill in the blanks :
 - act promotes competition between businessmen.
 - certified product has any complaint or fault then it would be replaced by the producer.
 - Government has opened shops where common household items are easily available for consumption to the poor.
 - Agriculture Production Grading and Marketing Act, 1937 allows use of symbol.
 - is a punishable offence under weight and measurement standard.
 - If any eatable is not as per the standard then it is considered as
 - Write short notes on the following :
 - Consumer Protection Act
 - Distribution and Control of essential items
 - Categorization of items
 - High standard items
 - Why do consumers have to take support of law?
 - Write any one of the act in detail?
 - To display on the packet what are the necessary information needs to display on the packet?

Answers :

- (i) c (ii) c (iii) d (iv) a (v) d
- (i) The Monopolies and restrictive Trade practices Act, 1969
(ii) ISI (iii) Ration (iv) Agmark
(v) Changes (vi) Adulterated

35. CONSUMER PROTECTION ACT, 1986

The Consumer Protection Act, 1986 is a social welfare legislation which was enacted as a result of widespread consumer protection movement. It was enacted to provide a simpler and quicker access to redressal of consumer grievances. Indian government has passed this act on 24th December 1986, and this date is declared as National Consumer Day. It is a kind of government regulatory body which protects the rights of consumers.



Fig. : 35.1 Postal Stamp

Objectives of Consumer Protection Act :

- (i) Provide best protection to consumers.
- (ii) This law is not punitive as the current laws; there is a facility of indemnity in its provisions.
- (iii) There is a system for redressing grievances of consumers in an easy and simple manner in this act.
- (iv) There is a facility of establishing three staged Quasi judicial system at national, state and district level.
- (v) Importance has been given to the consumer rights.
- (vi) There is a provision to promote and protect the rights of consumers at central and state levels.

Areas of Act

- (a) This act is applicable for all items except those which are free.
- (b) It is applicable for every private or government areas.
- (c) It is not applicable for the products or services purchased for business purpose, for instance, if a person buys a car and uses it as a taxi than in that case he cannot apply for the indemnity. While if the same car is used for the personal purpose than this act will protect his right.

This act provide following rights to the consumers:

1. **Right to safety :** Consumer has the right to be protected against product and services which are injurious to health or life. For example; food colors, electrical appliances, cosmetics, soap, etc. You have right to be protected from all harmful substances.
2. **Right to fulfill basic needs :** The basic requirements of the consumer which are essential for living are not only those which can help to survive a normal life, they should also be compulsorily satisfied, such as food, clothes, housing, electricity services, safe water, education, and clean environment, etc. In order to fulfill these requirements, appropriate

opportunities should provide so that consumers can use these products and services without any harassment.

3. **Right to be informed :** Consumer has the right to be given adequate information to buy wisely. Under this act there is a provision to know quality, quantity, purity, standardization and cost of the product. Every consumer has a right to know who & how the product is made, guarantee etc.
4. **Right to choose :** The consumer has the right to select products of varying qualities, prices, sizes and designs and to choose according to his needs and wants. Don't buy things from retailers, who displays few things from which profit is more.



Fig. : 35.2 Right to choose

5. **Right to be heard :** Consumer has the right to fight against consumer exploitation in the society.



Fig. : 35.3 Right to be heard

6. **Right to redressal :** The consumer has the right to receive compensation for faulty consumer goods or services
7. **Right to live in a healthy environment :** The consumer has the right to live in a safe protected environment that will enhance the quality of life.
8. **Right of consumer education :** In our previous chapters we have already read that consumer education is how much important in consumer protection. Hence, every consumer has a right to have full knowledge and ability to do good and intelligent shopping.

Who are consumers : According to Consumer Protection Act 1986, individual who buys goods and services for his personal use, is called as consumer. Every individual is a consumer in some form.

Features of the act:

(a) To address consumer complaints, a three-level quasi judicial mechanism has been established under this act. These three levels depend upon financial limitations of compensations. These three levels are shown in the following table :

Table 35.1

S. No.	Level	Judicial system	Financial limitations
			(in Rs.)
1	District	District forum	20,00,000
2	State	State commission	20,00,000–1 million
3	National	National commission	More than 1 million

(b) State government is responsible for district forum and state commission.

(c) Under this Act, the complaints of consumer are quickly disposed so that the consumer does not have to wait for a long time to get satisfactory redressal and get justice on time. In the act, within 90 days of receiving the complaint, there is a provision to settle the dispute.

(d) Complaint launched against protection is free of cost in this act,. Hence, consumers from low socio-economic background can also get compensation without additional expenditure.

Steps to use the act :

(a) Who can complaint :

- (i) Consumer itself, members of a recognized consumer organization, complaint can also be lodged through central or state government.

DRAFT FOR FILING COMPLAINT IN DISTRICT FORUM

To,
The chairman,
District forum, consumer protection,
Udaipur (Raj.)

- Name and address of the complainant
- Name and address of the opposite party
- The brief fact leading to the present complaint
- The supportive documents as above (enclose all the documents in support)
- Relief which complainant seeks

Date : **Signature**

Attach the copies of affidavit of total number of opposite party. One should attach the affidavit on a plain paper to support the complaint in which all the brief facts should be repeated. Affidavit should be attested. The format of affidavit is as above:

FORMAT OF AFFIDAVIT

To,
The chairman,
District forum, consumer protection,
Udaipur (Raj.)
Case no:
Complainant

Affidavit

I son/wife age resident of
Request.....

(Facts in the affidavit should be written in a sequence if opposite party have replied anything or complainant want to justify anything should be written in affidavit)

Date **Signature**

Verification

I son/wife age resident of declares
that fact mentioned in the affidavit from column one to last are true and right in my knowledge.

Date **Signature**

(Affidavit should be on plain paper and should be attested from commissioner or notary)

(ii) If the complaint has been filed equally by many consumers, then the consumer organization can file a single complaint of everyone. For example, if 10 people have purchased same product from a same shop and everyone has a similar complaint, then a complaint can be lodged together.

(b) When a complaint can be lodged :

- (i) When there is a defect in product or service.
- (ii) When you experience loss by the trader through the wrong and controlled business.
- (iii) When merchants ask you to price more than the maximum retail price.
- (iv) You can file a complaint within 2 years of the date of purchase of the item.

(c) Where to lodge a complaint:

There is a provision of three- level quasi judicial mechanism, in this act. Consumer can lodge complaint at different level according to the total redressal amount. Consumer can file a complaint at the place from where the product has been purchased. According to the amount of compensation consumer can file complaint at different level. See table 35.1.

(d) How to lodge a complaint :

- (i) Documents should be collected by the consumer before lodging the complaint (bill of the shop, guarantee card, warranty card, answer given by business correspondence) through which consumer complaint can be verified.
- (ii) Prior to lodging the complaint in consumer court, it would be appropriate that the consumer send a letter to the opposition party by the registered A.D, in which it describes the complaint and write it for redress. For this, give him at least 15 days of time, because a good trader must resolve the complaint made by the consumer, and he does not feel the need to go to the consumer court. If he refuses to do so, than dispute's conclusion can be obtained by the consumer court.

(Affidavit is to be given on plain paper and it is necessary to verify with an oath commissioner or notary.)

(e) Process upon receipt of complaint:

- (i) Giving a counter-complaint to the opposition party by the district forum, it is instructed to give its statement about the matter in a stipulated period.
 - (ii) If the opposition denies charges than in that case, district forum will do proceedings to solve the dispute.
 - (iii) If the item is malfunctioned and the probe is required then the sample of this object is sealed and sent to the laboratory by the district forum and it is instructed to the laboratory officer that the test report of the item should be sent to the District Forum within 45 days.
 - (iv) The fee for the complaint should be deposited in the district forum by the consumer. The deposited amount used in the laboratory for analysis. The reports received from the district forum are sent to the opposition party. Consumer recovers the deposited amount by the opposition party.
 - (v) If still the opposition party opposes than they will get a chance to show their side.
- (f) Decision of district forum :**
- (i) To complete or correct the faults of the product presented in the laboratory.
 - (ii) To change or replace the faulty product with same standard.
 - (iii) Redressal to the consumers
 - (iv) To pay such amount that has been given by the consumer due to negligence of the opposition party.
 - (v) On rejecting the conclusion of district forum, the opposition party may be punished by the court or may have to pay a penalty.

Consumer is not satisfied by the decision of district forum than he may apply further in state commission, against the decision of state commission in national commission, and against the results of national commission he may apply further in Supreme Court. Complaint are free of cost. The process of filing an appeal is the same, with the application form for lodging the complaint, the order of the state

commission and the national commission in the district has to be attached. The complete process of using this act can be easily understood by the example which is an incident.

Uttar Pradesh State Commission in its decision to soap manufacturing company, ordered to pay compensation for the damage to the consumers Saraswati Narayana, for loss due to use of soap made by the company.

Shmt. Saraswati Narayan purchased a laundry soap named 'Uttam' worth Rs. 22.50. On the use of it, ulcer on his hands appeared and started burning. In this regard, libel was presented by libeler in district forum Etawa. No one was present on behalf of the opposition even if the notice was issued. District forum had announced the decision in favor of petitioner and asked the opposition to redress Rs.100.

Dissatisfied with the decision made by the District Forum, the petitioner appealed to the UP State Commission. While hearing the appeal, the Hon'ble State Commission also observed that after having been agreed by the district forum for the disadvantages caused to the petitioner by the use of 'Uttam' soap, it is less than just giving Rs. 100 for the loss. Petitioner told the total expense of Rs. 110. In that Rs. 22.50 is soap price, Rs. 24 for registration letter sent to the opposition party, Rs. 12 of affidavit, Rs. 50 for typing and Rs. 1.50 for stamp were spent. Commission accepted that petitioner should be given Rs. 500 for the loss and Rs. 500 for the libel. Commission has also ordered to pay Rs. 1000 for appeal expense.

So as you have seen Shmt. Saraswati Narayan is a conscious consumer and has complete knowledge about consumer protection. Hence, producer cannot cheat these consumers.

It's been 16 years since the consumer protection laws has been made but still the consumers are not getting its benefits. Consumers from rural areas need to be educated about these laws because rural consumers are most exploited in the absence of education.

Like consumer protection law 1986, Indian government has implemented 'right to be informed' in

2005. Under this law every citizen of India has a right to know following information:

- (a) Can ask questions from government or any registered organization.
- (b) Getting copies of any document
- (c) Investigation of any document
- (d) Investigation of any work
- (e) Get the sample of material used for executing any work.

Rajasthan government has set Rs.10 for getting any information. Deposit fee or postal order can be submitted with the application form for obtaining information in the institute. The Public Information Officer will have to inform the applicant within 30 days of receipt of the application.

Important points :

1. Consumer protection law, 1986 provides protection to all the Indian citizens.
2. Under this law consumers rights are being considered.
3. This law applies on every product and services. Only free items and services do not fall within its scope.
4. If a person buys goods or services purchased for sale or for business purposes, then this act will not apply to it.
5. There is a provision for establishing three level quasi judicial mechanisms for redressing the problems of consumers under this Act, .
6. This act takes very little time to compensate the consumers.
7. No fee is taken by the court for filing a complaint i.e. it is free.
8. Consumer protection law made in 1986 have not been successful in benefiting the public even today, so excessive information about this law should be brought to normal consumption.
9. The Government of India has enacted 'Right to Information Act 2005' in 2005 under which every citizen has the right to receive information from any government and non-government organization. Every citizen can become aware

and take advantage of this important law as required. This act will prove useful in consumer protection.

Questions :

1. Choose a correct answer from the following:
 - (i) The Consumer Protection Act was implemented in the year.
 - (a) 1956
 - (b) 1965
 - (c) 1986
 - (d) 2001
 - (ii) The main objective of consumer protection law.
 - (a) Making items available at cheap prices.
 - (b) Merging of counterfeit goods
 - (c) To provide consumer protection
 - (d) All of the above
 - (iii) In which situation this law will not be applicable.
 - (a) The item has been purchased for sale or business.
 - (b) Any defect was found in the product
 - (c) Consumer consuming goods and services by themselves
 - (d) The price of the product has been asked more
 - (iv) Under the Consumer Protection Act, there is a provision of the following.
 - (a) Establishment of quasi judicial system
 - (b) Indemnify the consumer
 - (c) To solve the complaints of consumers in a simple and short time and with less expenses.
 - (d) All of the above
 - (v) Different degrees of quasi judicial system depend on.
 - (a) Amount of product or service
 - (b) Type of compensation
 - (c) Financial limits of compensation
 - (d) Limits of the product areas

2. Fill in the blanks:
 - (i) National consumer day is celebrated on.....
 - (ii) Opposition party may get on refusing the conclusions of district forum.
 - (iii) Along with complain consumer has to give.....
 - (iv) Regarding conformation of your complaint you should have all the necessary
 - (v) If the compensation amount is less than 20,00,000 than complaint can be lodged at.....
 - (vi) When a product or service found than one should complain.
3. Write short notes on the following :
 1. Right to security
 2. Right of consumer education
 3. Controlled business policies
 4. Quasi judicial system
4. When a consumer can file a complaint?
5. What steps a consumer should take before lodging a complaint?
6. How a Consumer can get better protection by consumer protection law?
7. Even after so many years of the introduction of consumer law, consumers are not able to get benefit from this. Confirm the reasons behind this?

