

HEALTH AND PHYSICAL EDUCATION

Dr. Sunil Sen



Centre for Distance and Online Education (CDOE)

Himachal Pradesh University, Shimla-171005

Paper XVII

HEALTH AND PHYSICAL EDUCATION

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Paper XVII

HEALTH AND PHYSICAL EDUCATION

Course objectives:

Marks: 50 (40 + 10)

To enable the learners to;

- Understand concept of health, hygiene and health education.
- Differentiate between communicable and non-communicable diseases.
- Understand the objectives of school health services.
- Understand the concept and importance of physical education.
- Understand the concept and importance of tournaments.
- Apply various methods of fixture to organize tournaments.
- Develop skills in marking grounds for different games.
- Organize sports events in schools in future.

INSTRUCTIONS FOR THE PAPER SETTER AND CANDIDATES

The question paper will consist of three sections; A, B and C. Section A will consist of 4 short answer type questions (2 marks each) which will cover the entire syllabus uniformly and carry 8 marks. Section B and Section C will have two long answer type questions from the respective unite 1 and 2 of syllabus and will carry 16 marks each.

Candidates are required to attempt one question each from the section B and section C of the question paper and entire Section A. Answer to short question should be completed in around 80to 100 words each. Answer to long questions should be completed in around 800 words.

Unit-I Health and Health Education

Definition of Health, Health Education, Health Instruction, Health Supervision, Aim, Objectives and Principles of Health Education

Unit -2 Health Services and Personal Hygiene

Health Services and guidance instruction in personal hygiene

Unit -3 Communicable and Non-Communicable Diseases

Communicable and Non-Communicable Diseases; Obesity, Malnutrition, Adulteration in food, Environmental sanitation; Personal and Environmental Hygiene for schools

Unit -4 School Health Services

Objective of school health services, Role of health education in schools; Health Services- Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthy school environment, first - aid and emergency care.

Unit -5 Physical Education

Meaning, Definition and Scope of Physical Education, Importance of Physical Education in present era, Misconception about Physical Education

Unit -6 Aims and Objectives of Physical Education

Aims and Objectives of Physical Education

Unit -7 Tournaments

Importance of Tournament, Types of Tournament and its organization: structure- knock -out Tournaments, league of Round Robin Tournaments, Combinations Tournament and challenge Tournament

Unit -8 Organization structure of an Athletic Meet

Organization structure of an Athletic Meet

Activity (Any one of the following):

Mark a sports ground and Prepare a report mentioning dimensions, rules, regulations and specification of any one of the following games.

1	Volley Ball	2	Badminton
3	Kabaddi	4	Table Tennis
5	Kho-Kho	6	Basket ball
7	Wrestling	8	Hockey

UNIT 1

HEALTH AND HEALTH EDUCATION

STRUCTURE

- 1.0 INTRODUCTION
- 1.1 LEARNING OBJECTIVES
- 1.2 DEFINITIONS OF HEALTH
- 1.3 HEALTH EDUCATION
- 1.4 HEALTH INSTRUCTIONS
- 1.5 HEALTH SUPERVISION
- 1.6 AIM AND OBJECTIVES OF HEALTH EDUCATION
- 1.7 PRINCIPLES OF HEALTH EDUCATION
- 1.8 SUMMARY
- 1.9 GLOSSARY
- 1.10 ANSWER TO SELF-CHECK EXERCISES
- 1.11 REFERENCES AND SUGGESTED READINGS
- 1.12 TERMINAL QUESTIONS

1.0 INTRODUCTION

Dear Learners, in this unit an attempt has been made to explain the concept of health, health education, health instruction, health supervision, aim, objectives and principles of health education. In modern times, due to scientific, technological and industrial advancement, the busyness and complexity in life is increased. Due to paucity of time, today's human being is becoming indifferent towards health. Man is a social animal, health is considered to be the backbone of human society. To make democracy successful, it is necessary to have good health and strong citizens. An unhealthy body creates obstacles in every sphere of life of a human being. That's why a healthy body has a special role. Good health is of great importance to every person. Now question arises in the mind that what is health?

The dictionary meaning of health is freedom from disease, sound body in sound mind etc. Simply health is considered to be free from disease. A person who is free from disease, whose all parts of the body are functioning properly, is called a healthy person. But health is more than this; a person who is free from disease may not be healthy. In a broad sense, health is taken from physical, mental, intellectual and emotional well-being of any individual.

1.2 LEARNING OBJECTIVES

After going through this unit you will be able to:

- explain the meaning of health and health education.
- aims and objectives of health education.
- discuss the principles of health education.
- discuss the health instructions and health supervision.

1.3 DEFINITIONS OF HEALTH

Various dictionaries and scholars have defined health in different ways:

1. According to Oxford English Dictionary, *“Health means soundness of body or mind; that condition in which its functions are duly and efficiently discharged.”*
2. According to Webster Dictionary *“Health is the condition of being sound in body, mind or spirit, especially freedom from physical disease or pain.”*
3. According to J.F. William, *“Health is the quality of life that enables the individual to live most and serve best.”*
4. According to World Health Organization, *“Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”*

Recently this definition has been amplified and it has been added, *“Attainment of a level of health that will enable every individual to lead a socially and economically productive life.”*

5. According to Encyclopedia of Health *“Health is that state in which the individual is able to mobilize all his resources intellectual, emotional, and physical, for optimum daily living.”*

Thus, health comprise growth and development, proper functioning of each organ and system, physical strength and vigor, resistance to disease and endurance to work and absence of deformities, illness of various types. Health is not merely physical health but it also includes social, mental, moral, spiritual and emotional health.

Self- Check Exercise – 1

Q 1 W.H.O's concept of health focuses on

- a) Health as a sense of total well-being
- b) Freedom from disease
- c) Physical Health
- d) Mental Health

Q 2 “Health is the quality of life that enables the individual to live most and serve best” was given by?

- a) UNICEF
- b) J.F. William
- c) Oxford English Dictionary
- d) WHO

1.4 HEALTH EDUCATION

Anything that educates anyone in the matter of health is health education. In the past health education was concerned almost exclusively with health instructions to impart health knowledge, in the hope that such knowledge will lead to better health. But health knowledge does not necessarily lead to health. It is only when knowledge is put into practice then it becomes measures that will lead the pupils to develop not only health knowledge but also health habit. Health Education includes the knowledge about diseases, health, rest, sleep, sanitation, pollution and psychosomatic disorder. A healthy person is an asset for the society whereas an unhealthy person is a liability. To have a clear understanding about health education, we should know the views of various eminent scholars as well as educationists.

1. According to Dr. Thomas Wood, *“Health education is sum of experiences, which favorably influence habits, attitudes and knowledge, relating to individual, community and social health.”*
2. According to Sophie, *“Health Education is concerned with the health related behaviour of people.”*

3. According to R.E. Grout, *“Health education is the translation of what is known about health into desirable individual and community behaviour pattern by means of educational process.”*
4. According to Report of President’s Committee on Health Education, New York, 1973, *“Health education is a process that bridges the gap between health information and health practices. Health education motivates the person to take the information and do something with it to keep him healthier by avoiding actions that are harmful and by forming habits that are beneficial.”*
5. According to Dictionary of Education, *“Health education is the part of education which, if followed, enables us to maintain health.”*

Thus, health education consists of all those procedures that will contribute to community, national and racial health. Health education is the sum total of all those experiences which are related to health habits. All the means related to the health of the person come under health education. Health education represents all those experiences, habits, interests and knowledge that students acquire from school, playground, library, home, neighborhood and society.

Self- Check Exercise – 2

Q 1 A process that informs, motivates and helps people to adopt and maintain healthy practices and life style, and advocates environmental change is generally known as

- a) Health Supervision
- b) Health Management
- c) Health Education
- d) Health Instruction

Q 2 What kind of health education shall have ready acceptance and voluntary following in all sections of the society?

- a) Theoretically strong health education
- b) Government-sponsored health education
- c) A well charted out health education
- d) A need based health education

Q 3 What is health education?

1.5 HEALTH INSTRUCTIONS

Health instruction is that set of experiences whose goal is to provide accurate knowledge of health related things and to create healthy desires and behaviors which are very important for the individual and society. Health instruction is the organization of all experiences that are aimed to impart health knowledge and practice. Health instruction is the actual knowledge of how to work in the classroom. It is essential for the overall health of the children. Although a child learns a lot about health in school, without health instruction, his learned knowledge remains incomplete. Through health instruction, the child is made aware of all those things which encourage them to adopt healthy behavior and right attitude. The purpose of health instruction is to provide children with information about health rules and to develop healthy habits and rules of good health.

The health instructions make a direct effort to equip the child with the necessary health knowledge that will develop in him attitude and habits of health. As mere knowledge of health principles to do not necessarily lead to health practice hygiene should be taught in a practical way. Health knowledge can be inculcated through incidental instructions. Another way of teaching health is through correlation. During the study of chemistry, the subject may be CO₂, which may be made a suitable occasion to teach about the bad effects of CO₂. This way of imparting health instruction will be interesting as well as stimulating. Films regarding health practices will have a long lasting effect. Charts, diagrams and models are excellent teaching aids in health education. Emphasis should be laid on personal cleanliness, particularly care of hands, hair, eyes and ears, etc. Facts about nutrition may be simply explained to the young children while more scientific details can be given to the more grown-ups

NEED OF HEALTH INSTRUCTIONS

1. Health instructions deal with the materials by which an individual is helped to acquire health habits, learn health skills, master health knowledge, and develop health attitudes.
2. Health instructions provide knowledge regarding the structure and functioning of human body.

3. Health instructions inform us about the signs and symptoms of infectious diseases and their prevention and treatment.
4. It gives information about the vaccines to prevent these diseases and how can these diseases be prevented.
5. Health instructions provide information regarding personal hygiene.

Health instructions promote understanding of health and the observance of desirable practices, and play a meaningful role in the lives of all people. Provision of health services and creating an environment for healthful living is not sufficient without health instructions.

Guiding Principles of Health Instruction

In his book "School Health Practice", C.L. Anderson, has given the following basic principles of health instruction:

1. Emphasis is laid on the positive side of health and not on the negative aspect. It means that the aim is to build up and maintain a high level of health in each child.
2. Health is an end to be gained and not an academic subject.
3. Instruction is directed to the well or normal child. Children, temporarily below par, will be benefited by the health practices, acquired by the whole class.
4. Throughout school life, health promotion should be one of the objectives of the whole school programme.
5. Learning experience must be adapted to the physiological, psychological and social development of children.
6. Instruction must be based on the child's interests, needs, abilities and backgrounds.
7. Learning results from experiences and opportunities must be provided through participation, doing things and reacting to situations.
8. Problem solving provides the most effective learning situation but only when the problems are real and meaningful to the learners.