Answers :

1. (i) c (ii) c (iii) a (iv) d (v) c
2. (i) 24 December (ii) Punishment (iii) Affidavit (iv) Documents (v) District forum (vi) defects

UNIT V - HOME SCIENCE EXTENSION EDUCATION

36. HOME SCIENCE – FAMILY AND VOCATIONAL EDUCATION

Home science education is not only essential for students, but it is also helpful for housewife to lead a happy and healthy life. The concept of Home Science is based on the ardent desire to improve the well being of the community through every home. This can be achieved through the systematic arrangement of resources. Home Science can take a prominent role in developing good individuality and a good sense of personality in a person. Through modern scientific knowledge, an individual's potentialities can be utilized to the maximum.

The modern concept of home Science is to bring up homes where peace, prosperity and progress prevail. India is developing country and here 30-35% of people are illiterate. The situation of illiteracy is even more serious in the villagers especially in women. One factor which has influenced the concept of Home Science is the awakening of women's issues. The philosophy of Home Science is to provide equal opportunities for both sexes, to achieve best familial and professional lives. The imbalance between the roles of man and woman can be avoided thus. Along with material and economical achievements, physical, spiritual and moral aspects of family living have to be promoted. This is one of the underlying principles of Home Science education. The home implants moral values of honesty, truthfulness, dependability and objectivity in a person.

Meaning and Importance of Home Science Education

The study of Home Science helps each people lead a more satisfying personal, family and community life because of the knowledge, understanding, skills

and appreciation of cultural and spiritual values a pupil acquire through Home Science education.

Home science means disseminating knowledge related to home science subjects out of the periphery of educational institutions among villagers and women. It is for those who have never gone to school and collage or who have been deprived of formal education for some reason. Unlike other subjects, Home Science is a practical science one applies in everyday life. As a practical subject it offers maximum opportunity to express one's ability to take up things and develop leadership qualities.

Home Science education develops qualities needed for responsible citizenship. Home Science Education helps pupil to recognise the importance of food in healthy living, teaches how to prepare food by retaining its nutrients and the importance of balanced diet. It also enables one to sort out family problems and find out solutions for them. Home Science education helps one to start self employment and become a wage earner at younger age. The curriculum empowers to take intelligent decisions concerning the use of materials and resources. The student becomes efficient to nurture and take care of the young, to foster their healthy growth and development. Moreover one gain technical knowledge and information from various branches of Home Science for both personal and professional use.

Major Areas in Home Science

There are five different areas of specialisation in Home Science. Each branch offers post graduate courses and facilities for research.

The five major areas in Home Science are

- Human development and family studies.
- Family resource management

- Food and nutrition
- Clothing and textile
- Extension education

Table 36.1 : Departments of Home Science

S. no.	Home science department	Subject
1	Food and Nutrition	Food preservation – papad, Badi, pickle, jelly, sherbet, murbba, chutney, sauce etc.
2	Human Development and Family Studies	Nursery school for children, toy making, innovative games for children etc.
3	Family Recourse Management	Interior decoration, flower decoration, decoration of floor, decorative items, cleaning of metal and substances etc
4	Clothing and Textile	Sewing, knitting, printing, dying tie and dye, batik etc.
5	Extension Education	Preparation of audio-visual aids, social work etc.

Human development deals with the development of a child from conception to old age. Physical, motor, emotional, language, cognitive and social developments of human beings are included in this. Behavioural problems of children, exceptional children, disorders, specific problems and issues that hinder the development of human beings are also dealt with. Geriatrics is also a part of the study since the life span of an individual is longer today.

Under Family Resource Management, time, money, energy and space management are the main topics for study. A good time plan is essential for time management. For money management resources have to be utilised judiciously. A family budget fulfils this aim. Energy management is a difficult task as the activities in a person's life is different from another individual. Energy management study aims at reducing the amount of energy required for doing each work. A work simplification technique enables this process. Consumer education is also included under this subject. The consumer is provided with information regarding food safety, safety against adulteration, common adulterants, health hazards and Consumer Protection Act. Major principles and basics of design and arts are also detailed in this area.

Food science and nutrition includes chemistry of food, nutrient retention, sources of nutrients, nutritive

value of food and judicial mixing of food are scientifically instructed in food science. Nutrition imparts the knowledge of various nutrients, their composition, functions, sources, requirements and deficiency status.

Clothing and Textile includes all details about textile fibres and fabrics, fabric construction processes namely spinning, weaving, printing, dyeing etc. Basic principles of apparel designing and construction are also taught.

In Extension Education, basics of programme planning, preparation of audio visual aids, social work, applied nutrition; methods of communicating with the society etc. are included.

The theoretical knowledge and practical experience is taught under various courses of home science education in class 11 and 12. Students who have studied home science education can start self employment by learning business skills with the help of special courses, according to their interest.

Self employment :

Self employment is the state of working for oneself rather than an employer. Self-employed people generally find their own work rather than being provided with work by an employer, earning income from a trade or business that they operate.

A self-employed person is an independent contractor or sole proprietor who reports income earned from self-employment.

People gain knowledge about some subject and start self employment. So that he/she can earn his livelihood by establishing his own financial institution.

There has been a lot of change in the situation right now. You must have heard from many people that nowadays where jobs are available. Good educated people who have higher achievements, but jobs are not available in institutions with their higher competence, if available, then they are not as per their skills and are also at very low salaries. As a result, dissatisfaction is increasing among young man and women. Self-employment is an important suggestion for redressing it. From the given example, you can understand the importance of self employment.

In home science education, you have learned about cutting, stitching clothes. If you are interested in cloth and its stitching skills. After passing class 12 you can get training in this area and start a business at home by designing clothes. You can make different types of apparel, can sell them to make your family financially strong. It is “self-employment”. You can do business in two ways by earning skills in any field, either you can make a merchandise by making a product and trading so that they sell the product you have made in the market. Secondly, you can sell the various products created by you. In the first situation, the trader will accept product at a lower cost and sell to the customer at a maximum price so that he gets maximum profit while in the second situation, the product that you created yourself, give more profit and mental satisfaction. In this way you can increase your family’s monetary income and mental satisfaction through self-employment.

Merits of self employment :

1. Low capital is required, to set up small scale industry, so anyone who has the skill and confidence can be self employed.
2. Unemployment is a paradoxical problem of our country, self-employment increases employment opportunities and resolves unemployment problems.

3. Self-employment can easily be established with the help of family members and friends.
4. The technique of doing one’s work is not easily transferred to other people, and the distinction of employment do not get disclosed.
5. Operation of self-employed is very simple, there is no special knowledge and training required.
6. Self-employment has an important role in the growth of national and per capita income.
7. Production and benefits are started immediately after the establishment of any small or domestic scale unit.
8. Small scale industry can also be established in villages as large industries are limited to big cities.
9. Employment is also very good in terms of human values, in this person does not need to work like a machine.
10. Self-employment also increases export of goods.
11. Self-employment if is on small scale then the entrepreneur gets freedom from the business cycle.
12. Government provide benefit of training and financial assistance to self-employed entrepreneurs.

Due to all the above mentioned benefits, there are many opportunities for self employment in our country today.

Even today, by gaining all these benefits, you can successfully establish your self-employment. You have read in this book that the family is the basic unit of all economic activities. By studying home science education you can start self employment. You can get employment as well as many other opportunities for which you are hopeful. To acquire skills for self-employment, or business, trainings are organized by state & at country level. One should select the business as per their capacity and convenience.

There are vocational opportunities for self-employment in our country. If any student want to become a successful entrepreneur after training and does not want to be dependent on anyone else then he need professional skills and qualities. Person’s quality

will make him successful entrepreneur.

Home Science offers more scope for self employment opportunities compared to other subjects. Fashion designing, starting tailoring unit, catering units,

nursery schools, family counselling centres, food processing centres and preservation units are some of the areas where a Home Science graduate can explore self employment.

Table 36.1 : Various training programmes and work opportunities offered in Home Science

S.No.	Training Programme	Opportunity to work
1	Textile Designing	<ul style="list-style-type: none"> i. Textile designers in textile mills ii. Self employed by establishing own small scale industry iii. Floor covering designer iv. Textile designer in Khadi and handloom v. Designer of block, screen and roller printing vi. Designer in textile, hand printed textile and handloom vii. Embroidery designer.
2	Interior decoration	<ul style="list-style-type: none"> i. Interior designer ii. Interior decorator in hotel and exhibition iii. Counselor in exhibition and fair iv. Architect helper v. Furniture designer vi. Floor decorator, flower designer specialist vii. Advisor in beautification of different decorative material and its maintenance.
3	Food and Nutrition	<ul style="list-style-type: none"> i. Self employment by preservation of fruits and vegetables ii. Meal planner and cookery specialist (hotel, canteen, hostel etc) iii. Cookery specialists iv. Establishing cookery training centre v. Establishing preservation centre for preserving fruits and vegetables
4	Nutrition and Child Care	<ul style="list-style-type: none"> i. Creche for children ii. Nursery school iii. Training and development of game material for children iv. Child nutrition counselor v. Preparing different types of study material for children vi. Establishing hobby centre for child development
5	Women Empowerment and Development	<ul style="list-style-type: none"> i. Awakening centre for women ii. Training centre for women development iii. Women empowerment and development counselor in Government and non-Government institute

6	Consumer Protection	<ul style="list-style-type: none"> i. Establishing consumer protection helping centre ii. Substance detection laboratory iii. Advisor in consumer training iv. Study material development related to consumer protection v. Establishing consumer relief centre
7	House Keeping	<ul style="list-style-type: none"> i. Interior decorator in hotel ii. Interior decorator in guest house and circuit houses iii. House keeper in different institutes iv. Housekeeping training officer v. Housekeeping training programmer
8	Cookery	<ul style="list-style-type: none"> i. Cookery training centre ii. Cookery specialist in hotel iii. Cookery specialist in Indian Railways iv. Cookery specialist in Indian Air Authority v. Cookery counsellor
9	Food and beverage services	<ul style="list-style-type: none"> i. Service boy/girl in Restaurants ii. Service boy/girl in Clubs iii. Organizer in outdoor catering iv. Providing catering services in special occasions (marriage, festival, birthday etc) v. Establishing catering training centre.
10	Hotel Management	<ul style="list-style-type: none"> i. Establishing own hostel ii. Different posts in hotel (manager, receptionist, room manager, restaurant manager) iii. Working in hotel management training centre.
11	Jewellery Designer	<ul style="list-style-type: none"> i. Designing jewellerys for different show rooms ii. Assorting of gems and diamonds iii. Designing dress and jewellery according to occasion in collaboration with fashion designer iv. Designer in cosmetic jewellery v. Establishing training centre in jewellery designing vi. Own show room.

Important Points :

1. Home science extension education is a vocational subject.
2. It includes knowledge of various disciplines of science and art.
3. Five departments of home science - Food and Nutrition, Human Development and Family studies, Family Resource Management, Clothing and Textile and Extension Education and all these fields play an important role in enhancing quality of life.
4. In today's scenario, Home Science Education is not only confined to the house but it is progressing in the industrial sector too.
5. Home Science Education is also helpful in strengthening the financial condition of the family through self employment.
6. Vocational skill training can help in setting up your own business and this is known as self employment.
7. Self employment is an excellent tool for reducing the problem of unemployment in India.

8. There are many benefits for establishing self-employment, like it requires low capital, freedom from the business cycle, the support of the family increase in human values and simple operation etc.
9. Government provides benefits of training and financial assistance for establishing Sardar Swarozgar to entrepreneurs.

Questions :

1. Choose the correct answer for the following questions
 - (i) Number of departments in the Home Science are :
(a) Four (b) Five
(c) Three (d) Six
 - (ii) Subject helps in selecting and purchasing of land is :
(a) Food and Nutrition
(b) Human Development and Family Studies
(c) Textile and Apparel Designing
(d) Family Recourse Management
 - (iii) Topics do not come in clothing and textile is :
(a) Stitch (b) Weaving
(c) Bandage (d) Open nursery school.

2. Fill in the blanks :

- (i) is also given priority to various activities of family life with the help of home science education along with artistic approach.
- (ii) A good house means the whole family member in the house itself.
- (iii) is also a utility of home science education along with family education .

3. Write a brief comment on :

- (a) Home science & Vocational education.
- (b) Self employment.
- (c) Home science & self employment.

4. What is the importance of Home science education in family life?
5. Write an essay on : “Home science education is a great subject for self employment.”

Answers :

1. (i) b (ii) d (iii) d
2. (i) home scientist (ii) earns
(iii) vocation

PRACTICAL BOOK
UNIT – I HUMAN DEVELOPMENT AND FAMILY STUDIES
PRACTICAL - 1
STRENGTH AND WEAKNESS OF ADOLESCENTS

Development process and their characteristics during adolescence period have been thoroughly studied in various chapters. While studying these chapters you must have compared given concepts to yourself. Write down in your practical file about your any of two strength and their maximum utilization and any two weaknesses and their solution. For example, strength of each development and their maximum utilization and weakness of each development and their solution is given in Table 1-2 so that, you can perform this practical well

Table: 1 Strength of self and their maximum utilization during adolescent period.

Development	Strength	Maximum utilization
1. Physical	Appropriate height and weight	- Participate in various games
2. Motor	Good Muscle Coordination	- Perform physical activity - Practice in Dance, Exercise, Swimming and Gymnastics. - Occupation can be selected in future among these by proper training and strong motivation.
3. Sexual	Proper Maturation at right time	- Adolescent participation in each activity with confidence, excitement and interest
4. Emotional	Curious Attitude/Nature	- Adolescents, curiosity is centralized on the physical changes among them. Curious nature can be decentralized on a special area which can be helpful in gaining knowledge and creativity development.
5. Social	Verbal Intelligence	- Adolescents can impress everyone through their verbal intelligence. By this goodness, among them they can raise their voice against superstition and orthodox nature of society can change the mind set of aged and provide important contribution in society.
6. Cognitive	High I/Q	- They can score higher marks in science, maths and other subjects and achieve success by this power.

Table-2: Weakness and their solution among Adolescents.

Development	Weakness	Solution
1. Physical	Weak	- Adolescent should take balance diet to overcome this problem. Timely treatment of the disease is necessary to regain work efficiency.
2. Motor	Lack in Muscular Coordination	- Improvement in this, one should not make fun of them and motivate oneself with strong learning, proper guidance and practice so that, adolescent can at least perform mediocre.
3. Sexual	Slow development rate and late maturity	- Adolescent feel inferior in front of their age mates. Sometimes delay in physical development affects sexual development so take balance diet. Inferior adolescent can concentrate on creative activity instead of their physical structure so that they can overcome this.
4. Emotional	Angry Nature	- Adolescents not only harm others but themselves too when angry. To control anger adolescents should remain busy in interesting work.
5. Social	Shy Personality	- Adolescent should participate in social functions as much as possible and communicate with maximum persons and can mix with people, age mates and friends. Teachers and parents can help adolescents to overcome this problem.
6. Cognitive	Low I/Q	- Adolescent with low IQ can concentrate o physical skills like drawing, dance, carpenting etc instead of mental skills

On the basis of these tables teacher can organize a discussion in the class on various strength and their maximum utilization and weakness and their solutions. By this practical adolescent can get better knowledge about their changes, causes and adjustments. This practical will help students to maximize their strength and improve their weakness.

PRACTICAL - 2
PREPARE A CASE STUDY PERFORMA
FOR ADOLESCENT BOYS AND GIRLS

Name of Adolescent

1. Age
2. Educational Qualification
3. Physical structure
4. Length – Weight, Muscles, Hairs, Eyes and Physical Work Ability
5. Motor Development- Muscles and Facial Expressions.
6. Emotional Development- Anger, Curiosity, Fear, Anxiety, Jealousy, Competition, Affection, Joy
7. Social Development- Nature, Friendship, Group Formation, Family Adjustments, Social Adjustments
8. Sexual Development- Primary and Secondary Sex Characteristics

PRACTICAL - 3

OLD AGE PROBLEMS AND SUGGESTIONS

Old age includes many physical, social, mental and emotional changes like other stages of life cycle, with these changes they face many other problems. For real life experience observe aged male or female in your family or neighborhood and list out their various problems after interviewing them. Also suggest the solutions of these problems. Write down this practical in your practical file according to the following table:

Table: 3.1 Old Age Problems and Their Suggestions

Problems	Suggestions
(a) Physical (i) Internal (ii) External (b) Mental (c) Social (d) Emotional (e) Economic (f) Personality	

UNIT II - FOOD AND NUTRITION

PRACTICAL - 4

REFERENCE UNIT OF FOOD GROUPS

I Reference unit of food Groups :

In this chapter you have read about meal planning in detail. In order to plan balanced diet various food groups have been used to make it easy. It is very necessary to know reference unit before you plan a meal using food groups. With the help of a teacher actual amount of reference unit can be calculated. i.e. 30gm of cereal/pulse actual weight should be carried out by doing the practical. In the same way 100 gm of fruit, vegetable like- potato, onion, lady finger, spinach, banana and mango weighs how much.

From food group choose at least two foods like cereal, pulses, milk, roots & tubers, green leafy vegetable, fruit, sugar, ghee etc. Concerned teacher make it feasible for students by weighing actual amount and convert it into table.

According to the availability of food products changes have been made in the table. Its amount can be increased as per requirement. Reference unit for egg, meat, fish and poultry can also be studied.

II. Recipes for Meal planning :

Along with Reference unit meal planning, knowledge of various recipes for raw and cooked items is also necessary. For in one reference unit how 30 gm of wheat flour when made into chappati will look ? How much of 30gm Dal/Dalia will weigh. Many times to prepare various recipes 2 or 3 food group mixture are required. By doing this in specific recipe there is change in reference unit of food group. For example, for preparing 1 bowl of kheer we require 2 unit of milk i.e 250 ml, 10 gm sugar with 10 gm rice.

Table 4.1 : Food groups and its weight

S. No	Food groups	Ingredients
1.	Cereals	Wheat flour. Rice
2.	Pulses	Moong/urad/Bengal gram dal/gram flour
3.	Milk	Milk, curd
4.	Roots and Tubers	Potato, onion
5.	Green leafy vegetables	Spinach, cabbage, fenugreek leaves, amaranthus
6.	Other vegetables	Okra, Brinjal, Gourds,
7.	Fruits	Guava, Banana, Mango, Apple, Papaya
8.	Sugar	Jaggery, sugar
9.	Ghee/ oil	Ghee, oil

We are giving table of raw and cooked food items which are normally cooked in our home for your help. In school, subject teachers should give

demonstration in front of students that how much raw food is cooked and measure its amount. For practice you can make this at your home also.

Table 4.2 : Raw and cooked food amount for general dishes

S.no	Dishes	Food stuffs (in gm)	Amount	Serving size	Ready
1.	Roti/bati/ puri/ paratha	Whole wheat flour Ghee	30 As per requirement	1	1
2.	Stuffed paratha/ kachori	Wheat flour Stuffing (potato) Oil	30 30 As per requirement	1 1	1
3.	Samosa	Refined wheat flour Stuffing (potato, peas) Oil	30 25+25 10	1 $\frac{1}{4} + \frac{1}{4}$ For frying	2
4.	Plain dalia	Dalia Ghee	30 As per requirement	1	1 plate
5.	Sweet dalia	Dalia Jaggery/ sugar Ghee	30 10 As per requirement	1 2	1 plate
6.	Dal dalia	Dalia Moong dal ghee	30 15 As per requirement	$\frac{1}{2}$ $\frac{1}{2}$	1 plate
7.	Upma	Semolina Onion Oil	30 10 5	1 1	1 plate
8.	Halwa	wheat flour/ semolina/ gram flour ghee sugar	30 20 30	1 4 6	1 plate
9.	Plain rice	Rice Ghee	30 As per requirement	1	$\frac{1}{2}$ plate
10.	Pulav	Rice Potato, onion, peas Oil	30 50 5	1 $\frac{1}{2}$ 1	1 plate
11.	Sweet rice	Rice Ghee Sugar	30 5 10	1 1 2	$\frac{1}{2}$ plate

12.	Poha	Flaked rice Potato, onion Oil	30 25 5	1 ¼ 1	1 plate
13.	Idli urad	Rice Dal	30 10	1 1/3	4 small
14.	Khichidi	Rice Dal Ghee	20 10 As per requirement	2/3 2/3	1 plate
15.	Plain dal (any)	Dal Ghee/ oil	30 5	1 1	1 bowl
16.	Rajma/ chole	Rajma Onion, tomato Oil	30 25 5	1 ¼ 1	1 bowl
17.	Dal palak	Moong dal Spinach Oil	20 25 5	2/3 ¼ 1	1 bowl
18.	Sambhar	Red gram Vegetables (bottle gourd, cluster beans, potato, onion, tomato) Oil	10 45 5	½ ½ 1	1 bowl
19.	Pakoda	Besan Potato, onion Other vegetables oil	40 40 For frying	1 ½ ½ -	1 plate
20.	Potato vada	Besan Potato Oil	20 25 For frying	2/3 ¼ -	2
21.	Dahi vada	Urad dal Moong dal Curd Oil	25 50 For frying	1 ½ -	2
22.	Ladoo	Flour/ besan Ghee Sugar	30 15 20	1 3 4	2
23.	Milk	Milk Sugar	200 5	2 1	1 glass/ 2 cup
24.	Tea/ coffee	Milk sugar	50 5	½ 1	1 cup
25.	Kheer	Milk Rice Sugar	250 10 10	2 ½ 1/3 2	1 bowl
26.	Vermicelli kheer	Milk Vermicelli Sugar	150 5 10	1 ½ - 2	1 bowl

27.	Custard	Milk Sugar Fruit Custard powder	100 10 25 5	1 2 ¼ -	1 bowl
28.	Curd	Curd	100	1	1 bowl
29.	Raita	Curd Vegetable/fruit	50 25	½ ¼	1 bowl
30.	Bundi raita	Curd Bundi	50 10	½ -	¾ bowl
31.	Dry vegetables	Okra/ potato/ colocasia/ pumpkin/ brinjal etc Oil	75 5	¾ 1	¾ bowl
32.	Curry vegetable	Potato Tomato Oil	50 25 5	½ ¼ 1	1 bowl
33.	Curry vegetable	Bottle gourd/ taroi Oil	100 5	1 1	1 bowl
34.	Fruit	Different varieties- apple/ grapes/banana/ orange	100	1	1
35.	Fruit chat	Sugar	100 5	1	1 plate
36.	Fruit juice	Orange/ mosambi/ tomato	400	4	1 glass
37.	Boiled egg	Egg	50	1	1

In above table these amount of food items can be changed in the recipe. In recipes amount of ghee/ oil/sugar can be changed according to your requirement. Peels and seed of fruits and vegetables are not used in the table. Amount of fruit and vegetable is also from its edible part. For example if we buy ½ kg of spinach, after cleaning only half of its amount is left i.e 250 to 300 gm.

Standard medium size bowl i.e its depth is 4 cm

and diameter is 8 cm and for plate it is of medium size used in table whose diameter is 6 inch. One cup tea/ coffee, 1 glass milk or 1 bowl dal/ kheer means that we are measuring it with household measurements which is not upto the brim but slightly on lower side.

Teachers should guide student regarding raw and cooked food, with reference unit. Both the practicals above will help students to plan meal for different age group.

PRACTICAL - 5

MEAL PLANNING DURING CHILDHOOD

Rate of growth and development slows down after infancy during childhood. Physical, mental, cognitive and motor development is rapid in this stage. Active and more inclined towards games due to inquisitive nature. They are least bothered about food, but it is necessary to provide balanced diet to them in order to maintain the rate of growth and development and to save from malnutrition.

Table 5.1 : Balanced diet for childhood (Reference unit)

Food group	Portion size	1-3 years	4-6 years	7-9 years	0-12 years	
					Girls	Boys
Cereal	30	4	7	9	11	9
Pulses	30	1	1.5	2	2	2
Milk(ml)	100	5	5	5	5	5
Roots and Tubers	100	0.5	1	1	1	1
Green leafy vegetables	100	0.5	0.5	1	1	1
Other vegetables	100	0.5	0.5	1	1	1
Fruits	100	1	1	1	1	1
Sugar	5	5	6	6	7	6
Ghee/oil	5	4	5	5	5	5

Note: For Non-vegetarian, egg/fish of one unit(50g) can be replaced by one unit of dal (30g). Meal planning of 3 years preschool and 9 years school going children can be done by referring the values given in table 2 to 5.