9. The objectives of any activity must be specified in terms of learner's outcomes and must be recognized as personal goals by the child if learning is to be effective.
10. Instructional activities must always be related to the actual experiences of the learners.
11. Learning experiences are most effective when the child sees the relationship of one experience to the whole of experience.
12. Learners should be helped in making generalizations and in applying these generalizations to various new experiences.
13. Integrated learning is most effective, and only when it becomes unified. It will be lasting. Fragmental learning and isolated facts are ineffective and soon forgotten.
14. Repetition or drill is justified when the learning must be precise and is useful as a tool or skill.
15. Each child is unique who learns at his own rate and in his own way, and thus a variety of activities and materials is essential.
16. Accompanying incidental learning always takes place and teachers should be alert for opportunities to make each learning experience yield greater returns in learning.
17. Health work in the school, cannot be fully effective unless integrated with the life of the home and the community and the forces in both, which can contribute to the child's education.

Self- Check Exercise – 3

Q 1 In the matter of health, one should always

- a) Be guided by the light of science
- b) Follow traditions and customs
- c) Act upon parental advice
- d) Believe in prevention, not cure

Q 2 Before the age of science dawned, people, in general, considered ill-health, disease, deformity and injury simply as

- a) Uninvited guests of mankind
- b) Natural calamities
- c) Result of man's misdeeds
- d) Outcome of planetary influence

1.5 HEALTH SUPERVISION

The purpose of health supervision is to ensure a healthful school environment that will keep the child free from health hazards and also stimulate in the child an appreciation for hygienic and orderly environment. This can be achieved through steps that will ensure clean and well-kept school buildings, clean and attractive compounds, neat and airy class-rooms and hygienic and healthy school procedures. Drinking water should be kept in clean vessels which are covered and from which water can be taken without causing pollution. School furniture must be carefully constructed to satisfy hygienic standards. The height of the bench should be adequate. Classrooms must be spacious and must have sufficient windows and doors to provide plenty of light and proper ventilation.

In health supervision following organs must be examined on regular interval

1. Height
2. Weight
3. Eyes
4. Nose
5. Ears
6. Teeth
7. Throat
8. Skin
9. Heart
10. Blood
11. Lungs

Self- Check Exercise – 4

Q 1 A healthful school environment, which will keep the child free from health hazards, can be ensured by

- a) Health Supervision
- b) Stress free life
- c) Pollution free environment
- d.) None of these

Q 2 What is the primary purpose of health supervision?

- a) To enforce strict rules and regulations in schools
- b) To ensure a healthful school environment and stimulate appreciation for hygiene
- c) To provide entertainment to students
- d) To promote individualism among students

1.6 AIM AND OBJECTIVES OF HEALTH EDUCATION

The aim of health education is to make the life of every individual healthy by developing complete physical, mental and social health. Following are the objectives of health education.

1. **To provide information about health and hygiene:** It means at acquainting the pupils and the teachers with the functioning of the body, the rules of health and hygiene and the precautionary measures for warding off diseases. It is to be brought to the notice of the pupils how bad habits, unhygienic ways of living, addiction to smoking and liquor and such unhealthy practices result in evil consequences.
2. **To maintain norms of good health:** It helps the school authorities to keep certain norms or standards of health in the school. A number of programmes of physical health develop in the pupils along with adequate habits of hygienic living. The school authorities provide hygienic environment in the form of adequate ventilation, proper temperature, good sanitation and all-round cleanliness.
3. **To take curative measures:** Remedial action against disease is also taken. A physic-medical check-up is made, deformities, disabilities and disease

defected, and remedial measures suggested. A good number of pupils suffer from myopia. An eye-examination reveals the extent of shortsightedness. If glasses are not used in time, myopia will increase rapidly. Some pupils have bad teeth. If they suffer from pyorrhea, immediate medical treatment is needed. Astigmatism, bronchitis, diphtheria, dyspepsia epilepsy, influenza, measles, mumps, tonsillitis, whooping cough and rickets are some common diseases of young children. It is the responsibility of the school to detect these and to provide adequate medical treatment.

4. **To develop and promote mental and emotional health:** In the school health programme mental and emotional health is equally important, along with physical health. While physical health make a pupil physically fit, mental and emotional health enables him to maintain an even temper and a happy disposition.
5. **To develop a sense of civic responsibility among pupils:** There is little sense of civic responsibility in our students. They generally fail in their duty to help their fellow students in particular and other persons, in general. They do not come to the aid of others in time of need and alleviate their sufferings. Thus, one of the objectives of health education, is to cultivate a sense of civic responsibility. Through health education, pupils are to be made conscious of social crimes, like spitting anywhere and everywhere, sneezing and coughing on the faces of others and not isolating themselves when suffering from infectious or contagious diseases. Health education aims at teaching pupils to accept and apply democratic principles, relating to health matters at home, in school and in the community. Health education contributes to the life of the community through the development of health educated citizens, who know the advantages and necessity of supporting health measures, for the common good.

According to the Central Board of Secondary Education: following are the objectives of health education:

1. To understand the health related problems carefully and overcome them.
2. To take interest in adopting innovative methods for the development of health.

3. To develop scientific knowledge in the students so that health related nature can be formed in them.
4. To impart personal and social health knowledge to the students.

According to Turner: The following are the objectives of health education:

1. To maintain a healthy environment in the school.
2. To maintain the health knowledge and attitude among the students in the school.
3. To take measures to protect children from infectious diseases in school.
4. To check the physical diseases in the school and suggest ways to remove them.
5. To develop cooperation for achieving good health in school, at home and in society.

According to Anderson: following are the objectives of health education:

1. To give health related instructions to the students in the school.
2. To know and prevent all kinds of diseases and defects.
3. To develop interest and aptitudes towards good health in the students.
4. To check the health of each student and explain the health needs.
5. To organize special health programs for the students.
6. To tell the importance of cleanliness of the environment.
7. To provide ability for social health and social adaptation.

The ultimate aim of all health teaching is the achievement of the finest of individual living. It aims at creating such a quality of life which enables an individual to live most and to serve best.

Self- Check Exercise – 5

Q 1 What is the main objective of health education

- a) To promote optimal health throughout the life span
- b) To promote mental health
- c) To promote physical health

d.) To educate about various disease

Q 2 In terms of a realistic approach towards health, the most prestigious function of health education is to

- a) Make the disease disappear from the face of the earth
- b) Educate every man about the matters concerning life style
- c) Create proper conditions for a healthful living
- d.) Strike at the roots of ignorance, misconceptions, prides and prejudices about human health

Q 3. According to the Central Board of Secondary Education, which of the following is an objective of health education?

- a) To ignore health-related problems
- b) To avoid adopting innovative methods for health development
- c) To develop scientific knowledge in students for health-related issues
- d) To neglect personal and social health knowledge among students

1.7 PRINCIPLES OF HEALTH EDUCATION

In view of what has been understood so far about health education we can evolve a few working principles.

1. **Suitable Programme:** The programmes of health education should be according to the interest, attitude, required health status and environment of children, so that they could get proper knowledge, and could implement and acquired knowledge effectively in their day to day life.
2. **Practical Knowledge:** It has been observed that practical knowledge is more beneficial. So, such programmes of health education should be launched, in which more and more children may participate personally. Everyone should get the opportunity to participate in health education programme.
3. **For Parents also:** The programmes of health education should not be limited to schools, but these programmes should be made available for parents, so that they could also pay proper attention to their wards, regarding health care.
4. **For Community:** The programmes related to health should be educative interesting and recreational. In these programmes, people will have keen

interest. If such type of education is imparted in such a way then it has a beneficial effect in the minds of people, who will be health conscious.

5. **Constructive:** The programmes of health should be constructive keeping in view the physical, mental, social and spiritual condition of students.
6. **Catering Individual Differences:** Every child has some specific trait. So, there should be such programmes of health education in which every child could grasp something.
7. **For Development Level:** Health education programmes should be prepared according to the age and sex of the people.
8. **Simple Method:** The method of imparting health education should be clear and simple.
9. **Through Audio Visual Aids:** Health education should be imparted through films, maps, charts and photographs.
10. **Creating Good Habits:** Good habits of children should always be appreciated so that children could mend their ways.

Self- Check Exercise – 6

Q 1 According to the principles of health education, what type of knowledge is deemed most beneficial?

- a) Theoretical knowledge
- b) Historical knowledge
- c) Practical knowledge
- d) Cultural knowledge

Q 2 According to the principles of health education, what aspects of students should be considered while planning programs?

- a) Physical and mental condition only
- b) Physical, mental, social, and spiritual conditions
- c) Academic performance only
- d) Family background only

Q3 How should the method of imparting health education be?

- a) Complex and convoluted
- b) Clear and simple
- c) Lengthy and detailed
- d) Abstract and theoretical

1.8 SUMMARY

In this unit we discussed Health, Health Education, Aim, Objectives and Principles of Health Education. Health is defined as encompassing physical, mental, intellectual, and emotional well-being, extending beyond the absence of disease to include overall vitality and social harmony. Health education involves imparting knowledge and promoting behaviors that enhance individual and community health, covering topics like hygiene, nutrition, and disease prevention. Health instruction focuses on structured teaching of health-related concepts to foster healthy habits and informed decision-making. Health supervision ensures a healthy environment in settings like schools through regular health monitoring and maintenance of hygienic standards. The aim of health education is to promote complete physical, mental, and social well-being, achieved through objectives such as providing health information, maintaining health norms, and promoting civic responsibility. Principles guiding health education include suitability of programs to individual's needs, practical learning experiences, involvement of parents and communities, and simplicity in educational methods, supported by audiovisual aids to enhance comprehension and application of health knowledge.

1.9 GLOSSARY

- **Health:** The state encompassing physical, mental, intellectual, and emotional well-being, extending beyond the absence of disease.
- **Health Education:** The process of imparting knowledge and promoting behaviors that enhance individual and community health, encompassing topics like hygiene, nutrition, and disease prevention.
- **Health Instruction:** Structured teaching of health-related concepts aimed at fostering healthy habits and informed decision-making among individuals.

- **Health Supervision:** Ensuring a healthy environment, particularly in settings like schools, through regular health monitoring and maintenance of hygienic standards.
- **Aim of Health Education:** To promote complete physical, mental, and social well-being among individuals and communities.

1.10 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 1

Answer 1 a) Health as a sense of total well-being.

Answer 2 b) J.F. William

Self- Check Exercise – 2 Answers

Answer 1 c) Health Education

Answer 2 d) A need based health education

Answer 3- Anything that educates anyone in the matter of health is health education. Health education consists of all those procedures that will contribute to community, national and racial health. Health education is the sum total of all those experiences which are related to health habits. All the means related to the health of the person come under health education. Health education represents all those experiences, habits, interests and knowledge that students acquire from school, playground, library, home, neighborhood and society.

Self- Check Exercise – 3

Answer 1 a) Be guided by the light of science

Answer 2 b) Natural calamities

Self- Check Exercise – 4

Answer 1 a) Health Supervision

Answer 2 b) To ensure a healthful school environment and stimulate appreciation for hygiene

Self- Check Exercise – 5

Answer 1 a) To promote optimal health throughout the life span

Answer 2 d.) Strike at the roots of ignorance, misconceptions, prides and prejudices about human health.