Table 5.2 : One day meal planning for 3 years preschool children

Time of meal	Menu /recipe	Portion size	Ingredients	Amount (g/mg)	Food group unit
1	2	3	4	5	6
Morning 8:00 am	milk	1 cup	Milk Sugar	100 5	1 1
Breakfast 9:00am	Poha	1 plate	poha (cereal) Potato, onion(tuber) Oil	30 10 2.5	1 - ½

Lunch 12:30pm	Stuffed paratha Raita	2	Wheat flour/maida(cereal)	45	1½
			Spinach (green leafy),	50	½
			Moong dal (pulses)	15	½
		1 bowl	Oil	7.5	1½
			Curd (milk)	100	1
			Potato,(tuber)	25	¼
After lunch 3:00pm	Fruit chat	½ plate	Apple, banana, grapes, lemon (fruit)	75	¾
Evening tea 5:00pm	Biscuit	2	Wheat flour(cereal)	15	½
			Ghee	5	1
			Sugar	5	1
	Banana shake	½ glass	Milk	100	1
			Banana(fruit)	25	¼
			Sugar	5	1
Dinner 7:30 pm	Rice	½ plate	Rice (cereal)	30	1
	Dal	1 bowl	Lentil dal(pulses)	30	1
	Salad	½ plate	Ghee	5	1
			Carrot (tuber)	25	¼
	Sweet	1 piece	Cucumber	25	¼
			Mawa (milk)	25	1
			Coconut powder	5	-
	Sugar	5	1		
Before sleep	Milk	1 cup	Milk	100	1
			Sugar	5	1

Table: 5.3 : Division and total of food units in the meal for a day

Food group	Morning 8:00 am	Breakfast 9:00 am	Lunch 12:30	After lunch 3:00 pm	Evening tea 5:00 pm	Dinner 7:30pm	Before sleep 8:30 pm	Total
Cereal	-	1	1 ½	-	½	1	-	4
Pulses	-	-	½	-	-	1	-	1 ½
Milk	1	-	1	-	1	1	1	5
Tubers	-	-	¼	-	-	¼	-	½
Green leafy vegetables	-	-	½	-	-	-	-	½
Other vegetables	-	-	-	-	-	¼	-	¼
Fruits	-	-	-	¾	¼	-	-	1
Sugar	1	-	-	-	1+1	1	1	5
Ghee/oil	-	½	1 ½	-	1	1	-	4

Table 5.4 : One day meal planning for school going children (9 years)

Food timing	Menu		Ingredients	Amount (g/mg)	Unit
1	2	3	4	5	6
Morning tea 7:00	Milk	1 glass	Milk	200	2
	Upma	1 plate	Sugar	5	1
			Semolina (cereal)	45	1½
			Carrot, onion (tuber)	10	-
			Oil	2.5	½
Tiffin 11.00	Bathua paratha	2	Wheat flour (cereal)	60	2
			Bathua (green leafy)	50	½
			Oil	5	1
	Carrot and peas sabji	1 carrot	Carrot (tubers)	50	½
			Peas (other vegetables)	25	¼
			Oil	2.5	½
	Khoa sweet	1 piece	Mawa (milk)	25	1
			Sugar	5	1
			Coconut powder	5	-
Lunch 2:00	Chapatti	2	Wheat flour (cereal)	60	2
			Ghee	2.5	½
	Rice	½ plate	Rice (cereal)	30	1
			Tuar (dal)	30	1
	Dal	1 bowl	Ghee	2.5	½
			Lady's finger (other vegetable)	50	½
	Lady's finger sabji	½ bowl	Oil	2.5	½
			Curd (milk)	50	½
Raita	1 bowl	spinach (green leafy)	25	¼	
Evening snack 6:00 pm	Bhel puri	1 plate	Rice flakes (cereal)	15	½
			Potato, onion (tuber)	25	¼
			Tomato (fruit)	25	¼
	Fruit juice	½ glass	Fruit	200	2
Dinner 8:00pm	Bati	2	Wheat flour (cereal)	60	2
			Ghee	5	1
	Dal	1 bowl	Urad, chana, moong (pulses)	30	1
			Ghee	2.5	½
			Wheat flour (cereal)	15	½
	Churma ladoo	1 ladoo	Sugar	10	2
			Ghee	7.5	1½
	Salad	½ plate	Beet root (tuber)	25	¼
			Cucumber (other vegetable)	50	½
	Green coriander chutney	1 tbsp	Green coriander, mint, (green leafy vegetables)	25	¼
Before sleeping	Milk	¾ glass	Milk	150	1½
			Sugar	5	1

Note : spices, green chilly, green coriander, ginger, garlic etc are used in very less quantity. Therefore their amounts are not included in above calculation.

Table 5.5 : Division and total of food units in meal for a day

Food group	Breakfast	Tiffin	Lunch	Evening snack	Dinner	Before sleeping	Total
Cereal	1½	2	2+1	½	2+½	-	9½
Pulses	-	-	1	-	1	-	2
Milk	2	1	½	-	-	1 ½	5
Tubers	-	½	-	¼	¼	-	1
Green leafy vegetables	-	½	¼	-	¼	-	1
Others vegetables	-	¼	½	-	½	-	1¼
Fruits	-	-	-	¼ + 2	-	-	2¼
Sugar	1	1	-	-	2	1	5
Ghee/oil	½	1 + ½	½+½+½	-	1+½+½	-	6½

Meal can be prepared/planned for other sex and age from the above mentioned food table.

PRACTICAL - 6

MEAL PLANNING DURING ADOLESCENCE

Adolescence is the age in which physical growth and development is fast after childhood. Requirement for food and nutrient increase in this age. Apart from this, emotional development is also taking place and they have to cope up with that also. Balanced diet for adolescent girls and boys is given in table 1. One day meal planning for 17-18 years adolescent is given in table 2. In table 3 whole day meal division information is given.

Table 6.1 : Balanced diet for adolescent boys and girls

Food groups	Amount (gm)/ reference unit	13-18 years	
		Boys	Girls
Cereals	30	14	10
Pulses	30	2	2
Milk (in ml)	100	5	5
Tubers	100	2	1
Green leafy vegetables	100	1	1
Other vegetables	100	1	1
Fruit	100	1	1
Sugar	5	7	6
Ghee/ oil	5	5	5

Note : For non vegetarian boys/girls one serving (30 gm) pulses can be replaced with (50 gm) meat/fish/ egg.

Table 6.2 : One day meal planning for 17-18 years adolescent boys

Meal/ time	Menu	Amount	Ingredients	Amount	Serving size
1	2	3	4	5	6
Morning breakfast 8-8:30 am	Milk	1 glass	Milk	200	2
	Sandwich	4	Sugar	10	2
			Bread-4 Potato (tuber)	100	3
			Green peas (other vegetable)	75 50	3/4 1
			Oil	5	1

Afternoon lunch	Chappati	3	Wheat flour	90	3
			Ghee	2.5	1/2
	Rice	1 plate	Rice	60	2
	Rajmah	1 bowl	Rajma (pulse)	30	1
			Tomato	25	¼
			Onion (tuber)	25	¼
			Oil	5	1
	Ladys finger sabji	½ bowl	Okra (other vegetable)	75	¾
			Oil	2.5	½
		Curd (milk)	50	½	
	Pumpkin raita	1 bowl	Pumpkin (other vegetable)	25	1/4
Evening tea 5-5.30 pm	Tea	1 cup	Milk	50	½
			Sugar	5	1
	Besan chilla	2	Besan (pulse)	30	1
			oil	2.5	½
	Fruit chat	1 bowl	Apple, papaya, grapes, banana (fruit)	100	1
		Sugar	10	2	
Dinner 8-8:30 pm	Chappati	5	Wheat flour (cereal)	150	5
			Ghee		
	Palak paneer vegetable	1 bowl	Spinach (green leafy vegetable)	5	1
				100	1
			Paneer (milk)	25	1
			Tomato (fruit)	25	¼
			Onion (tuber)	25	¼
			Oil	2.5	1
			Milk	100	1
	Vermivelli kheer	¾ bowl	Vermicelli	5	-
		Sugar	7.5	1 ½	
Salad	1 plate	Carrot (tuber)	50	½	

Note : masalas, green chilli, green coriander, ginger, garlic etc are used in moderation

Table 6.3 : Division and total of food unit in one day meal

Food groups	Breakfast	Lunch	Evening tea	Dinner	Total serving
Cereals	3	3+2	-	5	13
Pulses	-	1	1	-	2
Milk (in ml)	2	½	½	1+1	5
Tubers	¾	¼	-	¼ + ½	1 ¾
Green leafy vegetables	-	-	-	1	1
Other vegetables	½	¾ + ¼	-	-	1 ½
Fruit	-	¼	1	¼	1 ½
Sugar	2	-	1 + 1½	1 ½	6
Ghee/ oil	1	½ +1 + ½	½	1 + ½	5

In above table 3 unit of different food in reference to food group is given. Meal planning can be changed according to age and sex of other group in adolescent. This meal is not meant for each and every individual change should be made. For example in table 2 one day meal planning is given for 17-18 years adolescent. An adolescent can change his diet by incorporating suggestions.

1. Number of chapattis served in lunch and dinner can be reduced or the amount of breakfast can be reduced for 13-15 years age group adolescent. Other planning should remain same because balanced diet table explains that according to age and sex, change should only be done on cereals and not in other food stuffs.
2. Those who carry tiffin to college can either reduce amount of breakfast or can take light lunch.
3. Adolescent who cannot consume 3-4 chapattis at one time can take biscuit, toast, popcorn or puffed rice in between to compensate.
4. They can take burger, noodles, chowmein, stuffed paratha, nutritious upma, dalia, kachori, chat, moong chat, idli, dosa, uttapam, fruit chat etc. in evening snack, inspite of sandwich.
5. Pulses can be consumed in the form of sprouts, pakoda, laddoo, paratha, papad, halwa etc.
6. Green leafy vegetables should be consumed at least once in a day. This can be in the form of stuffing, raita or chutney etc.
7. Include dal-bati, kadahi-chawal, makki roti, sarso sag, idli, dosa and sambhar in dinner inspite of chapatti, dal and vegetable.
8. Oily and fried food should be taken once in a day as amount of fat in diet will increase and can bring pimple on face.
9. Economic status of family should be considered while planning meal.
10. Meal planning should be done according to the eating habit of adolescent.

PRACTICAL - 7

MEAL PLANNING DURING ADULTHOOD

Meal planning of adolescence depends on sex, occupation, physical activity, age, climate and its food habits. Male require more food than female. Climate also affects food intake.

Occupation and activity are opposite factors. As physical activity increases its occupational status decreases, their paying capacity reduces. Sedentary workers and white collar job person has more money as compared to heavy workers. Balanced diet is given in table according to activity and sex.

Table 7.1 : Balanced diet for adult (Reference unit NIN, 2010).

Food groups	Portion size	Amount of food (gm)					
		Sedentary worker		Moderate worker		Heavy worker	
		Male	Female	Male	Female	Male	Female
Cereal	30	12.5	9	15	11	20	16
Pulses	30	2.5	2	3	2.5	4	3
Milk(ml)	100	3	3	3	3	3	3
Tubers	100	2	2	2	2	2	2
Green leafy vegetables	100	1	1	1	1	1	1
Other vegetables	100	2	2	2	2	2	2
Fruits	100	1	1	1	1	1	1
Sugar	5	4	4	6	6	11	9
Ghee/oil	5	5	4	6	5	8	6

Note : Non-vegetarian individual can replace one unit of egg, meat, poultry with 30g dal.

Expensive food items have been included for high income group example - thandai, palak paneer, cutlets,etc. while for low income group Bengal gram, palak, and guar has been included which are nutritious and are cheap also.

Table 7.2 : Comparative meal for various income group and activity.

Food timing	High income Sedentary worker	Middle income moderate worker	Low income heavy worker
Morning tea	Tea -	Tea, toast	Tea -
Break fast	Bread poha -	Sprouted green gram paratha	Chapatti Garlic chutney
	Thandai	Milk seasonal fruits	Buttermilk -

Lunch	Chapatti/nan Shahi pulao Dal makhanni Baked capsicum Shrikhand	Chapatti Rice Dal Baked tomato/ other seasonal vegetables Bathua raita	Coarse grain-bajra/ maize/chapatti - Kadi Potato bringjal curry - Salad
After lunch	-	-	Tea
Evening tea	- Cutlet - Orange juice	- Sandwich Peanut chikki Lemon water	Tea Jaggery- chana Seasonal fruits
Dinner	Chapatti Palak paneer Navratan korma Papad Fruit Salad	Chapatti Moong dal palak Potato,cabbage, sabji Salad Vermicelli kheer	Maize/pearl millet/wheat Chana-dal-palak - Rab

Table 7.3 : One day meal planning for high income sedentary worker (male)

Food timing	Menu	Serving	Ingredients	Amount (g/mg)	Unit
1	2	3	4	5	6
Morning tea 7:00 am	Tea	1 cup	Milk Sugar	50 5	½ 1
Break fast 8:00am	Bread poha	1 plate	Bread 4 big(cereal) Potato, onion(tuber) Sugar	90 25 7.5	3 ¼ 1 ½
Lunch 1:00-1:30 pm	Chapatti/nan Shahi pulao Dal makhan Baked capsicum Shrikhand	3(cereal) 1plate 1 plate 2 ½ bowl	Wheat flour/maida Ghee Rice(cereal) Cashew, raisins, cherry, peas Oil Rajma, urad/moong(pulses) Tomato(fruit) Onion (tuber) Butter Capsicum(other veg) Potato,onion (tuber) Oil Curd (milk) Sugar	90 2.5 50 15 2.5 30 15 25 2.5 50 50 2.5 100 10	3 ½ 1 ½ - ½ 1 - ¼ 1 ½ ½ 1 2
Evening snack 5:00pm	Orange juice Cutlet Moong dal (roasted)	½ glass 2 1 bowl	Orange (fruit) Rice flake (cereal) Potato (tuber) Oil Green gram dal	200 30 25 2.5 30	2 1 ¼ ½ 1