Answer 3 c) To develop scientific knowledge in students for health-related issues.

Self- Check Exercise – 6

Answer 1 c) Practical knowledge

Answer 2 b) Physical, mental, social, and spiritual conditions.

Answer 3 b) Clear and simple

1.11 REFERENCES AND SUGGESTED READINGS

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1.12 TERMINAL QUESTIONS

- What is the concept of Health? Explain meaning and definition of Health Education.
- What is the importance of health education in our life?
- Describe principles of Health Education.

UNIT - 2

HEALTH SERVICES AND PERSONAL HYGIENE

Structure

2.0	INTRODUCTION
2.1	LEARNING OBJECTIVES
2.3	HEALTH SERVICES AND GUIDANCE INSTRUCTION IN PERSONAL HYGIENE
2.4	SUMMARY
2.5	GLOSSARY
2.6	ANSWER TO SELF-CHECK EXERCISES
2.7	REFERENCES AND SUGGESTED READINGS
2.8	TERMINAL QUESTIONS

2.0 INTRODUCTION

Dear Learners, in this unit an attempt has been made to explain the Health Services and guidance instruction in personal hygiene. The term "Hygiene," derived from the Greek word "Hygienos," which means healthful or full of health, has evolved to encompass the art of living in modern times. It emphasizes the importance of maintaining cleanliness and safety in both personal and social contexts. A healthy body is crucial for a healthy mind, necessitating not only nutritious food but also diligent personal hygiene. The cleanliness of one's body, clothes, and immediate environment plays a significant role in preventing diseases and promoting overall well-being. Every individual's physical hygiene contributes to the cleanliness and health of society at large. Therefore, maintaining cleanliness through habits such as skin, mouth, eye, nose, ear, hair, and stomach care is essential for staying healthy and preventing illnesses. Starting these habits early in childhood ensures a lifetime of good health practices.

2.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- explain the meaning and importance of personal hygiene .
- discuss the health services
- discuss the objectives and role of school health services.

2.3 HEALTH SERVICES AND GUIDANCE INSTRUCTION IN PERSONAL HYGIENE

The word 'Hygiene' is derived from the Greek word Hygienos. It means 'Healthful' or full of health but in Greek Hygiene is also called 'Hygia', which means goddess of health but in modern times it means way of life or Art of living. It is true that a healthy mind resides in a healthy body. To keep the body completely healthy, it is not only necessary to have nutritious food, but it is also necessary to take care of health because the cleanliness and safety of the external organs of the body is as important as the social health of the individual society and a group of individuals constitute a society. The cleanliness of the individual is considered the cleanliness of the society. Therefore, to stay healthy, every person should pay more attention to his physical hygiene. A person can remain healthy only if he keeps his body, clothes and place where he resides clean.

Every person is aware of the importance of health and therefore every person wants to be healthy. Only a healthy person can enjoy life. Only a healthy person can complete all the tasks of life well and quickly. A physically healthy person remains mentally healthy and can perform mental tasks well. To maintain health and avoid illness, physical hygiene is of special importance. A physically clean person is free from many types of diseases. Keeping this fact in mind, we should always take care of cleanliness in our life. Children should inculcate the habit of cleanliness from the very beginning. We should take care of the cleanliness of the whole body for our health. Cleanliness of the body can be achieved mainly by maintaining cleanliness of skin, mouth, eyes, nose, ears, hair and stomach. A brief introduction of the cleanliness of these parts of the body and its measures is given below:

SKIN HYGIENE

Skin covers the whole body, protects organs and helps to maintain body temperature. Skin also helps to bring out the body's dirt through sweat. Skin is a natural barrier against abrasion, chemicals, and pathogens. Proper skin hygiene is the best way to keep your skin healthy. Removing dead cells, dirt and microbes from the surface of the skin is key to good hygiene. In a defective skin, the sweat glands get blocked and as a result, sores, boils and acne develop. The sweat keeps coming out through the sweat pores made in our skin. Sweat gets dried on the skin by air,

due to which our skin becomes dirty. If the skin remains dirty in this way for a long time, then the pores formed in the skin start closing due to which sweating stops from the body. If sweating stops, then the body can be harmed in many ways. Many types of skin diseases can also occur due to dirty skin. Due to the dirt of the skin, the body and clothes of the person start to smell bad. Keeping all these things in mind, it can be said that the cleanliness of the skin is very important for the person. Bathing is the main measure of skin hygiene. The skin can be kept clean by bathing. While taking a bath, the whole body should be cleaned by rubbing. Bathing is of great importance. It keeps the mind happy and the body remains energetic. We should inculcate the habit of taking bath regularly from the very beginning. So take bath every day using soap and clean water to keep your skin clean. Skin hygiene can be maintained in many ways.

1. Remove daily dirt and grime by washing with mild soaps and cleansers. For effective hand washing, be sure to wash at least 10-15 seconds. Avoid harsh scrubbing actions.
2. Choose skin cleansers that contain moisturizers and emollients with mild-surface active agents and that are not overly acidic or alkaline
3. Avoid harsh soaps and detergents because they can remove skin oils and fats, and strip protective layers.
4. Use lukewarm water to wash your hands. Using hot water can overdry and damage skin.
5. Be sure to rinse your skin well after washing.
6. Dry your hands and skin thoroughly. Pat skin dry: Do not rub.
7. Select skin care products carefully. Many over-the-counter lotions and creams have fragrances or preservatives that can irritate your skin or worsen your allergy symptoms.
8. Neem can also be used as a natural alternative to cleanse the skin. One method is to rub the body with neem paste, letting it dry, and then having a bath. Another way is to soak some neem leaves in water overnight and have bath with this water. This keeps the skin clean of most harmful bacteria. A pinch of turmeric can also be added to the water to bring vibrancy to the body.

ORAL HYGIENE

Oral hygiene has special importance in physical hygiene and health. The main parts of the mouth are the teeth. Apart from the teeth, the tongue and throat also come in the mouth. Teeth cleaning is the most essential and important thing. We chew our food with our teeth. Well-chewed food gets digested quickly. If the teeth are not cleaned regularly, then tooth decay starts to occur. This is harmful in many ways. First of all, it produces a foul smell in the mouth. Apart from this, many types of bacteria arise due to tooth decay which is harmful for our digestion and health. If tooth decay is not stopped, then the enamel of the teeth gets damaged and after some time the teeth start breaking. If our teeth are broken, then the mouth feels unsightly, as well as we have to face the problem of chewing food, which adversely affects our health. So it is clear that dental hygiene is absolutely necessary. Teeth and oral hygiene can be maintained in many ways.

1. Practice good oral hygiene. Brush teeth thoroughly twice a day and floss daily between the teeth to remove dental plaque.
2. Gently brush your teeth on all sides with a soft-bristle brush and fluoride toothpaste. Replace your toothbrush every 3 to 4 months.
3. Use small circular motions and short back-and-forth strokes.
4. Brush carefully and gently along your gum line.
5. Lightly brush your tongue or use a tongue scraper to help keep your mouth clean.
6. Clean between your teeth with dental floss. This removes plaque and leftover food that a toothbrush can't reach.
7. Drink fluoridated water and brush with fluoride toothpaste.
8. Visit your dentist at least once a year, even if you have no natural teeth or have dentures.
9. Do not use any tobacco products. If you smoke, quit.
10. Limit alcoholic drinks.

11. If you have diabetes, work to maintain control of the disease. This will decrease risk for other complications, including gum disease. Treating gum disease may help lower your blood sugar level.

12. See your doctor or a dentist if you have sudden changes in taste and smell.

NAILS HYGIENE

The cleanliness of the nails is also taken care of in physical hygiene. Nails are on the tip of the fingers. We do all our work by hand. Cooking and eating food is also done by hands. Therefore, it is essential to keep the hands, especially the nails, clean. If the nails are enlarged and dirty, then damage can occur in many ways. Enlarged nails get dirty. The germs of various diseases start growing in this filth. When we take food, these germs also go into our mouth along with the food. Therefore, nails should not be allowed to grow normally. Nails must be cut once a week. Brush under them with a nail brush or washcloth to rinse away buildup, dirt, and germs. Nails should be cut with scissors or nail cutters only. Tidying your nails helps you prevent spreading germs into your mouth and other body openings. You should also avoid biting your nails. Some people bite nails with their teeth. This is a bad habit. Many fashionable women keep their nails extended. It is a very important suggestion for such women that they should take special care of cleaning the nails; otherwise there may be adverse effects on health. Trim your nails regularly to keep them short and clean.

HAIR HYGIENE

Under physical hygiene, it is also necessary to take care of the cleanliness of the hair. Hair enhances the beauty of women. Apart from enhancing beauty, hair also protects various parts of our body. The hair follicles from which the hair grows produce oil from the sebaceous glands that keeps the hair smooth. The scalp (the skin covering the head) also has numerous sweat glands and is a surface for the accumulation of dead skin cells. The oil, sweat and dead cells all add together and can make the hair greasy and look dirty unless you wash it regularly.

Poor hair hygiene could cause dandruff and skin infection. Dandruff is dead skin on the scalp that comes off in tiny flakes when sebaceous glands produce too

much oil and accumulates on the scalp. To keep the hair clean we can follow the following:

1. Use clean water to wash your hair regularly with body soap or shampoo, whichever is available.
2. Massage your scalp well. This will remove dead skin cells, excess oil and dirt.
3. For washing hair, only those soaps should be used which contain least soda. Soaps containing excess soda damage the hair roots and cause hair breakage. Apart from soap, hair can also be washed with curd, amla, reetha, or multani mitti.
4. Rinse well with clear water.
5. Conditioner is helpful if you have longer hair as it makes the hair smoother and easier to comb, but hair doesn't need to have conditioner.
6. Use a wide toothed comb for wet hair as it is easier to pull through.
7. Dry the hair and the head with a clean towel. Never share a towel with someone else.
8. Comb the hair to look beautiful for the day

EARS HYGIENE

Hygiene of ears is very essential. Ear is a sense organ because we hear things through ears. Good hearing keeps one in active touch with people and events, whereas poor hearing makes an individual dull and can lead to serious emotional disturbance. The ear is a delicate organ easily prone to injury. Students must learn the precautions to be taken to protect the ear in sports, specifically in swimming and diving. Do not put pins, needles or any sharp thing into the ears. Do not expose ears to loud noise, avoid hitting on ears don't put hydrogen peroxide in child's ear. Don't neglect cough or cold. Learn the early signs of deafness. Treat the illness early. If there is discharge or pain in ear, a doctor must be consulted. Ear hygiene can be maintained in following ways.

1. Clean your ears with extra care. Don't clean your ears with anything smaller than a washcloth on your finger. Don't use bobby pins or sharp pointed

objects to clean your ears. These objects may injure the ear canal or eardrum.

2. Earwax is the ear's way of cleaning itself. If you have a build-up of earwax that is blocking your hearing, see a healthcare provider to have it removed. Don't try to remove it on your own.
3. If you experience itching or pain in your ears, call your healthcare provider. They'll examine you, advise you on suitable treatment and help you decide if you need to see a specialist.
4. If you have pierced ears, clean your earrings and earlobes regularly with rubbing alcohol.

NOSE AND THROAT HYGIENE

Nose is another important sense organ responsible for giving the idea of smell, should be kept clean. It is through nose that one breathes and if nose gets stuffed, or disturbed we start breathing through mouth, in such case our respiratory system gets disturbed which can lead to serious lung diseases. Nose should therefore be kept clean, if some problem is experienced in this sense organ, a doctor must be consulted accordingly.

Throat is also a vital organ of the body. It is connected with other sense organs like ear; nose, tongue etc. if it is not kept clean may cause serious disorders. If there is some complaint, one should take medical advice.

The discharges from the nose should be removed frequently.

1. Clean the nose daily.
2. Should not apply pressure to remove dry materials from the nose. It can be removed by wet cloth or cotton.
3. Protect the nose from entry of any foreign particles.

EYE HYGIENE

The human eye is a sensory organ that reacts to visible light and allows us to use visual information for various purposes including seeing things, keeping our balance, and maintaining circadian rhythm.

Eye is a very important part of our body. With our eyes we see the outside world. Eyes are very delicate organs. It is essential to take proper care of them. If the eyes are not kept clean continuously, then various diseases can occur in the eyes. Eyes start hurting when they are dirty. For eye hygiene we can follow the following:

1. Include more green vegetables and fruits in diet: Following a healthy diet, rich with fresh fruits, raw green vegetables, will benefit your body to be fit as well as your eyes to be strong and sharp.
2. Adequate sleep: Like our body, eyes too require adequate sleep and rest at night, so that it can function properly without being puffy, red and tired.
3. Maintain proper hygiene: Wash your hands properly before rubbing your eyes or even touching your eyes. Those who wear contact lens should strictly follow the hygiene instructions to avoid allergies and infections in eyes.
4. Regular eye check-up: It is highly recommended that you visit your eye specialist, at least in a six months interval to make sure that your eyes are fit and perfect, just like any other part of your body. Visiting your eye specialist at regular intervals also help you to diagnose any problem related to your eyes, at the initial phase itself, like myopia or cataract.
5. Quit smoking and liquor: Research show that smoking leads to damage of eye muscles and tiny blood vessels, thus increasing the risks of age-related macular degeneration (AMD), glaucoma, diabetic retinopathy, dry eye syndrome, and other conditions.
6. Wear sun glasses while in the sun: Sunlight is essential but not too much of it. During dry hot days, avoid going out in the sun or look directly to strong sunrays. Good quality sun shades and protective eye wear can help to protect your eyes from external agents like strong light, UV rays, flashes etc.
7. Exercise regularly: Regular exercise not only keeps your body fit but also makes your eyes healthy by pumping more blood and oxygen to your eyes.
8. Rest your eyes while at work: Majority of office jobs require constant and direct glaring at the computer screen, making it difficult for your eyes. Make

sure to take a break, every twenty minutes. Just close your eyes or get some fresh air.

9. Keep a safe distance from electronic screens: Adults are exposed to computer screens at work place while kids are glued to TV screen at home, leading to eye problems. Make sure that your TV is kept at a maximum distance while viewing.

CLEANLINESS OF CLOTHES

Clothing is materials we used to cover the body. They are made from cotton, wool, leather etc. For physical hygiene, while on the one hand it is necessary to keep the various parts of the body clean, at the same time it is necessary to take care of the cleanliness of the clothes worn on the body.

Special care should be taken that the clothes are clean. Never wear dirty clothes. Wearing dirty clothes has an adverse effect on physical health. Apart from this, it is also a fact that no one likes a person wearing dirty clothes and does not want to sit next to him. By wearing clean clothes, the mind of the person remains happy and the person also remains fit. How to keep our clothes clean?

1. By washing with soap or detergent powder and clean water.
2. By spreading them to dry.
3. White clothes should be separated from the coloured clothes and washed separately.
4. Bleach can be used to remove stains from white clothes.
5. Clothes should be ironed after washing and drying to keep germs away.

Therefore, one must develop good habit of keeping personal hygiene up to the mark. Good habits are formed during childhood which last longer. If bad habits are nipped in the bud, it would be very beneficial in the long run for the individual as well as community. As Dr. Fielden said, "Life is like a house, give it good foundation and it shall give you good service for as long as you want it" So if we develop good habits in child to keep him healthy, he will help the society to give his best.

Self- Check Exercise – 7

Q 1 What does the word "Hygiene" means?

- a) Unhealthy
- b) Healthful or full of health
- c) Illness
- d) Unhygienic

Q 2 Why is physical hygiene important?

- a) It doesn't affect overall health
- b) It only affects social health
- c) It is essential for maintaining health and avoiding illness
- d) It only affects mental health

Q3 What is emphasized as important for maintaining health in the text?

- a) Eating junk food regularly
- b) Ignoring personal hygiene
- c) Paying attention to physical hygiene
- d) Exercising irregularly

2.4 SUMMARY

Health services encompass a broad spectrum of initiatives aimed at promoting individual and community well-being. This includes guidance and instruction in personal hygiene, which is crucial for maintaining physical health and preventing diseases. Personal hygiene practices, such as proper care of the skin, mouth, eyes, nose, ears, hair, and stomach, are essential for overall health. These practices not only contribute to individual cleanliness but also impact the health of the broader society. Effective health services provide education on hygiene practices from childhood onward, ensuring that individuals are equipped with the knowledge and habits necessary to lead healthy lives and contribute positively to their communities' health.

2.5 GLOSSARY

- **Hygiene:** Derived from the Greek word "Hygienos," meaning "Healthful" or "full of health." In Greek, it also refers to "Hygia," the goddess of health. In modern terms, it signifies a way of life or the art of living, focusing on practices to maintain health and prevent illness.

- **Physical Hygiene:** Practices that help maintain the cleanliness of the body and prevent disease, including skin, oral, nail, hair, ear, nose, throat, and eye hygiene.

2.6 ANSWER TO SELF-CHECK EXERCISE

Self- Check Exercise – 7

Answer 1 b) Healthful or full of health

Answer 2 c) It is essential for maintaining health and avoiding illness.

Answer 3 c) Paying attention to physical hygiene

2.7 REFERENCES AND SUGGESTED READINGS

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2.8 TERMINAL QUESTIONS

- How to take care of skin, ear, hair and teeth.
- What do you mean by personal hygiene? How do care teeth and eyes?
- What is healthful living and personal care? Write in detail.
- What do you mean by the term “Hygiene”? Highlight its importance in one’s life.
- Throw light on the basic principles of personal hygiene.

UNIT - 3

COMMUNICABLE AND NON-COMMUNICABLE DISEASES

STRUCTURE

3.0	INTRODUCTION
3.1	LEARNING OBJECTIVES
3.2	COMMUNICABLE AND NON COMMUNICABLE DISEASES
3.3	OBESITY
3.4	MALNUTRITION
3.5	ADULTERATION IN FOOD
3.6	ENVIRONMENTAL SANITATION; PERSONAL AND ENVIRONMENTAL HYGIENE FOR SCHOOL
3.7	SUMMARY
3.8	GLOSSARY
3.9	ANSWER TO SELF-CHECK EXERCISES
3.10	REFERENCES AND SUGGESTED READINGS
3.11	TERMINAL QUESTIONS

3.0 INTRODUCTION

Dear Learners, in this unit we will discuss about communicable and non-communicable diseases, obesity, malnutrition, adulteration in food, environmental sanitation; personal and environmental hygiene for school. Understanding these health topics is essential for all. Educating students on these issues promotes healthy lifestyles, prevents diseases, and ensures a safe and clean learning environment, fostering overall well-being and academic success.

3.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- Explain the meaning of communicable & non communicable diseases.
- Understand sign & symptom, mode of transportation, prevention and treatment of communicable diseases.
- Explain the obesity, causes of obesity.
- Understand the malnutrition and adulteration of food.

3.2 COMMUNICABLE AND NON COMMUNICABLE DISEASES

A disease is a sickness that occur when there is an upset or breakdown in the way the body usually functions. Most diseases make one feel sick or like something is not quite right with the body, but some diseases upset places in the body that one

cannot really feel, like blood, or one's internal organs. Symptoms are the changes that one can see or feel when one has a disease. Coughing can be a symptom of having a cold. People recover from some diseases in a short time. Others last a long time. Some leave permanent damage, other diseases can cause death.

In ancient time, people were not sufficiently aware of disease. Hippocrates the Father of Medicine was the first physician of Greece, who described the symptoms of diseases in detail. After a long gap, Robert Koch, a German scientist, studied the various causes of diseases and concluded that diseases spread through germs. Since then medical scientists are engaged in research work but we are still often attacked by new diseases.

Meaning of Communicable Diseases

A communicable disease is a disease that spreads from one person or animal to another through a variety of ways that include: contact with blood and bodily fluids; breathing in an airborne virus; or by being bitten by an insect. Communicable diseases are caused by germs or worms or parasites. These diseases resulting from infection capable of being directly or indirectly transmitted from man to man, animal to animal from the environment like through air, dust, soil, water, food etc. to man and to animal. Communicable diseases are also called as "infectious" or "transmissible" diseases.

There are many communicable diseases like AIDS, small pox, measles, malaria, cholera, tuberculosis, typhoid, rabies and tetanus etc.

Meaning of Non Communicable Diseases:

In these diseases there is no germ of any kind and they cannot spread from a patient to another person by contact or by any other method, i.e. they are non-transmissible. Examples, diabetes, colour blindness, heart attack, beriberi, etc.

Modes of Transmission of Communicable Disease

1. **Air:** Air is a very vital carrier of communicable diseases. When an individual breathes, coughs or sneezes, he sprays out certain infected droplets in air. These infected droplets enter the body of a healthy person, when he breathes air, Sometimes while breathing; we inhale some infected dust

particles. Influenza, cough, cold, tuberculosis, small-pox and measles, etc. usually spread through air.