Dinner 8:00pm	Tomato soup	1 cup	Tomato(fruit)	100	1
	Chapatti	4	Wheat flour(cereal)	120	4
	Palak paneer	1 bowl	Ghee	5	1
			Spinach (green leafy),	100	1
			Paneer (milk)	25	1
	Navratan korma	1 bowl	Oil	2.5	½
			Carrot (tuber), green matar, cauliflower, capsicum(other vegetables)	25	¼
			Oil	100	1
	Papad	1 big	Moong (pulses)	2.5	½
	Fruit salad	½ cup	Apple, banana, papaya,sapota, grapes	15	½
			100	1	

Table 7.4 : Division and total of food unit for meal per day

Food group	Morning tea	Break fast	Lunch	Evening snack	Dinner	Total
Cereal	-	3	3+1½	1	4	12½
Pulses	-	-	1	1	½	2½
Milk	½	¼+1	1	-	1	3¾
Tubers	-	¼	¼+½	¼	¼	1½
Green leafy vegetables	-	-	-	-	1	1
Other vegetables	-	-	½	-	1	1½
Fruits	-	-	-	2	1+1	4
Sugar	1	1½	2	-	-	4½
Ghee/oil	-	½	½+½+½+½	½	1+½+½	5

Table 7.5 : One day meal planning for middle income moderate worker (male)

Food timing	Menu	Serving size	Ingredients	Amount (g/mg)	Unit
1	2	3	4	5	6
Morning tea 7:00	Tea toast	1cup	Milk Sugar Refined flour	50 5 45	½ 1 1½
Breakfast	Sprouted green gram paratha	2	Wheat flour(cereal)	60	2
			Whole gram(dal)	15	½
			Oil	5	1
	Milk	1cup	Milk	100	1
	Seasonal fruits	1 medium	Sugar Guava (fruits)	5 100	1 1

Lunch 1:00	Chapatti	4	Wheat flour(cereal) Ghee	120 5	4 1	
	Rice	½ plate	Rice (cereal) Ghee	30 2.5	1 ½	
	Dal	1 ½	Whole lentil(dal) Ghee	45 5	1½ 1	
	Baked tomato	2	Tomato (fruit) Potato,ginger(tuber)	50 50	½ ½	
	Bathua raita	1 bowl	Oil Curd Bathua(green leafy)	2.5 50 25	½ ½ ¼	
	Evening snack 5:00 pm	Lemon water	1 glass	Lemon(fruit) Sugar	20 5	- 1
		Sandwich	2 big	Bread (cereal) Cucumber (other vegetable) Tomato (fruit)	50 50 25	1½ ½ ¼
Peanut chikki		1 bite	Peanut Jaggery/sugar	10 10	- 2	
Dinner 8:00pm		Chapatti	5	Wheat flour(cereal) Ghee	150 5	5 1
	Dal palak	1 bowl	Green gram(pulses) Spinach(green leafy) Ghee	15 25 5	½ ¼ 1	
	Potato cabbage curry	½ bowl	Potato(tuber) Cabbage(green leafy) Oil	50 50 2.5	½ ½ ½	
	Salad	1 plate	Carrot,radish(tuber) Kakri (other vegetable) Vermicelli(cereal)	50 100 10	½ 1 -	
	Vermicelli kheer	1 bowl	Milk Sugar	150 10	1½ 2	

Table 7.6 : Division and total of food unit for meal per day

Food group	Morning tea	Breakfast	Lunch	Evening snack	Dinner	Total
Cereal	1 ½	2	4+1	1 ½	5	15
Pulses	-	½	1 ½	-	½	2 ½
Milk	½	1	½	-	1 ½	3 ½
Tubers	-	-	½	-	½ + ½	1½
Green leafy vegetables	-	-	¼	-	¼ + ½	1
Others vegetables	-	-	-	½	1	1 ½
Fruits	-	1	½	¼	-	1 ¾
Sugar	1	1	-	1+2	2	7
Ghee/oil	-	1	1+ ½ + 1+ ½	-	1+1+ ½	6 ½

Table 7.7 : One day meal planning for high income heavy worker male

Food timing	Menu	Serving size	Ingredients	Amount (g/mg)	Unit
1	2	3	4	5	6
Morning tea 6-6:30	Tea	1cup	Milk Sugar	25 7.5	¼ 1½
Breakfast 7:30-8:00am	Missi chapatti Garlic chutney Buttermilk	3 2 big spoon 1 glass	Wheat flour(cereal) Besan (pulses) Radish (tuber) Spinach/fenugreek/bathua/gram leaves(green leafy) Vanapati ghee Garlic/onion(tuber) Oil Buttermilk (milk)	120 60 15 50 10 25 5 50	4 2 - ½ 2 ¼ 1 ½
Lunch 1-1:30pm	Bajra ki roti Kaddi Potato bringjal curry Salad	5 1½ bowl 1 bowl 1 plate	Pearl millet(cereal) Vanapati ghee Buttermilk (milk) Besan (pulses) Oil Potato(tuber) Brinjal (other vegetable) Oil Carrot (tuber)	240 10 300 15 5 50 200 5 50	8 2 ¾ ½ 1 ½ 2 1 ½
After lunch 3:00	Tea	1 cup	Milk Sugar	25 7.5	¼ 1½
Evening tea	Tea Gur- channa Seasonal fruit	1 cup 1 bowl 1	Milk Sugar Jaggery(sugar) Roasted Bengal gram Banana	25 7.5 30 30 100	¼ 1½ 6 1 1
Dinner 8-8:30 pm	Corn roti Rab	4 1½ bowl	Corn flour (cereal) Vanapati ghee Chana (pulses) Palak (green leafy) oil Butter milk Porridge of corn	210 5 15 50 5 300 30	7 1 ½ ½ 1 ¾ 1

Note : Spices, green chilli, green coriander, ginger, garlic, etc. used in small amount. It is not mentioned in above table.

Table 7.8 : Division and total of food unit in meal per day

Food Group	Morning tea	Break fast	Lunch	After Lunch	Evening tea	Dinner	Total
Cereals	-	4	8	-	-	7+1	20
Pulses	-	2	½	-	1	½	4
Milk	¼	½	¾	¼	¼	¾	2¾
Tubers	-	½	½ + ½	-	-	-	1½
Green leafy vegetables	-	½	-	-	-	½	1
Others vegetables	-	-	2	-	-	-	2
Fruits	-	-	-	-	1	-	1
Sugar	1½	-	-	1½	1½ + 6	-	10½
Ghee/ oil	-	2+1	2+1+1	-	-	1+1	9

Above all three food tables have included almost all food items in recommended amount. Recommended meal is said to be balanced if it contains slightly less or more amount of food.

PRACTICAL - 8

MEAL PLANNING DURING OLD AGE

This is also groups very important stage like all other age for meal planning. In this age according to physical activities and to maintain good health it is necessary to include all good groups in meal and it should be done through given table.

Table 8.1 : Balanced diet for male and female elderly (NIN - 2010)

Food groups	Amount (g m)	Man	Women
Cereals	30	9.5	7
Pulses	30	2.5	2
Milk	100	3	3
Tubers	100	2	2
Green leafy vegetables	100	1	1
Other vegetables	100	2	2
Fruits	100	2	2
Sugar	5	4	4
Oil/fats	5	5	4

Note : Non vegetarian elderly can replace 50gm of egg, meat, fish and poultry with 30gm dal.

One day meal is given in table in sample form elderly (male). Meal should be changed according to his physical and nutritional problems for eg. if a person is diabetic then sugar and sugar product should be consumed in less amount. If denture problem then semi-solid or liquid food should be given

Table 8.2 : One day meal planning for elderly (male)

Food time	Menu Dishes	Serving amount	Ingredients	Amount (gm/ml.)	Serving size
1	2	3	4	5	6
Morning tea 6.00 AM	Tea Biscuit (Salty)	1 Bowl 4	Milk Sugar Wheat flour	50 5 15	½ 1 ½
Breakfast 8.00 am	Milk Corn flakes Upma	1 ½ 1	Milk Corn flakes(cereals) Sugar Semolina Onion, carrot Oil	100 30 5 30 25 5	1 1 1 1 ½ 1

Mid morning breakfast 10.00 am	Papaya Chapatti	1 plate 2	Papaya Wheat flour (cereals)	100 60	1 2
Lunch 1.30 pm	Rice(cereals) Masoor dal Spinach, potato and tomato curry	1 plate 1 bowl 1 bowl	Ghee Rice(cereals) Pulses Ghee Spinach potato tomato oil	2.5 30 30 2.5 100 50 50 5	½ 1 1 ½ 1 1 ½ 1
Evening tea 5.00pm	Apple shake Bhelpuri	1 glass 1 plate	Apple(fruit) Milk Sugar Murmure (cereals) Salty (pulses) Potato, onion (tubers) Curd (milk)	100 100 5 30 10 25 50	1 1 1 1 - ½ ½
Before dinner soup 7.00 pm	Loki soup Chapati	1 glass 2	Loki (other vegetable) wheat flour(cereals)	100 60	1 2
Dinner 8.00pm	Porridge (salty) Peas, potato curry Papad	1 bowl 1 bowl 1 big	Ghee Porridge (cereals) Moongchilkaa (pulses) Ghee Peas Potato Oil Moongdaal	2.5 30 15 2.5 100 50 5 15	½ 1 ½ ½ 1 ½ 1 ½
Post Dinner 9.00 pm	Milk	1 cup	Milk sugar	100 5	1 1

Note: Spices like green chill, green coriander, ginger, garlic etc. should be used in less amount, above table does not mention these things.

Table 8.3 : Division and total of food unit in meal per day

Food groups	Morning tea 6.00 am	Break fast 8.00 am	Mid - morning 10.00 am	After meal 1.30 pm	Evening tea 5.00 pm	Before dinner 7.00 pm	Dinner 8.00 pm	Post Dinner 9.00 pm	Total
Cereals	½	1+1	-	2+1	1	-	2+1	-	9 ½
Pulses	-	-	-	1	-	-	½+½	-	2
Milk	½	1	-	-	1+½	-	-	1	4
Tubers	-	½	-	½	½	-	½	-	2
Green leafy vegetable	-	-	-	1	-	-	-	-	1
Other vegetable	-	-	-	-	-	1	1	-	2
Fruits	-	-	1	½	1	-	-	-	2½
Sugar	1	1	-	-	1	-	-	1	4
Fats/Oil		1	-	½+½+ 1=2	-	-	½+½+ 1=2	-	5

Meal planning table has taken care of food which is semi-solid and liquid for old age and also frequency has been included. It suffice the nutritional requirement of elderly, for female you can plan meal by your own.

PRACTICAL - 9

MEAL PLANNING DURING PREGNANCY

You have read physical and nutritional changes taking place in pregnant women in this chapter. She should take balanced diet from different food groups in order to take care of foetus growing in her womb and also her own health given in table.

Table 9.1 : Balanced diet for pregnant women (RDA,2010)

Food groups	Reference unit/gm	Type of work			
		Sedentary working women	Moderate working women	Heavy working women	
Cereals	30	9	11	16	-
Pulses	30	2	2.5	3	-
Milk (m.l)	100	3	3	3	+2
Roots and tubers	100	2	2	2	-
Green leafy vegetables	100	1	1	1	+0.5
Other vegetables	100	2	2	2	-
Fruit	100	1	1	1	+1
Sugar	5	4	6	9	-
Fat/oil	5	4	5	6	+2

A sample of diet for a day, division of consumption unit and total is depicted in above table.

Table 9.2 : Table of meal planning for moderate working women per day

Time of meal	Menu/dishes	Serving amount	Ingredients	Amount (gm/m.l.)	
1	2	3	4	5	6
Morning tea 6.30 am	Tea	1 cup	Milk	50	½
	Toast	2	Sugar	5	1
Breakfast	Khaman	¼	Wheat flour (cereals)	50	1½
			Bengal gram (pluses)	30	1
			Lassi	-	-
			Oil	5	1

	Green chatani Sauce	- -	- -	- -	- -
	Mathari	2	Flour (cereals)	50	1½
	Coconut barfi	1	Oil	5	1
			Mava (milk)	100	1
	Tea	1 cup	Coconut	-	-
			Sugar	5	1
	Fruit chat	1 plate	Milk	50	½
			Sugar	5	1
			Apple, banana, guava, grapes, lemon (salt and black paper)	190	1
Lunch	Chapatti	3	Wheat flour (cereals)	90	3
			Ghee	5	1
	Rice	½ plate	Rice (cereals)	30	1
	Pulses	1 bowl	Plan masoor (dal)	30	1
			Ghee	2.5	½
	Spinach, potato	1 bowl	Spinach (green vegetables)	100	1
			Potato (roots and tuber)	50	½
			Tomato (other vegetables)	50	½
			oil	5	1
After lunch 4.00 pm	Lassi	1 glass	Lassi (milk)	200	½
	Apple shake	1 glass	Apple	50	1½
			Milk	100	1
			Sugar	150	1½
Evening Tea 5.30 pm	Katori chaat	1 plate	Wheat flour (cereals)	30	1
			Sprouted moong (pulses)	15	½
			Potato, onion	50	½
			Oil	5	1
			Green chatani (coriander, mint)	-	-
			Sweet chatani(sonth)	-	-
	Lemon squash	1 glass	Lemon		
			Sugar	5	1
Dinner 8.00 pm	Bottle guard tomato soup	1 glass	Bottle guard	75	¾
	Chapatti	3	tomato	25	¼
			Wheat flour	90	3
			ghee	5	1
	Peas & potato vegetable	1 bowl	peas	100	1
			potato	75	¾
			onion	25	¼
			tomato	25	¼
			oil	5	1
	Fruit custard	1 bowl	milk	100	1
			fruit	50	½
			sugar	5	1

Note : Spices, green chilly, green, coriander, garlic should be used in minimum quantity. It is not mentioned in above table.