2. **Direct Contact:** Kissing, body contact and shake hands etc. are included under the direct contact category. Sexually Transmitted Diseases, syphilis and scabies etc. are such diseases that are usually spread through direct contact.
3. **Indirect Contact:** A healthy individual catches a communicable disease when he comes in contact with the clothes, books, handkerchief and furniture like, chair, table and stationary of a person suffering from a communicable disease. Small-pox, scabies, ring-worm etc. spread through indirect contact.
4. **Food and Drinks:** Communicable disease also spread through food and drinks. When a healthy person takes food that had come in contact with the person suffering from infectious disease, germs enter in his body and he falls ill. The germs of tuberculosis present in the milk, cause tuberculosis. Flies usually sit on the sputum of a patient and also on the food. These flies make the food infected. The diseases, caused by infected food and drinks are cholera, dysentery, typhoid and tuberculosis, etc.
5. **Insects:** Some insects are the main carries of germs. Mosquitoes, bugs, lice suck the blood of a patient. The germs stick to their trunks or strings. When the same insect bites a healthy person, the germs are left in his body and infect the body. Among the diseases, caused by small living creatures are cholera, diarrhea, plaque, malaria, and typhoid, etc.
6. **Skin:** When there are some cuts on the skin from spade, blade or knife germs may enter into cuts and cause disease like tetanus.
7. **Parents:** Some communicable diseases like tuberculosis and diabetes spread by parents if they are having the germs of such diseases. These diseases are inherited in the offspring through the genes of parents.
8. **Genital Organs:** AIDS spread through genital organs. When a partner, having the germs of such diseases, has sex with a healthy partner, he/she infects the other partner.

9. **Dirty Hands:** Dirty hands may also cause infectious diseases. Polio-mellitus and dysentery spread through dirty hands. Children who do not clean their hands properly are infected by germs of such diseases, which may enter in their bodies and make them ill.
10. **Disease Carriers:** Some persons having the germs of diseases pass them to other healthy persons who may fall ill. The person who pass there germs to others are called carriers. Typhoid usually spreads through carriers.

Common Symptoms of Communicable diseases

Every Communicable disease has some specific symptom but some of the symptoms are common in all like:

- There is rise in temperature. It is because of the toxin produced by the germs.
- Shivering is one symptom. The patient feels cold before and during the rise of temperature.
- Pain in various parts of the body. Headache, nausea or vomiting and sore throat are very common symptoms.
- Rise in temperature is followed by rashes on the skin.

Incubation Period:

It is the interval from the time the germs enter the body and the appearance of actual symptoms. The length of this period differs in case of different diseases usually the period is from one day to several days. During this period the germs settle down, multiply and produce their poison. But in this period, the patient generally, does not communicate the disease to other.

Prevention and Control of Communicable diseases:

It is very important that the spread of infectious diseases be checked and controlled immediately; otherwise the health of entire local community can be in danger. The following steps may be taken for their control:

- 1) **Notification (Information to Authorities):** The local authorities should at once be contacted and informed of the occurrence of any case of infectious disease. Then health authorities will take immediate steps to check the spread of that disease in the community by notifying its consequence,

symptoms and preventive measures at public places. This information is essential in case of diseases like cholera, small pox, malaria and plague.

- 2) **Isolation of the Patient:** Another important step of controlling the spread of infectious disease is the isolation of the affected person from healthy people, who come in contact with him. The patient may be isolated in a separate room, away from the members of his family. If there is no separate room in the house, the patient may be shifted to the isolated ward of a hospital. Only those persons, who attend the patient, should be allowed to go into his room. By this way, the spread of infectious disease can be checked to a great extent.
- 3) **Disinfection:** After the recovery of the patient, the clothes, bedding, utensils, and furniture etc. used by the patient, should be got disinfected and his room be fumigated.
- 4) **Good hygienic and sanitary Practices:** The next important step prevention and control of diseases is personal cleanliness. It consists of keep in all the household articles and utensils quite clean, washing hand with flush water after toilet, after handling a patient and not eating or drinking of stuff exposed to dust and flies.
- 5) **Immunization:** Immunity is a condition that protects the body from the attack of contaminating bacteria; such a condition is called immunization. There are three types of immunity: 1) Natural 2) Acquired and 3) Artificial immunity
- 6) **Segregation:** Person from the infected house must be secluded or isolated from going to school or office or in the crowd until the risk of carrying the infection with them is over.
- 7) **Quarantine:** When the diseased persons are not allowed to meet with the healthy persons, it is called the period of detention. It is applied to a person who is suspected to be suffering from a particular type of infectious disease or a bacterial carrier. The main diseases in this are as follows: - Corona, cholera, plague, flu, typhoid and smallpox etc. There is a different detention period for each disease.

- 8) **Fumigation:** It is a process by which the destruction of insects, such as fleas, mosquitoes, bedbugs and body lice and animals like rat is accomplished or completed by the employment of gaseous agents.
- 9) **National measures:** To eradicate any disease, National means are adopted to eradicate any disease from the scene. Due to national efforts, the small pox has been eradicated from India and similarly, India is trying to eradicate Polio from India by declaring Polio Free India.

Common Infectious Diseases and Treatment:

1. Smallpox

Small Pox was one of the most devastating diseases among infectious diseases known to humanity. Till some time ago, there used to be a lot of outbreak of this infectious disease in India. Every year number of people used to suffer from this disease and millions of people used to die. But now by the grace of God, due to the systematic efforts of the government, smallpox has been controlled to a great extent in our country.

Causes: Smallpox is caused by the ***Variola Virus***, a member of the orthopoxvirus family. Its germs are given off in the breath, excretions and scabs from the skin floating in the air.

Incubation Period: The incubation period of small pox is 10 to 14 days.

Signs and Symptoms:

- As soon as the germs of smallpox become active in the body, the person gets high fever. There is pain all over the body and the patient feels fatigue and severe back pain, and less often, abdominal pain and vomiting
- As soon as the symptoms of smallpox appear, the eyes become red and a lot of restlessness is felt.
- After 2 to 3 days the virus produces a characteristic rash with bumps. First of all reddish rash appears on the face, these rash gradually come out on the hands, feet, stomach and all over the body.

- Smallpox eruptions are red in color in the beginning. Gradually they swell and fill with a kind of fluid which gradually turns into pus. This fierce outbreak of eruptions lasts for about a week.
- After a week, the outbreak of smallpox starts decreasing. Fever also subsides and the eruptions gradually dry up. But there is unbearable pain, itching and burning in the body. Sometimes swelling also occurs in the body.
- After this, the pus of smallpox grains starts drying up and the eruptions become like scabs which later dry up and fall off. By getting this crust from the whole body, the patient becomes healthy. The patient would be able to recover only after the scab came off from the whole body.

Precautions to avoid smallpox- It is true that smallpox cannot be cured, but measures can be taken to avoid this disease. If adequate measures are taken to avoid this disease, then this infectious disease can be prevented from spreading. The following measures can be taken to avoid smallpox and prevent it from spreading:

- The patient of smallpox should be kept completely isolated; other persons should not be exposed to it.
- A good doctor should be consulted as soon as the symptoms of smallpox appear. Get the patient admitted to the hospital.
- The utensils and other items used by the smallpox patient must be kept separate and should be sterilized.
- The excreta, urine, sputum and vomit etc. of the smallpox patient should be kept separate and put some strong disinfectant in it. Either bury it in the ground or burn it.
- The scabs coming off the patient's eruptions should be collected carefully and destroy it by burn.
- The attendant of the patient should already be vaccinated against smallpox. The attendant should also avoid contact with other people.
- To avoid the disease of smallpox, one must get the smallpox vaccine. Efforts should be made that every person gets the smallpox vaccine on time.

Treatment of smallpox:

Normally no medicine is given to diagnose smallpox. This disease ends on its own. But by some remedies, the severity of this disease can be avoided and other problems caused by the disease can be reduced. It is essential to keep smallpox patient separate from all types. He should be given all facilities. There should not be much light in the patient's room, because the light causes glare in the eyes, which has a bad effect on the eyesight. Boiled water should be given to drink and light food should be given. The patient should be treated sympathetically. The patient should be advised not to scratch the rash. Use greasy substance for removing scab. Use boric lotion for reducing pain in the eyes.

2. Measles

Measles is a highly contagious, serious disease caused by a virus. Before the introduction of measles vaccine in 1963 and widespread vaccination, major epidemics occurred approximately every 2–3 years and measles caused millions of deaths each year. Measles is a human disease and is not known to occur in animals.

Causes: Measles is caused by a virus in the paramyxovirus family and it is normally passed through direct contact and through the air. The virus infects the respiratory tract, and then spreads throughout the body.

Incubation Period: The incubation period of measles is 10 to 14 days.

Signs and Symptoms:

- The first sign of measles is usually a high fever for few days.
- A runny nose, a cough, red and watery eyes, and small white spots inside the cheeks can develop in the initial stage.
- After several days, a rash erupts, usually on the face and upper neck. Over about 3 days, the rash spreads, eventually reaching the hands and feet. The rash lasts for 5 to 6 days, and then fades. On average, the rash occurs 14 days after exposure to the virus (within a range of 7 to 18 days).

Most measles-related deaths are caused by complications associated with the disease. Serious complications are more common in children under the age of 5, or adults over the age of 30. The most serious complications include blindness,

encephalitis (an infection that causes brain swelling), severe diarrhea and related dehydration, ear infections, or severe respiratory infections such as pneumonia. Severe measles is more likely among poorly nourished young children, especially those with insufficient vitamin A, or whose immune systems have been weakened by HIV/AIDS or other diseases.

Precautions:

- Routine measles vaccination for children combined with mass immunization campaigns in countries with high case and death rates are key public health strategies to reduce global measles deaths.
- Quarantine the child if exposed to infection.
- Parents should be instructed to educate how to prevent or control the measles.
- The local authorities should at once be contacted and informed of the occurrence of disease.

Treatment:

No specific antiviral treatment exists for measles virus. Severe complications from measles can be reduced through supportive care that ensures good nutrition, adequate fluid intake and treatment of dehydration with WHO-recommended oral rehydration solution. This solution replaces fluids and other essential elements that are lost through diarrhea or vomiting. Antibiotics should be prescribed to treat eye and ear infections, and pneumonia.

All children diagnosed with measles should receive two doses of vitamin A supplements, given 24 hours apart. This treatment restores low vitamin A levels during measles that occur even in well-nourished children and can help prevent eye damage and blindness. Vitamin A supplements have also been shown to reduce the number of measles deaths.

3. Cholera

Cholera is an acute gastro-intestinal infection usually spread through contaminated water. Cholera causes severe diarrhea and dehydration. Left

untreated, cholera can be fatal within hours, even in previously healthy people. It affects all age group.

Causes: The disease is caused by bacteria called '**Vibrio cholera**'. It spreads through contaminated drinking water, by flies, insects and improper storage. It also spreads from infected patients to others.

Incubation Period: The incubation period is generally ranging from few hours to 5 days.

Signs and Symptoms: Most people with cholera have no symptoms at all or mild to moderate ones. According to the Centers for Disease Control and Prevention (CDC), only around 10 percent of people with cholera have severe symptoms. Symptoms of cholera may include:

- sudden onset of diarrhea
- nausea
- vomiting
- mild to severe dehydration

The dehydration associated with cholera is often severe and can cause signs and symptoms such as:

- tiredness
- moodiness
- sunken eyes
- dry mouth
- shriveled skin
- extreme thirst
- reduced urine output
- irregular heart rate
- low blood pressure

Dehydration may cause the loss of minerals in your blood, which can result in an electrolyte imbalance. The first symptom of an electrolyte imbalance is severe muscle cramps. An electrolyte imbalance can eventually lead to shock.