Table 9.3 : Division and total of food unit in meal per day

Food groups	Morning tea	Break fast	Mid-day meal	Lunch	After meal	Evening tea	Dinner	Total
Cereals	1½	1½		4		1	3	11
Pulses		1		1		½		2½
Milk	½	1½		½	½	-	1	5
Tuber and roots	-	-	-	½				2
Green leafy vegetables				1				1
Other vegetables							2¼	2¾
Fruits			1	-	1		½	2½
Sugar	1	2	-	-	1	1	1	6
Fat/oil	-	2	-	2½	-	1	2	7½

Female who is moderate worker will get all the nutrients from the planned meal from above table. You can prepare a diet for a sedentary and heavy work pregnant women according to above planning by keeping the instructions in the mind given in chapter.

PRACTICAL - 10

MEAL PLANNING DURING LACTATION

Birth till 6 months and 6-12 months infant are completely or partially dependent on mother's milk. Appropriate amount of milk is to be secreted from mother's breast and for the same mother should take balanced diet accordingly so that she can maintain herself as well as to tackle infant's health.

Table 10.1 : Balanced diet of lactating mothers per day (NIN, 2010)

Food Groups	Gram/ portion size	Type of work			Additional unit for lactating mothers
		Sedentary active	Moderate active	Heavy active	
Cereals	30	9	11	16	+1
Pulses	30	2	2.5	3	+2
Milk (in ml)	100	3	3	3	+2
Tubers	100	2	2	2	-
Green leafy vegetables	100	1	1	1	+0.5
Other vegetables	100	2	2	2	-
Fruit	100	1	1	1	+1
Sugar	5	4	6	9	-
Ghee/ oil	5	4	5	6	+2

Note :

- (1) One unit (30gm) of dal can be replaced by (50gm) of egg/fish/meat for non-vegetarian lactating mother.
- (2) Requirement of dal can be fulfilled by dry fruits in lactation.
- (3) Mother should gradually reduce the amount to normal after 6-12 months of lactation. In below table shows a day meal planning for mother who is sedentary worker and is in 2-6 months of lactation and other is moderate working and is in 6-12 months of lactation has been given.

Table 10.2 : One day meal planning for sedentary working lactating mother (0-6 months)

Meal timing	Menu	Serving size	Ingredients	Amount (gm/ml)	Unit of serving
Morning tea 7:00 am	Tea	1 cup	Milk	50	½
	Salted biscuit	4	Sugar Wheat flour	2.5 30	½ 1
Breakfast 8:00 am	Milk	1 glass	Milk	200	2
	Ladoo	1	Sugar	2.5	½
			Wheat flour(cereal)	30	1
			Ghee	10	2
			Sugar	10	2
Cashew, almond, raisin, khopra, gond, pista, butter (dry fruits)	30	-			
Mid morning 11 am	Dalia	1 bowl	Dalia (cereal)	30	1
			Moong dal(pulses)	15	½
			Bottle gourd	50	½
			Ghee	2.5	½
Lunch 1:30 pm	Chapatti	4	Wheat flour (cereal)	120	4
	Ridge guard vegetable	1 bowl	Ghee	2.5	½
			Ridge guard (other vegetables)	150	1 ½
	Colocasia dry vegetable	1 bowl	Oil	2.5	½
	Salad	1 plate	Colocasia (tubers)	100	1
			Oil	2.5	½
Papad	1 big	Oil Cucumber(other vegetable) Moong Dal (pulses)	100 15	1 ½	
After lunch 4 pm	Fruit	1	Pomegranate	100	1
Evening tea 5:30 pm	Tea	1 cup	Milk	50	½
	Sprouts	1 plate	Sugar Sprouted moong dal (pulses) Oil	2.5 30 2.5	½ 1 ½
Before dinner 7:00 pm	Carrot and tomato soup	1 glass	Tomato (fruit)	100	1
			Carrot (tubers)	50	½
Dinner 8:30 pm	Chapatti	3	Wheat flour (cereal)	90	3
	Dal moong	1 bowl	Ghee	2.5	½
			Moong (pulses)	30	1
	Spinach, potato,tomato vegetable	1 bowl	Ghee	2.5	½
			Spinach (green leafy veg)	150	1 ½
			Potato (tubers)	50	½
Tomato (fruit)			50	½	
Papad	One big	Oil Moong dal papad(pulses)	2.5 15	½ ½	
Bed time 9:00 pm	Milk	1 glass	Milk	200	2
			Sugar	2.5	½

Table 10.3 : Division and total of food unit in meal per day

Food Groups	Morning tea 7:00 am	Break fast 8.30 am	Mid morning 11 am	Lunch 1.30 pm	After lunch 4.00 pm	Evening tea 5.30 pm	Before dinner 7.00 pm	Dinner 8.30 pm	Bed time 9.00 pm	Total
Cereals	1	1	1	4	-	-	-	3	-	10
Pulses	-	-	½	½	-	1	-	1 + ½	-	3½
Milk (ml)	½	2	-	-	-	½	-	-	2	5
Tubers	-	-	1	-	-	½	½	-	-	2
Green leafy vegetables	-	-	-	-	-	-	-	1 ½	-	1½
Other vegetables	-	-	½	1½	-	-	-	-	-	2
Fruit	-	-	-	-	1	-	1	-	-	2
Sugar	½	½	2	-	-	½	-	-	½	4
Ghee/ oil	-	2	½	1½	-	½	-	1 ½	-	6

Table 10.4 : One day meal planning for moderate working lactating mother (6-12 months)

Meal/ time	Menu	Amount	Ingredients	Amount (gm/ml)	Serving unit	
1	2	3	4	5	6	
Morning tea 7 .00 am	Tea	1 cup	Milk Sugar	50 5	½ 1	
	Toast	2 big	Wheat flour (cereal)	30	1	
Break fast 8.30 am	Tea	1 cup	Milk Sugar	50 5	½ 1	
	Moong dal mogar	1 plate	Moong dal (pulses) Oil	30 2.5	1 ½	
	Semolina utappam	1 plate	Semolina (cereal) Curd (milk) Cabbage Potato, onion (tubers) Coriander leaves, green chilli (for taste)	30 50 25 50 -	1 ½ ¼ ½ -	
	Green chutney	1 teaspoon	Oil Coriander leaves, green chilli, lemon	5 -	1 -	
	Sauce	1 teaspoon	Tomato, ginger, garlic	-	-	
	Mid morning 11.00 am	Milk dalia	1 bowl	Dalia (cereal) Milk Sugar Ghee	30 100 10 2.5	1 1 2 ½

Lunch 1.30 pm	Chappati	3	Wheat flour (cereal)	90	3
			Ghee	2.5	½
	Rice	1 plate	Rice (cereal)	30	1
	Dal (masor)	1 bowl	Dal	30	1
			Ghee	2.5	½
	Pumpkin vegetable	1 bowl	Pumpkin (other vegetable)	100	1
	Bundi raita	1 bowl	Oil	2.5	½
			Curd	100	½
	Papad	1 big	Bundi (pulses)	15	½
	Salad	½ plate	Moong dal	15	½
			Radish, carrot (tubers)	100	1
Evening tea 5.30 pm	Orange juice	1 glass	Orange (fruit)	200	2
			Sugar	5	1
	Chana dal cutlet	4	Bread slices (2 pcs)	30	1
			Chana dal	30	1
			Spinach (green leafy veg)	100	1
			Oil	5	1
	Green chutney	1 teaspoon	Coriander leaves, green chilli, lemon	-	-
	Sauce	1 teaspoon	Tomato, ginger, garlic	-	-
Dinner 8.30 pm	Chappati	4	Wheat flour (cereal)	120	4
			Ghee	2.5	½
	Bottle gourd vegetable	1 bowl	Bottle gourd (other veg.)	100	1
			Oil	2.5	½
	Fenugreek leaves and potato vegetable	1 bowl	Fenugreek leaves (green leafy veg)	100	1
			Potato	50	½
			Oil	2.5	½
	Salad	½ plate	Cucumber (other vegetable)	50	½
	Papad	1 big	Moong dal (pulses)	15	½
Bed time 9.30 pm	Milk	1 glass	Milk	200	2
			Sugar	5	1

Table 10.5 : Division and total of food unit of meals per day

Food Groups	Morning tea 7:00 am	Break fast 8.30 am	Mid morning 11 am	Lunch 1.30 pm	Evening tea 5.30 pm	Dinner 8.30 pm	Bed time 9.30 pm	Total
Cereals	1	1	1	4	1	4	-	12
Pulses	-	1	-	1+½+½	1	½	-	4½
Milk (ml)	½	½	1	1	-	-	2	5
Tubers	-	½	-	1	-	½	-	2
Green leafy vegetables	-	¼	-	-	1	1	-	2¼
Other vegetables	-	-	-	1	-	1½	-	2½
Fruit	-	-	-	-	2	-	-	2
Sugar	1	1	2	-	1	-	1	6
Ghee/ oil	-	1½	½	1½	1	1½	-	6

PRACTICAL - 11

MEAL PLANNING FOR DIARRHOEA AND FEVER PATIENT

Doctors consultation, medicine, hygiene and rest should be taken along with proper diet is to be taken prevent and control the disease. Therapeutic diet given in chapter. Plan one day meal for any age group individual suffering with fever and diarrhea.

Table 11.1 : One day meal planning for acute diarrhoea patients

S.no.	Food/Time	Menu/Recipies	Serving size	Food quantity (gm/mg)

Table 11.2 : One day meal planning for chronic diarrhoea patient

S.no.	Food/Time	Menu/Recipies	Serving Size	Food quantity(gm/mg)

Table 11.3 : One day meal planning for patient of fever

S.no.	Food/Time	Menu/Recipies	Serving Size	Food quantity(gm/mg)

Table 11.4 : Prepare ORS

Write down a procedure of ORS as per guidelines mentioned on the packet available in the market and given in the chapter :

PRACTICAL - 12

TESTS FOR DETECTION OF FOOD ADULTERATION

Foodstuff	Test	Observation	Results
• Cereals	Place them in water	Some particles sink to the bottom.	These may be stones, chips.
• Pulses	Mix 5 gms. Of pulse with 5 ml. of water. Add few drops of hydrochloric acid.	Pink colour may be seen.	Metanil yellow has been added to enhance colour. Keasri dal may have been added.
	Visual observation.	Difference in shape and colour of dal.	Difference in shape due to inferior quality being mixed.
	Bajra soaked in 20% salt solution.	Some particles found floating, while bajra sink.	Presence of ergot etc.
	Visual observation.	Unusually bright sink.	This show the presence of coaltar dyes.
	Pass a magnet over food stuff.	Small fine iron filling cling to it.	Presence of iron fillings.
• Milk	Use a lactometer to measure specific gravity.	Should range between 1.030 to 1.034.	Presence of water if not within this range.
	Add a drop of iodine to little milk	If it turns blue or grey.	Starch has been added to thicken it.
• Fats and oils	Add 2-3 drops of furfural solution to equal quantities of butter/ghee and HCL. Shake well and let it stand for a few minutes.	Pink colour may appear at the bottom of acid layer.	Presence of Vanaspati in butter/ghee.
	Iodine test.	Turns blue.	Show presence of starch and potatoes.
	Add solution of washing soda.	Frothing on the top.	Cheap oils have been added to Vanaspati. Argemone oil has been added.
	Heat mustard oil with washing soda.	Red colour appears.	Artificial oil has been added.

• Tea	Moisten tea leaves and place on blotting paper.	Colour imparted to paper.	Powdered seeds of tamarind/dates have been added.
	Place coffee powder on blotting paper and sprinkle a few drops of potassium hydrochloride.	Brown colour appears around edges.	Chicory sinks to the bottom.
	Sprinkle coffee powder on water.	Coffee floats and some particles sink below.	Chalks, dirt, dust etc. present.
	Dissolve in water.	Some particles settle below.	Chalks, dirt, dust etc. present.
• Jaggery and sugar	Add HCL to jaggery solution.	Turns magenta red.	Metanil yellow has been added.
	Dissolve brown sugar in water, add HCL.	Effervescence seen, red litmus turns blue.	Washing soda has been added.
	Dissolve in water.	Colour imparted to water and some particles settle to the bottom.	Artificial colouring matter has been added.
• Condiments and spices	Dissolve spices in carbon tetrachloride.	Spices dissolved fully, some particles settle to the bottom.	Presence of dirt, sand and dust.
			Dust, dirt, grit, etc. added.
• Asafoetida	Dissolve asafoetida in water.	Milky solution formed dissolved.	Resin or gum added if milky solution not had.
• Cardamom	Hold over a flame.	Burns with a bright flame.	Does not burn with bright flame if it is gum/resin.
	Place cardamom on palm and rub well.	Fine powder observed on finger and palm.	Presence of talc used to freshen them after essential oil has been removed.
• Beverages	Taste them.	Aromatic taste present.	Indicates removal of essential oils.