Precautions:

- Wash your hands often.
- Drink boiled water.
- Treat your water with a chlorine product or bleach, if you cannot boil it.
- Avoid dairy.
- Avoid raw shellfish and most other raw foods.
- Only eat raw fruits and vegetables you can peel yourself.
- Vegetables and fruits should be washed in a dilute solution of potassium permanganate.
- Avoid eating outside the home during epidemic.
- Do not keep eatables open to flies.
- Keep the drains neat and clean by using disinfectants.
- Avoid over ripe, rotten or cut fruits.
- If you still develop severe diarrhea see a doctor.

Treatment:

Common methods for treating cholera include:

- Oral rehydration salts, which are mixed with water
- Other electrolyte solutions
- Intravenous (IV) fluid rehydration
- Antibiotics
- Zinc supplements

These treatments add to the liquid in the body and rehydrate it. They also help reduce the length of time you have diarrhea.

4. Tuberculosis

Tuberculosis (TB) is a potentially serious infectious disease that mainly affects the lungs. The bacteria that cause tuberculosis are spread from person to person through tiny droplets released into the air via coughs and sneezes. It is common in men in comparison to women in India. It is caused by “Tubercle Bacillus” also known as “kock bacillus” because Robert Kock identified it in 1882. Bacillus can creep into the body in two ways i.e. man to man and animals to men. This disease is

caused by lack of fresh air, improper ventilation, malnutrition, infected eatables and drinks, lack of rest and sleep, heredity and early marriage.

Cause: Tuberculosis (TB) is caused by a bacterium called ***Mycobacterium tuberculosis***. The bacteria usually attack the lungs, but TB bacteria can attack any part of the body such as the kidney, spine, and brain. Tuberculosis may spread from person to person through microscopic droplets released into the air. When people with TB cough, sneeze or spit, they propel the TB germs into the air. A person needs to inhale only a few of these germs to become infected. People infected with TB bacteria have a 5–10% lifetime risk of falling ill with TB. Those with compromised immune systems, such as people living with HIV, malnutrition or diabetes, or people who use tobacco, have a higher risk of falling ill.

Incubation Period: The incubation period may be a week, a month or a year.

Sign and Symptoms:

- Persistent cough with or without blood.
- High fever.
- Pain in the chest and throat.
- Fast breathing and pulse rate.
- Blood with sputum in advanced case.
- Loss of appetite, loss of weight.
- Diarrhea.

Precaution and Treatment

- Balanced diet should be taken.
- Rooms should be hygienic and properly ventilated.
- The children should avoid playing industry areas.
- By giving B.C.G. vaccination to a child from birth to 19 years of age.
- The patient should not indulge in hard work.
- The patient should go out for morning and evening walk regularly.
- The patient should be saved from ultra violet rays.
- Completely boiled milk should be taken.

- The patient should take medicine at least for 1 to 1 ½ years. Usually patients take incomplete treatment because they feel better after three months; hence they usually left the medicine and are not cured completely.

5. Whooping Cough

Whooping cough, also called pertussis, is a serious respiratory infection caused by a type of bacteria called *Bordetella pertussis*. The infection causes violent, uncontrollable coughing that can make it difficult to breathe. Whooping cough can affect people at any age; it can be deadly for infants and young children.

Causes: Whooping cough is caused by a type of bacteria called ***Bordetella Pertussis***. When an infected person coughs or sneezes, tiny germ-laden droplets are sprayed into the air and breathed into the lungs of anyone who happens to be nearby.

Incubation Period: The incubation period of this disease is from 6 to 18 days.

Sign and Symptoms:

- Onset is sudden cold and in the beginning simple mild cough with fever.
- Severe running of nose and sneezing.
- Later sever bouts of coughing and that will become more severe at late night ending in deep inspiration during which the characteristic whoop occurs.
- Face turns red and eyes bulges with tears and ends with vomiting.
- Lungs severely affected.

Treatment and Prevention

- Keep the child in a warm and ventilated room.
- Keep the infected child in a separate room.
- Discharges from nose and throat should be disposed immediately and disinfection should be done.
- Give light food to the infected.
- In early stage itself the child need to be immunized against whooping cough with DPT vaccine at 2nd, 3rd, 4th months, 11/2 and 5years.
- As a treatment, erythromycin may be injected in consultation with a physician to reduce the severity of the infection

6. AIDS

The full form of AIDS is Acquired Immune Deficiency Syndrome

A – Acquired - AIDS is acquired because it is caught from someone and is not inherited.

I – Immuno - Immune and Deficiency because the virus destroys the body's defense system and as a result the person is more likely to get illness which the body would normally be able to fight off easily.

D – Deficiency - The virus destroys the body's defense system and as a result the person is more likely to get illness which the body would normally be able to fight off easily.

S – Syndrome - Syndrome describes the different signs and symptoms of the illness that result from the HIV infections. These signs and symptoms appear as multiple infection or illness.

This disease spreads through HIV virus. This virus destroys the circulatory system. It has caused widespread alarm even in general public. More than one hundred million people have died due to AIDS, 16,000 people die daily in the world.

H-Human indicates that the HIV only infects humans.

I – Immunodeficiency indicates that HIV causes the immune system to become weak and ineffective in defending the body against the germs. In this way, HIV leads to AIDS.

V- Virus is a disease causing parasite.

Cause: AIDS is caused by an organism called **HIV**.

Mode of Transmission:

- Multiple sexual partners.
- Blood Transfusion.
- Drug addiction and indiscriminate use of infected syringes.
- Use of infected blade or razor.
- Homosexual relations.
- Kissing.

Signs and Symptoms:

- Fever and perspiration.
- Dysentery or chronic diarrhea.
- Weight loss, approximately 10%
- Persistent cough.
- Centralized itching of skin.
- Generalized enlargement of glands.
- Chronic repeated infection if not relieved by any treatment.

Preventive Measures

- Heterosexual relations, except husband and wife, should be avoided.
- Homo-sexual relations should be avoided.
- Disposable syringes should be used for injections.
- For blood transfusion, blood should have been tested properly.
- Any case of AIDS should be notified immediately to the health department.
- Detail knowledge about the modes of transmission of AIDS should be given through mass media.

7. Malaria

Malaria is a life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes. It is preventable and curable. It spreads in rainy season because most of the ditches are filled up with water where mosquitoes lay their eggs.

Mode of Transmission: Malaria spreads from a sick person through anopheles which bites the human beings. It sucks the blood along with the malaria parasites present in the sick person. These parasites multiply in the body of anopheles. When this infected anopheles bites a healthy person, it sucks his blood and injects the malarial parasites in the blood of the healthy person. Malarial parasites multiply in the blood and in a few days he becomes sick.

Incubation Period: Incubation period is usually 10 days but it varies according to the species of malaria.

Sign & Symptoms:

- The patient suffers from high temperature.
- There is headache, cold and shivering.

- There is lot of perspiration when the patient suffers from malaria.
- There is excessive weakness.

Prevention and Treatment:

- For the preventive measures the people should use protective clothes, repellents, mosquito nets. They should use wire mesh doors to houses.
- If we want to prevent malaria, we should kill the mosquitoes. D.D.T. spray can be used for this purpose.
- Number of mosquitoes can be reduced by filling up small ditches or pits, by clearing the drains, environmental sanitation.
- For prevention tablets should be taken according to the prescription of the doctor.
- The patient should be kept warm in bed when he feels severe cold.
- Cold sponging can be performed when patient feels high temperature.
- The patient should be taken to the doctor for consultation and proper treatment.
- The patient should be given a proper rest. He should take rest in such a room, which is well ventilated and hygienic.

8. Typhoid

Typhoid is an acute infectious disease that affects the gastrointestinal tract. In countries where sanitation is poor and sub-standard, typhoid and paratyphoid may occur. The term enteric fever includes both typhoid and paratyphoid.

Causes: It causes by *Salmonella Typhii*. It spreads through faecal-oral route. Contamination of drinking water by way of sewage and food by way of flies are the main reasons for the spread of this disease. It affects almost all age category.

Incubation Period: Incubation period is 10-15 days.

Sign and Symptoms:

- Onset of sudden fever of moderate to high degree with rigors and chills.
- Fever rises in step ladder fashion.
- Malaise with headache and pain in the limbs.
- Tongue will be centrally coated
- Low pulse.

- Diarrhea occurs
- Constipation and retention of urine will occur because the germs attack intestine and cause ulcers.
- Small rose colored spots will be seen in the middle part of the body and these spots fade away later.
- If the patient has a relapse of typhoid, the same symptoms reappear.

Prevention and Treatment:

- Early detection and notification, to health authority.
- Active immunization by vaccines and inject other children with anti-typhoid injections.
- Isolation of the infected.
- Proper disinfection of urine and stools is necessary and even burning after disinfection all excreta will be the right choice.
- Boiled water and ensures safe water for drinking and administer light liquid food.
- If fever rises beyond 103 F, apply cold compression to the head.
- Complete bed rest is recommended for the infected persons.

9. Influenza (Flu)

Influenza, one of the most common infectious diseases, is a highly contagious airborne disease that occurs in seasonal epidemics and manifests as an acute febrile illness with variable degrees of systemic symptoms, ranging from mild fatigue to respiratory failure and death. Influenza is a viral infection that attacks respiratory system - nose, throat and lungs. Influenza is commonly called the flu, but it's not the same as stomach "flu" viruses that cause diarrhea and vomiting. For most people, the flu resolves on its own. But sometimes, influenza and its complications can be deadly. People at higher risk of developing flu complications include:

Causes: The flu is caused by an ***influenza virus***. Most people get the flu when they breathe in tiny airborne droplets from the coughs or sneezes of someone who has the flu. You can also catch the flu if you touch something with the virus on it, and then touch your mouth, nose, or eyes.

Incubation Period: Incubation period is about 2 days, but can range from about 1 to 4 days.

Signs and Symptoms:

- The first symptom is a fever between 102°F (39°C) and 106°F (41°C). An adult often has a lower fever than a child. Other common symptoms include:
- Body aches
- Chills
- Dizziness
- Runny nose (clear and watery)
- Sneezing
- Sore throat
- Flushed face
- Headache
- Lack of energy
- Nausea and vomiting
- Dry cough
- Some people may not feel like eating.

Prevention and Treatment:

- The best step to avoid catching or spreading the flu is to get a flu vaccine.
- Wear a mask if you leave your room.
- Avoid sharing food, utensils, cups, or bottles.
- Use hand sanitizer often during the day and always after touching your face.
- Cover your mouth with a tissue when coughing and throw it away after use.
- Cough into your sleeve if a tissue is not available. Avoid touching your eyes, nose, and mouth.

- Drink plenty of liquids. Choose water, juice and warm soups to prevent dehydration.
- Rest. Get more sleep to help your immune system fight infection. You may need to change your activity level, depending on your symptoms.
- Use of pain reliever, such as acetaminophen (Tylenol, others) or ibuprofen (Advil, Motrin IB, others), to combat the aches associated with influenza.

10. Tetanus

Tetanus is an infection caused by bacteria called *Clostridium tetani*. When the bacteria invade the body, they produce a poison (toxin) that causes painful muscle contractions. Another name for tetanus is “lockjaw”. It often causes a person’s neck and jaw muscles to lock, making it hard to open the mouth or swallow. Death results in most cases.

Causes: It is caused by the tetanus bacterium ***Clostridium tetani***. The germ enters the body through deep wounds. Any cut in the skin due to a fall on the ground can be a source of tetanus infection. The germ is frequently present in horse and cow-dung.

Incubation Period: The incubation period is from 4 days to 3 weeks.

Symptoms:

- Jaw cramping
- Sudden, involuntary muscle tightening (muscle spasms) — often in the stomach
- Painful muscle stiffness all over the body
- Trouble swallowing
- Jerking or staring (seizures)
- Headache
- Fever and sweating
- Changes in blood pressure and heart rate

Prevention and Treatment

- Vaccination and good wound care are important to help prevent tetanus infection. Doctors can also use a medicine to help prevent tetanus in cases where someone is seriously hurt and doesn't have protection from tetanus vaccines.
- Immediate treatment with medicine called human tetanus immune globulin (TIG)
- Aggressive wound care
- Drugs to control muscle spasms
- Antibiotics

Self- Check Exercise – 8

Q 1 What is a communicable disease?

- a) A disease that spreads from one person or animal to another
- b) A disease caused by non-transmissible factors
- c) A disease that affects internal organs only
- d) A disease caused by genetic factors

Q 2 Which of the following is an example of a communicable disease?

- a) Diabetes
- b) Heart attack
- c) Tuberculosis
- d) Colour blindness

Q3 What is a non-communicable disease?

- a) A disease caused by genetic factors
- b) A disease that affects only external body parts
- c) A disease that spreads through direct contact
- d) A disease that cannot spread from one person to another

Q 4 Which of the following is an example of a non-communicable disease?

- a) Tuberculosis
- b) Malaria
- c) Diabetes
- d) Cholera

Q 5 What is the incubation period of a disease?

- a) The time it takes for symptoms to appear after the germs enter the body
- b) The time it takes for the germs to multiply in the body
- c) The time it takes for the disease to spread to others
- d) The time it takes for the disease to become severe

Q 6 How can the spread of infectious diseases be controlled?

- a) By ignoring the symptoms
- b) By isolating the affected person
- c) By not notifying the authorities
- d) By avoiding personal cleanliness

3.3 OBESITY

If a person continues to eat more food than required by his body, he soon becomes over weight and bulky. The over-weight and bulkiness of a person's body due to excessive accumulation of fat in the body, is called **obesity** (or motapa). Obesity can be defined as excessive enlargement of the body's total quantity of fat. There is no biological reason for men and women to get fatter as they grow older. But now a day, obesity has been called the main health problem of modern society. Childhood obesity is also becoming more prevalent. The seriousness of this situation is underlined by a similar rise in over weight related diseases.

Causes of Obesity:

Obesity, like hypertension and anemia, is a symptom, not a disease. In majority of the cases, the cause of obesity is caloric intake of energy greater than the body requirements. An individual can gain weight by consuming more calories, but expending less energy. Therefore, it is not only heavy eaters who gain weight. The individual's caloric requirement varies widely. It is possible for a person with a low metabolic (caloric expenditure) and sedentary (declined to exercise or physical

activity) habits to gain weight with a moderate caloric intake. Prominent obesity can result from small caloric excesses over a prolonged period of time.

A number of possible biological, emotional, geographical and environmental causes of overweight have been identified. The spread of fast-food shops is an important factor, but it is more than just the availability of food that is responsible.

Following are the causes of Obesity:

- Nibbling between meals is common among housewives and is a potential cause for obesity.
- Some may eat faster taking less time for chewing therefore they tend to consume more food.
- Obese respond to external cues to eat rather than internal hunger signals. They eat when it is mealtime or when they are surrounded by tasty foods instead when they are hungry.
- Housewives who are fond of cooking variety of foods or persons who are working in the business executives who frequently attend business lunch have more chance of becoming obesity.
- Housewives who did not want leftover foods to be thrown out may consume forcibly and put on weight.
- People who eat outside home more frequently are prone to obesity.
- People who eat more junk food (high fat, high carbohydrate) may become obese.
- Certain cultural practices like making and distributing sweets on festive occasions contribute to increased calorie consumption.
- Non-inclusion of fruits and vegetables as on vegetarian diet leads to weight gain.
- People who like to eat processed concentrated and high fat food are susceptible to obesity.
- Some may eat more food when they are unhappy as a compensation mechanism.
- There is an abundance of palatable. Calorically dense food available in the market. Sophisticated marketing in the mass media, super markets and

restaurants and large portions of food served outside the home promote high calorie consumption.

Dangers due to Obesity

Obesity is a persistent health hazard. This is because a person having obesity is more likely to suffer from the diseases connected with heart and blood vessels called cardiovascular diseases like hypertension (high blood pressure); arteriosclerosis (blockage of arteries); and coronary attack (heart attack). Let us discuss this in detail. It has been found that obese persons (fat persons) usually have more cholesterol in their blood. Cholesterol is a fatty substance which deposits in the blood arteries of the obese person. Due to the deposition of cholesterol, the passage of arteries becomes narrow and causes obstruction to the normal flow of blood through them. This restricted flow of blood through the arteries of an obese person leads to diseases like hypertension, arteriosclerosis and coronary attack and may even prove fatal, that is, may even lead to death. These are the dangers of obesity.

Obese people (or fat people) should not take saturated fats like butter, ghee or vanaspati, because these saturated fats will increase the level of cholesterol in their blood and aggravate their cardiovascular problems. Obese people are advised to take diets containing unsaturated fats like edible oils (ground-nut oil, etc.), because these oils contain unsaturated, essential fatty acids, which are effective in lowering the cholesterol level in the blood. A well-controlled balanced diet and physical exercise can help reduce obesity

Self- Check Exercise – 9

Q 1 What is obesity?

- a) Excessive enlargement of the body's total quantity of muscle
- b) Excessive enlargement of the body's total quantity of water
- c) Excessive enlargement of the body's total quantity of fat
- d) Excessive enlargement of the body's total quantity of bone

Q 2 What is a common cause of obesity?

- a) Eating fewer calories than the body requires
- b) Exercising regularly

- c) Consuming more calories than the body requires
- d) Having a high metabolic rate

Q 3 Which of the following is NOT listed as a cause of obesity?

- a) Eating slowly and chewing food properly
- b) Consuming more junk food
- c) Eating fruits and vegetables regularly
- d) Eating outside the home frequently

Q 4 How can obesity be managed?

- a) By consuming more saturated fats
- b) By avoiding physical exercise
- c) By following a well-controlled balanced diet and engaging in physical exercise
- d) By consuming excessive amounts of junk food

3.4 MALNUTRITION

Malnutrition may be defined as a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients, which can manifest into over-nutrition or under nutrition or imbalance.

Malnutrition can also be defined as disorder nutrition, which may be due to excessive nutrition (over-nutrition) or deficient nutrition (under-nutrition). Dietary deficiency may be both qualitative and quantitative.

There are poor people in India who do not even get the basic calorie requirements of the body. They do not take protein, vitamins and minerals as required by the body. For this reason there are a large number of poor people of this country, who face nutritional deficiency and suffer from many diseases.

To understand malnutrition, we should also understand the impact of over-nutrition and under-nutrition.

Over-nutrition

Over-nutrition results from over-consumption of calories or vitamins and minerals. Toxicosis is a form of over-nutrition which is related to the over-consumption of vitamins and minerals. Obesity is a pathological condition, characterized by an accumulation of fat much more than is necessary in the body. This form of over-nutrition is more common in developed countries. Obesity which makes a person bulky and overweight may be a result of genetic, endocrine and behavioral factors.

Under-nutrition

Under-nutrition results from deficiency in one or more of the essential nutrients in the diet. Under-nutrition may be of two types general and particular. Total reduction in food-intake causes general under-nutrition. Deficiency of one or several nutrients hidden hunger is called Partial under-nutrition. Primary under-nutrition is caused due to poor dietary intake, but secondary under-nutrition results from some diseases which interfere with the normal utilization and assimilation of the nutrients. Depending upon the degree of problems faced by an individual under-nutrition may be mild, moderate, or severe. Under-nutrition is caused because of ignorance, poverty, accidents, ill-health, environmental factors and drug addiction.

Causes of Malnutrition

Following are some of the important causes of Malnutrition.

i) Consuming much food: - It is said too much of anything is bad. Similarly taking too much of food is very harmful for the system. It disturbs the digestive system and sometimes diarrhoea is caused. It may also lead to obesity. Taking less food than required is also injurious and harmful. Undernourishment may be either due to the absence of some requisite element of food or due to less quantity of food than required. If the diet fails to meet all the needs of the body, it results in malnutrition.

ii) Poverty: - Because of poverty many people in our country remain half-fed or poorly-fed. All constituents of diet are not available to them and there are few chances of changes in their diet. Unless they get good nutritious mid-day meals in school, they suffer from malnutrition.

iii) Food Fads: - There are certain situations, where if one vegetable or any such thing has done any harm to one person in the family, it is dropped from the menu altogether, for the whole family, without realizing its plus points for the other

members. Then there may be a special liking for a certain type of vegetable or eatable. This may be repeated again and again to the neglect of other nutritious items of food and this ultimately leads to malnutrition.

iv) Religious Beliefs: - Malnutrition is also caused due to religious beliefs in our country. Because of this some individuals completely give up some types of food for all times to come, and they cannot get various food values required for the body. Religious beliefs also make people vegetarian and non-vegetarian, and such individuals fail to provide the body the necessary food values. This causes malnutrition.

v) Want of Knowledge of Nutrition: - Illiterate people living in rural areas lack knowledge of nutritious and balanced diet necessary for human body. They take food according to their own sweet will, and suffer from malnutrition.

vi) High- Price of Food: - There are certain foods like butter, ghee, cheese etc., which many people don't purchase because of high-price. Absence of such food causes malnutrition.

vii) Adulterated Food: - Many food vendors of our country do not supply pure food to the people with profit-motive. They adulterate food with many harmful substances which cause malnutrition.