UNIT III - CLOTHING AND TEXTILE

PRACTICAL - 13

BASIC STITCHES AND APRON MAKING

Stitching of cloth is an ancient art. Even before the invention of sewing machine clothes were being stitched. Due to advancement of technology, sewing machines were invented. Some stitches require machine while some are hand stitch.

By using hand and machine stitching of garment can be made attractive, comfortable and useful. Some of the hand and machine stitches used for making a garment are :

1. **Running Stitch :**

The running stitch is the most basic of the hand sewing stitches, and has many variations. It's used for gathering, mending, and tucking. Depending on its use, you can either knot your thread or take a couple of back stitches to lock it into place. In its longer form, it becomes a basting stitch.

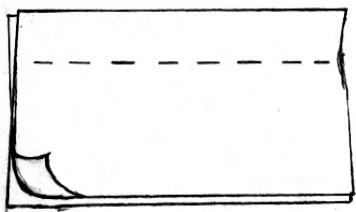


Fig. 13.1 : Running Stitch

Bring your needle through the fabric from the back (wrong side). Once the knot hits the fabric, make a stitch to the left or right. Bring the thread back up and repeat.

2. **Backstitch :**

It is the strongest stitch made by hand.

All clothes were made by layer upon layer of backstitches before sewing machines were invented.

Working from left to right, take a small stitch, then insert the needle at the end of the previous stitch, bringing it out beyond the point where the thread emerges. Continue, always inserting the needle in the end of the previous stitch.

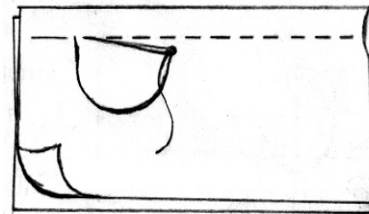


Fig. 13.2 : Backstitch

3. **Hemstitch or hem-stitch :** is a decorative drawn thread work or openwork hand-sewing technique for embellishing the hem of clothing or household linens. Unlike an ordinary hem, hemstitching can employ embroidery thread in a contrasting color so as to be noticeable.

In hemstitching, one or more threads are drawn out of the fabric parallel and next to the turned hem, and stitches bundle the remaining threads in a variety of decorative patterns while securing the hem in place. Multiple rows of drawn thread work may be used.

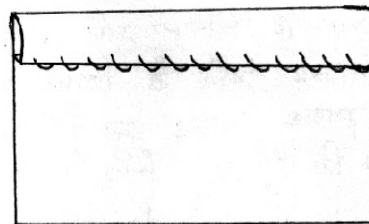


Fig. 13.3 : Hemstitch or hem-stitch

Hand hemstitching can be imitated by a hemstitching machine which has a piercer that pierces holes into the fabric and two separate needles that sew the hole open.

4. Basting Stitch :

Use the same technique as the running stitch, but make longer stitches (between 1/4 inch and a 1/2 inch).

Today, we tend to pin baste more than hand baste our garments and projects, but hand basting can still be useful, especially with both lightweight (silk and chiffon) and heavyweight (leather and Melton) wools.

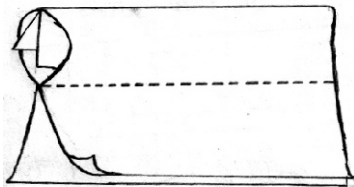


Fig. 13.4 : Basting Stitch

1. Interlocking :

This is used to secure stitches around the corners of baby’s garment , blankets. Other than this it is also used to make neckline designs around the edges in frock, blouse etc. this is also known as loop stitch. This is hand stitched. Basically, the interlock stitch employs many of the same steps as used in creating a buttonhole stitch. The difference is that interlock stitches double back on themselves at each row of the stitch pattern. To begin the loop back, begin by anchoring the thread on the underside of the garment. From that point, run the thread up to the first cross thread used in the buttonhole stitch, taking care to run under, or interlock with the cross thread. Move on to the next square in the design, repeating the process until you have completed the length that you wish to work with. All this lays out the basis for beginning the second phase of the interlocking process.

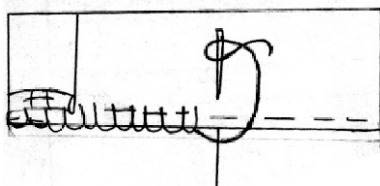


Fig. 13.5 : Interlocking

2. Types of fasteners :

A fastener is the essential part of a fastening system used to hold together at least two pieces of material. It is typically a single item (button) that often works in concert, with another device (buttonhole). Apparel fasteners may be permanent or temporary. Permanent fastenings, such as stitching and fusing, create form and shape in tailored garments. Temporary fasteners take many forms, including basting used to hold fabrics in place before permanent machine stitching is applied. Temporary fasteners, such as hook and eye closures for bras, can adjust garment size. Zippered fly front openings in men’s trousers provide access for bodily functions. However, one most often thinks of apparel fastening as providing a method of “donning and doffing” garments for everyday dressing.

- (i) **Button hole :** Secure the thread on the wrong side of the fabric, then with the right side facing upward, insert the needle from back to front through the fabric 1/8 inch from the edge. Wrap the working head around behind the eye end of the needle, then behind the point. Pull the needle through, bringing the knot to the fabric edge. Continue, making closely spaced stitches and knot. The eyelet version is worked in a circle, with the wrapped edge to the inside.

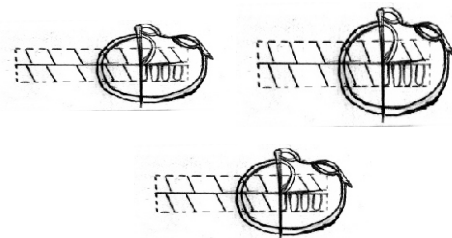


Fig. 13.6 : Button hole

- (ii) **Buttons :** A button is a small fastener, now most commonly made of plastic, but also frequently made of metal, wood or seashell, which secures two pieces of fabric together. In archaeology, a button can be a significant artifact. In the applied arts and in craft, a button can be an example of folk art, studio craft, or even a miniature work of art. Buttons are most often attached to articles of clothing but can also be used on containers such as wallets and bags. However, buttons may

be sew onto garments and similar items exclusively for purposes of ornamentation. Buttons serving as fasteners work by slipping through a fabric or thread loop, or by sliding through a buttonhole.

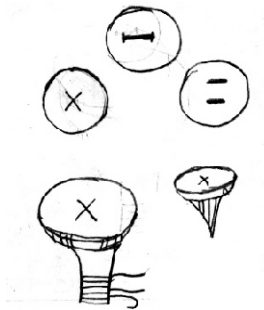


Fig. 13.7 : Buttons

(iii) Hook and eye :

Hook : This fastener is mostly used for ladies garments. Hook is made from such material that does not rust. Hooks are placed on the right side of the buttonhole. First, mark the place where hook is to be attached. Stitch around inside of the hook three to four time. This will secure it in place. Run the thread under the hook and through the underside of the fabric and then up into the center of the top hole.

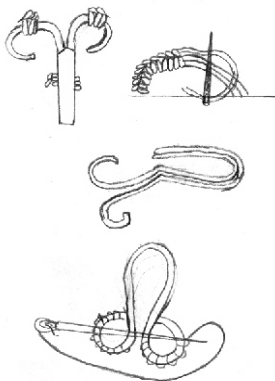


Fig. 13.8 : Hook and eye

Eye : Thread loops are often used to replace the metal eyes for a cleaner more couture look. Begin by securing a knotted, double strand of thread with a double stitch in the location of the intended thread loop. Make four consecutive stitches all in the same place less than ¼” long. This forms the base of the thread loop. Adjust the length for a larger or smaller than average wire or metal hook. Also, don’t make these stitches too loose. They should be snug, but not

tight. Starting at the top of the loop, direct the needle (blunt end first) under the stitched thread loop. Then direct the needle through the loop the strand of thread creates. This once again is the process of creating a blanket stitch. Repeat this process until the thread loop is covered. To lock the new loop in place stitch under the thread loop and create one more blanket stitch.

3. Zipper or chain : This is mostly known as chain or zip. It is used for the garments of male, female and children. It is easy to apply. The zips are attached to the nylon cloth band. The bands are place on the cloth and stitched over.

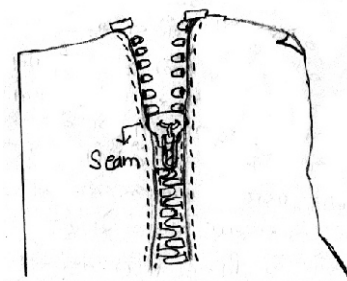


Fig. 13.9 : Zipper or chain

4. Mending and patching : Due to continuous use of garments sometimes tear occurs. Sometimes the garment gets stuck in sharp edges. Sometimes cloth is torn through friction. The whole garment keeps in strength except the torn portion. So mending is required. There are two types of repairing done on damaged clothes.

(i) Darning : Darning is the “reweaving” of fabric in a damaged area, and can be done by hand or sewing machine. Machine darning is faster but more noticeable. Hand darning, which can be invisible to the unknowing eye, is time consuming and requires patience and skill. Position the area to be darned over/on a hard surface which duplicates the shape of the garment area, i.e. curved or flat. Using single thread and a very small, fine needle, make a “bridge” of horizontal or vertical threads connecting the edges of the area to be darned. Using the bridge threads just

created, weave additional thread over and under vertically or horizontally, carefully filling in the damaged area.

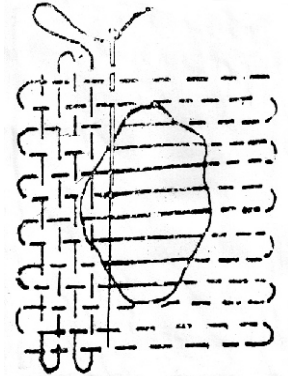


Fig. 13.10 : Darning

- (ii) **Patching :** Patching is often used when the damaged area is large or is not suited to darning. The repair can be almost invisible, or very decorative in nature. Patching is a sturdy method of garment repair. Before determining which type of patching method to use, consider carefully the damage location, type of garment, individual who wears the garment, type of fabric and how garment is used. Patching materials can be self-fabric, contrasting fabric, lace, or trim. The methods of patching include fusing, gluing, hand and machine stitching. It is also possible to use a combination such as fusing and machine stitching as in a decorative appliquéd patch.

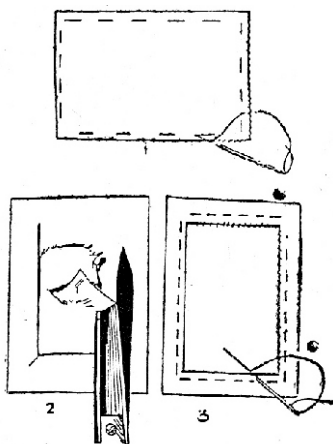


Fig. 13.11 : Patching

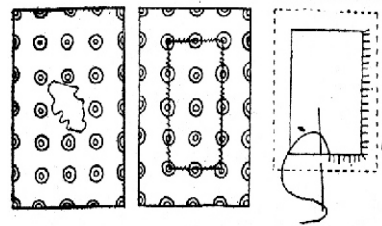


Fig. 13.12 : Mending on Printed Fabric

Apron making:

Measurements:

Length= 32"

Width=24"

Estimated cloth = printed 1 meter

Plain cloth ½ m (for piping)

Drafting:

Make drafting on brown paper.

Fold the patterned brown paper. Give name to all the sides of the cloth as a, b, c, d.

- Where,
 $a-b=12''$
 $a-b= 32''$
 $ad=bc$
 $ab+dc$
 $a-y= \frac{1}{2}''$
 $b-x= 10''$

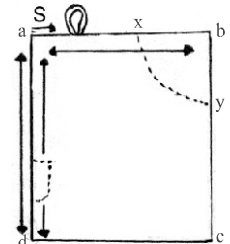


Fig. 13.13 : Design from y to x join by forming a downward curve.

Cut this ready draft inot paper pattern.

Cutting Apron :

- Stitch a strip of 40-50 inch
- Make piping around the edges
- Leave 10 inch both sides on the armhole and join the piping.
- Make neck line by keeping 10-12 inch allowances.
- Fold the double piping and stitch it
- Apply piping on the bottom edges also.
- Attach pocket of desired designs.

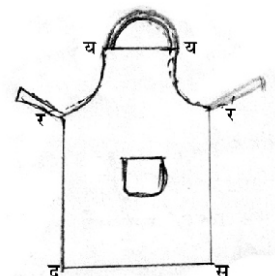


Fig. 13.14 : Apron

PRACTICAL - 14

EVALUATION OF READYMADE GARMENTS

We surely choose dress, apparel from market for our family member. So, evaluate any one costume (frauk/ salwarkameez) based on the following points and write the results in the experimental booklet.

Costume name.....

Age..... Gender.....

S. NO	Point of investigation	Resulte
1.	Measurement of costume	
2.	Fabrics	
3.	Stitching	
4.	Seams	
5.	Button bar/pleats	
6.	Belt	
7.	Lace/piping/doriya/kashida	
8.	Lable	

Conclusion :

PRACTICAL - 15

METHODS OF STAIN REMOVAL

By identifying different types of spots and knowing their classes and their nature, this method should be used carefully to clean the spots. Do not hurry to get rid of spots but should be removed with patience. There is a possibility of garment to be damaged due to hurriedness and less knowledge. In the process of stain removal, the nature and texture should be kept in mind and the color should not be used. Do not use bleaches so that the color of the clothes get spoiled. Here the method of stain removal is given. Remove spot and write in the experimental manual

Methods of making dilute solution of reagent :

In general, most of the spots are removed from use of soap-water. But to get rid of some spots, the use of absorbers, solvents, chemicals and reactions is needed. The use of these chemicals can harm the cloth, it should be diluted before using and the methods of making it :

Sodium hypochlorite : Mix one part hot water and one part sodium hypochlorite and make dilute solution

Sodium perborate : In one pint of hot water add one tea spoon sodium perborate and make solution.

Hydrogen peroxide : Add one part hydrogen peroxide to six part cold water to make solution.

Washing soda : Add one teaspoon washing soda in one pint of water and make solution

Borax : Mix one tablespoon borax powder in one pint of hot water

Oxalic acid : Add ½ tea spoon oxalic acid in one pint of water keep the solution in wooden utensil.

Sodium hydrosulphate : Add ½ oz of sodium hydrosulphate in a 2 pint of water and make solution.

Table 15.1 : Different type of stains removing methods

S. No.	Stain	Condition	Clothes		
			Cotton white & linen	Silk and woollen	Artificial
1	Tea, coffee	Fresh	(i) Put hot water on the edge of spot (ii) Quickly wash with soap water (iii) Apply lemon and salt and heat it with hot water	White cotton fabric	clean with dilute solution of Sodium perbonate
		Old/dry	(i) From the dilute solution of glycerin and borax		

2	Curry	Fresh	Wash with soap and lukewarm water and dry in the sun	White cotton fabric	Like white cotton fabric Sodium perbonate
		Old/dry	Dilute solution of borex	Hydrogen Paroxide solution after cleaning with Borax solution	
3	Butter and ghee	Fresh	(i) wash in dilute solution	Like White cotton fabric	Like White cotton fabric
			(ii) Wash with a hot soap solution		
		Old/dry	(i) Put the absorbent material on the clothes and keep it between two bloating paper and press hot	Like White cotton fabric	Like White cotton fabric
			(ii) Wash with detergent with hot water and rinse the cloth		
4	Egg	Fresh	Wash hot and cold water	Like cotton fabric	Like cotton fabric
		Old/dry	Keep the garment in the solution of salt without soaking.	Solution of salt	Solution of salt
5	INK	Fresh	(i) Blot tomato juice	Like cotton fabric	Like cotton fabric
			(ii) From sour curd or raw milk		
			(iii) Salt and lemon		
		Old/dry	(i) Soak in dilute oxalic acid and clean it in solution of borax	Like cotton fabric	Like cotton fabric
(ii) Clear with soap-water before					
6	Lipstick	Fresh	(i) Clean with soap water	Like cotton fabric	Like cotton fabric
			(ii) Spirit on a cotton ball and sponge it.		
			(iii) Apply blotting paper on top of the spots and heat it		
		Old/dry	(i) Repeat the above method again	Like cotton fabric	Solution and kerosene oil or

7	Blood	Fresh	(i) Wash with hot and cold water and solution of detergent	Wash in cold water	Wash in cold water
			(ii) Wash with dilute solution of ammonia	Like cotton fabric	Like cotton fabric
		Old/dry	(i) Remove the stain by rubbing	Allow the thick starch mixture to dry, scrub it with brush to clean	Like Silk and woollen fabric
			(ii) Soak in cold water and solution of salt then wash with soap (1 oz salt and half liter water)		
8	Grease	Fresh	(i) Wash with warm water and soap	(i) Like cotton fabric	(i) Like cotton fabric
			(ii) Place the stain between the blotting paper and iron over it	(ii) If old or fresh stain does not remove then use absorbent material, place between blotting paper and iron over it	(ii) Like silk or woollen
		Old/dry	(i) Any solution like petrol carbon tetrachloride and methylated spirit using sponge to clean	Like cotton fabric	Like cotton fabric
9	Rust	Fresh	(i) Put lemon or curd on the stain and wash with warm water	Like cotton fabric	Like cotton fabric
			(ii) Apply kerosene oil and wash with soapy water		
			(iii) Use solution of oxalic and borax		
			(iv) In the mixture of lime salt.		
		Old/dry	soak the stain and used javel water to clean	Like cotton fabric	Like cotton fabric
10	Colour	Fresh	(i) Wash with soap and water	(i) Like cotton fabric	(i) Like cotton fabric
			(ii) Use mixture of water, acid and alkali.	(ii) Make light solution of acid	(ii) Like silk and wool
		Old/dry	(i) Use alcohol, ammonia or acetic acid	(i) Wash dark coloured fabric with purifying materials and use javel water immediately.	
			(ii) Use purifying materials (be careful about colour fabrics)		
			(iii) Use javel water		

Table 15.2 : Complete the table after removal of stains

S.No.	Stain	Identification method	Nature of stain	Substances used	Methodology to remove stain	Result

PRACTICAL - 16

EFFECT OF WATER TEMPERATURE ON CLOTHES

Table 16.1 : Effect of temperature of water on clothes

S. No.	Cloth	Temperature of water	Effect
1.	White cotton	Cold/ Hot water	No effect. Hot water can be used for very dirty clothes.
2.	Cotton or linen colored clothes	Cold, Hot water	No side effect. Soaking colored clothes in water can damage color
3.	Woolen clothes	Cold water Hot water Lukewarm water	No side effect Harm on woolen clothes. Fiber sticks with each other due to hot water, flexibility and finishes damages. Can be used for very dirty clothes.
4.	Silk clothes	Cold water Hot and lukewarm water	No side effects(Dry cleaning should be used for silk fabric) Can be harmful leads to shrinkage of fiber.

Under the teacher's direction or supervision wash clothes in hot cold and lukewarm water and write down the result in practical notebook.

PRACTICAL - 17

METHOD OF SOAP AND DETERGENT PREPARATION

a) Soap

Material required :

Caustic Soda 250 gram

Oil (Coconut, linseed, til or mahua oil) 1 1/4 liter

Water 1 liter

Maida or gram flour 250 gram

Procedure :

1. Put caustic soda in a earthen ware and add water slowly. Leave this solution for 6 hours.
2. Add oil in gram flour in another container.
3. Add this solution in the caustic soda pot and stir with wooden plank till the solution becomes thick.
4. Set this solution of soap in the tray or tub. Cut the bricks with the help of knife or strong thread after cooling.

b) Detergent powder :

Material Required :

Soda ash – 4 kg

Soda bi carbonate - 1 kg

Acid slurry - 1 kg

Water - 500 ml

Color- 2 gm

Procedure :

1. Wear rubber or plastic glove in hands.
2. Strain soda ash and soda bi carbonate with the help of strainer.
3. Pour lukewarm water in bucket.
4. Add slurry in the water slowly and mix with the help of wooden stick.
5. Make agglomerate of soda and pour slurry in it.
6. With the help of stick mix color in this mixture.
7. Strain this mixture and pack it after air drying.

UNIT IV - FAMILY RESOURCE MANAGEMENT

PRACTICAL - 18

PRACTICALS RELATED TO BANK

(A) Fill form to withdraw and deposit money :

(a) To withdraw money :

- (i) use withdrawl form or cheque to withdraw money from bank.
- (ii) Bank issue a cheque book for transaction of money with that account should not have balance less then Rs. 500 or amount laid by bank.
- (iii) Cheque is enclosed with withdrawl form than only bank withdraw the money. Details of transaction mention in passbook.

(a) Cheque : It is kind of authority letter and issuing authority give instructions to bank to pay the amount mention in cheque to the cheque bearer. Following information require to fill in cheque.

- Name of person/company or to receive money.
- Write word only in the end after filling amount in figure and words
- On the top of cheque has the space for date, left to bottom bears account number similarly right bottom carry the signature of account holder.

(b) Types of cheque : Types of cheques are as follows :

(i) Bearer cheque : Word bearer is written over it. Immediate payment is made using this cheque. Any one can use it but is has disadvantages. It is not safe. Transaction

can be made if it is lost or stolen by some one. Person should inform bank authority in that case so that payment is not done.

(ii) Order cheque : Person whose name written over cheque can get money, if mention person is not able to visit bank, he may atleast the signature of other person backside of cheque. It is safe.

(iii) Crossed cheque : It is most safest cheque. Money is deposited direct to the account of person for whom cheque is issued instead of cash payment. Two diagonol lines are drawn on the left top and A/c payee return in it.

(iv) Traveller cheque : It is very unsafe to carry big cash when person on long journey. Hence, traveller cheques are arranged to avoid this problem. Amount to deposited in account before getting the cheque of definite amount. It can be used in all over the India. When the bank receipt such cheques it bears signature and depositer and one side is blank. It is sign by a person when he withdraw money in presence of bank authority.

(v) Gift Cheque : Indian bank issue the cheques of various amount Rs.11, Rs.21 and Rs.51 issued on various festivals and occasion in very attractive form. They can obtain without any investment. Few banks announces interest or prizes on such cheques.

(B) Open account in bank :

In last chapter, you have studied the importance of saving in detail. You have acquired the knowledge of various ways of investments for saving. Alongwith theoretical knowledge, one should know to open the account in post office or bank, how to deposit saving and the withdrawl the money whenever required time to time. Hence, learn to fill the forms and other formalities needed to open account. Visit the bank or post office either alongwith teacher or may call the bank officer. However, information regarding open account is given in the following points :

To open account :

- (i) Get the form from bank related to type of bank account want to open.
- (ii) Fill all the formalities like name, name of father or husband etc.
- (iii) Along with this, submit affidavet regarding agreement on all terms and condition.
- (iv) Put signature on form and one card for record maintenance which you use it at the time of transaction of money.
- (v) Put thumb impression if person does not know to sign and verified by gazetted officer. One passport size photo be pasted on pass book of account.
- (vi) Account form is endorred by a person who proposed to open account and it may be a staff member of bank or any one whose known to bank.
- (vii) Get the receipt of money deposited in bank account.
- (viii) Bank manager open the account once he assure that all the information is complete and correct.
- (ix) Bank issue a passbook containing information of name of account holder, account number, date of issue and details of all transaction inside the passbook.
- (x) Inform bank if passbook is lost or change in home address.

PRACTICAL - 19

PREPARATION AND EVALUATION OF LABEL

(I) Evaluation of labels on different items :

You have earned the knowledge of standard mark put on product theoretically from all consumer related chapter. Practical knowledge is essential about this. Therefore, visit places that is school, neighbours, relatives and friends house to get the information and identification of standards. Comparison of labels be filled in table given below :

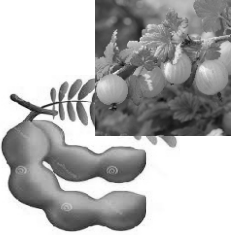
S.No.	Name of object	Brand/ mark	Quantity mark		Type of mark	Right/w rong	Mark		Mark	
			Yes	No			clear	Vague	On packet	On bottle
1	2	3	4		5	6	7		8	9
1	Wheat									
2	Flour									
3	Salt									
4	Turmeric									
5	Coriander powder									
6	Chilli powder									
7	Butter									
8	Ghee									
9	Oil									
10	Pickle									
11	Sharbat									
12	Jam									
13	Biscuit									
14	Bulb									
15	Other									

(II) Prepare a Label :

A small scale industry run by your family at home and preparing following products :

(i) Spices (ii) honey (iii) ghee (iv) papad (v) soap (vi) vadi (vii) pickle.

Prepare label any one as per instructions mentioned in chapters. Sample of label is portrayed below.

 <p>NALINI KESH KANTI for Long Hairs</p> <p>Amla-Reetha</p> <p>Made in India</p>	<p>Kesh Kanti Reetha Hair cleaner</p> <p>: Ingredient : Amla, Reetha, Shikakai, Bhrungraj, Heena, Neem.</p> <p>: Instruction : Reduces hair loss.</p> <p>: How to apply : Take 2-3 drops and apply on wet hairs and rinse with water</p> <p>: Net volume : 5.5 ml</p> <p>: Expiry date : Best before 2-3 months of packing</p> <p>: Packing : 6/10/2012</p> <p>: Address : ABC Pvt. Ltd. Jaipur (Rajasthan)</p>
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