Indications of Malnutrition

When an individual is affected by malnutrition, this can be identified by the following symptoms.

i) Hair: - Lack of luster, easy pluckability, dry hair, and easy fall of hair while combing.

ii) Face: - The face of the people suffering from malnutrition looks dry and develops rashes etc.

iii) Eyes: - The eye of an individual is very sensitive to nutritional disorder. In cases of severe deficiency the epithelium of the conjunctiva becomes keratinized followed by excessive dryness due to insufficient secretion. The cornea in front of the eye gets inflamed and takes on a dull wrinkled appearance.

iv) Lips: - The lips and mouth of persons suffering from malnutrition are characterized by cracking, crusting and swollen lips.

v) Tongue: - Cracks appears in the tongue of such persons.

vi) Teeth: - Teeth become decayed, fall off quickly, become mottled, chalky-white or brownish discoloration of enamel etc.

vii) Gums: - Gums of such person become swollen with interdental papillae and bleeding, resulting in haemorrhage.

viii) Skin: - People suffering from malnutrition develop dryness of skin and eye. Excessive follicular hyper-keratosis causing drying of epithelial cells resulting in dermatitis and rash. These symptoms become noticeable on the back of the hands, face, scrotal and vulva regions. The skin also becomes loose, pale, cold, and rough pigmented in patches; over keratinization around hair follicles resulting in phynoderma or toad-skin.

ix) Glands: - Due to malnutrition enlargement of parotid and thyroid glands occurs.

x) Skeleton and Muscles: - Due to malnutrition abnormalities are caused in skeleton of an individual in form of enlarged wrists, bending of ribs, bending of bones as in the case of rickets and osteomalacia (softening of bones in adults). The under-fed persons suffer from muscle wasting.

xi) Nervous and Cardiac Disorders: - Under-nutrition may cause cardiac enlargement in case of some individuals. Besides this, nervous symptoms in the form of motor weakness, mental confusion and loss of sensations are found in individuals suffering from malnutrition.

Hazards of Malnutrition

Many hazards are caused to the physical, physiological, behavioural, emotional and mental well-being of individuals suffering from malnutrition. As compared to a normal individual, a malnourished individual appears to be below normal in height and such people possess low resistance to and high susceptibility for infectious diseases. There is a possibility of impairment of normal tissue functions of such individuals, especially of the intestinal tract. Low protein diet may damage the liver of such individuals. They are susceptible to injury by toxic agents. Such persons have a sub-normal body and are susceptible to cold. They may suffer from

low blood-pressure. They are also prone to diseases like dysentery, chicken pox, respiratory infections etc. Thus many different hazards are caused to the people who suffer from malnutrition due to the causes stated above.

Remedies for Malnutrition

As has been discussed above malnutrition is very dangerous. Therefore there is a need to find out the remedies to overcome this problem. The following are some of the ways by which we can overcome the problem of malnutrition.

i) Provision of Mid-day Meal: - In our country many poor students remain on empty stomach during school hours. To overcome this problem there should be provision for mid-day meal during school hours.

ii) Helping the students to lead a balanced life: - No doubt students lead an easy life. Even then they should know how to give proper place to mental work, physical activities, rest, sleep, recreation etc. They should maintain proper time in food intake. In modern times many students are addicted to drugs, and tobacco. Such habits should be controlled by the authority.

iii) Home-School Environment: - Special attention must be paid to the maintenance of home and school environment. The school environment must be very attractive for the students and meet their basic needs of life. Steps must be taken to keep the kitchen, dining room and lavatories clean.

iv) Periodic Medical Examination: - In each school there must be provision for periodic medical examination of the students. Arrangements must be made for this purpose at least once in a year. Responsibility of medical test should rest on the school medical officer and the school health educator.

v) Providing useful Knowledge about Health and Hygiene: - Malnutrition is caused due to ignorance. It is therefore necessary to provide knowledge about personal hygiene and health care to the students.

vi) Students should be Motivated to take Well-cooked, Tasty and Balanced Diet: - School teachers should encourage their students to take well-cooked, tasty and balanced diet regularly to avoid malnutrition.

For the normal growth of individuals adequate supply of nutritious food is very much essential. It is therefore necessary to promote proper food habits among the student community so as to get rid of the problems of malnutrition.

Self- Check Exercise – 10

Q 1 What is malnutrition?

- a) Excessive enlargement of the body's total quantity of muscle
- b) Excessive enlargement of the body's total quantity of water
- c) A pathological state resulting from a deficiency or excess of essential nutrients
- d) A condition characterized by an accumulation of fat in the body

Q 2 What is a cause of general under-nutrition?

- a) Over-consumption of food
- b) Poverty
- c) Religious beliefs
- d) Consuming a balanced diet

Q 3 What are some indications of malnutrition?

- a) Glossy hair and clear skin
- b) Strong teeth and healthy gums
- c) Dry hair, swollen lips, and skin dryness
- d) Perfectly healthy appearance

Q 4 What is one step to prevent malnutrition?

- a) Encouraging food fads and avoiding balanced diets
- b) Providing knowledge about personal hygiene and health care
- c) Promoting over-consumption of food
- d) Ignoring the maintenance of home and school environments

3.5 ADULTERATION IN FOOD

Everyone wants to make easy money but it should not be at the cost of the health of our country-men. But this is what exactly the people engaged in food adulteration are doing these days. Let us first see what is meant by food

adulteration. ***The deliberate contamination of food materials with low quality, cheap, non-edible or toxic substances, is called food adulteration.*** The substance which degrades (or lowers) the quality of a food material is called an adulterant. The adulterants are much cheaper than the concerned food-stuffs. So, selling adulterated food materials can bring a lot of easy money for the dishonest trader, but it may spoil many lives. Food adulteration is a very serious crime against humanity, because it can lead to slow poisoning, which can even result in death. Here is one example to show how food adulteration can ruin the health of the people. Haldi powder (Turmeric powder) is a yellow coloured substance used in cooking vegetables. It is adulterated by mixing another yellow coloured substance called lead chromate. Lead chromate, being heavy, adds a lot of weight to the haldi powder. Since lead chromate is much cheaper than pure haldi, so the dishonest trader makes a lot of unjustified money by selling haldi powder mixed with lead chromate. Let us now consider the hazards of eating this haldi which has been adulterated with lead chromate. Lead chromate is one of the most toxic (most poisonous) salts of lead. Lead chromate present in adulterated haldi powder can cause mental retardation and brain damage in children. It can also produce anaemia and paralysis. And to top it all, this lead chromate can cause abortion in women. See, how these corrupt traders are playing with the lives of innocent people!

Another example of food adulteration is of mixing a cheap and toxic 'Kesari dal' with 'Arhar dal'. Both 'Arhar dal' and 'Kesari dal' look alike but 'Kesari dal' is much cheaper than 'Arhar dal'. Now, since kesari dal is toxic, so eating arhar dal adulterated with kesari dal over a long time can cause a disease called lathyrism'. This disease causes lesions on the lower spinal segments followed by paralysis. It should be clear by now that selling adulterated food items is a grave crime against humanity. Mixing toxic lead chromate with haldi powder, and toxic kesari dal with other dals (pulses) are just some of the dishonest practices of food adulteration which have often led to serious cases of food poisoning and even deaths. Such is the lust for money of some of our traders that they even make us eat non-edible things like cow-dung, horse dung, mud, grit, soapstone, saw dust and brick powder! This is because dhania powder is adulterated by mixing cow-dung, horse-dung or starch; cereals like wheat and rice are adulterated by mixing mud, grit and soapstone, whereas chilli powder (lal mirch) is adulterated by mixing red coloured

saw dust and brick powder. Some of the common food materials of daily use and the various adulterants which are mixed with them are given in the following table.

Common Adulterants in Food Materials

Name of the food material	Name of the adulterant used
Haldi powder (Turmeric powder)	Lead chromate
Dals (Pulses)	Kesari dal, and Metanil yellow (Metanil yellow is a dye)
Cereals (Wheat and Rice)	Mud, Grit, and Soap-store
Dhania powder	Powdered Cow-Dung or Horse-Dung, and Starch
Black pepper (Kali mirch)	Dried Papaya seeds
Chilli powder (Lal mirch powder)	Saw Dust and Brick powder
Mustard seeds	Argemone seeds
Edible oil or Cooking oil (like Mustard oil)	Argemone oil and Mineral oil (which are cheaper oils)
Honey	Sugar and Jaggery
Milk	Extraction of Cream or Extraction of Fat; Addition of Water and addition of Starch

Prevention of Food Adulteration

In an attempt to prevent the adulteration of food products by dishonest traders, our Government has issued "The Prevention of Food Adulteration Acts and Rules", and "Food Products Orders". which serve the following functions:

1. This act lays down the minimum standards for the quality of foods to be manufactured.
2. This act specifies the hygienic conditions under which the food products should be manufactured.
3. This act requires that the date of manufacture as well as the date of expiry of the food product should be indicated on the tin or wrapper of the food packet.
4. The weight or volume of food contents must be indicated.
5. The retail price of the food product must be indicated.

6. This act also lays down the punishment for the various offences of food adulteration.

Many times we have seen the symbols F.P.O.; Agmark and I.S.I., on the packets or containers of various food items bought from the market. F.P.O. stands for Food Products Orders; Agmark stands for Agricultural Marketing, and I.S.I. stands for Indian Standards Institution. Actually, a team of experts of The Bureau of Indian Standards inspects the food processing factories and food products manufactured there, and those manufacturers whose products satisfy all the required conditions are given the certificates of using the F.P.O. mark, Agmark, or I.S.I. mark on their products, which are, in fact, the certificates of reliability about the food products. The F.P.O. mark on the bottles of squashes, soups and other ready-to-eat canned food testify to the purity and quality of food. Similarly, the 'I.S.I.' mark or Agmark' certificates indicate the purity and quality of various food products like edible oils, butter, ghee, powdered milk, spices, etc. We should buy only those food products which carry the F.P.O. mark, Agmark, or I.S.I. symbols, because these symbols (or certificates) testify to the high purity and good quality of the food product. The I.S.I. mark and Agmark standards for various food-stuffs are, in general, somewhat superior to the F.P.O. standards. Any food product which does not satisfy the minimum standards of quality and purity as lay down by F.P.O., Agmark and I.S.I. specifications, is adulterated and the manufacturer and seller of such food products are liable to prosecution and punishment under the law.

Every big city has a food-testing laboratory. The Health Department of the City Corporation takes samples of various food products like oils, pulses, spices, etc., from different shops periodically. These samples are tested in the food testing laboratories for adulteration, if any. The manufacturers and sellers of the adulterated food-stuffs are then prosecuted in a court of law.

Tests to Detect Adulteration in Food

Since food adulteration is a serious matter and concerns us all, so we should know how to detect adulteration in the commonly used food items like butter, ghee, edible oil, pulses and milk. This is discussed below.

i. To detect the presence of Vanaspati in Ghee or Butter

Vanaspati means cooking fat like Dalda or Rath whereas the term 'Ghee' used here stands for "Desi Ghee". Now, vanaspati is much cheaper than ghee or butter so vanaspati is used to adulterate ghee or butter which are much more expensive. The presence of vanaspati in ghee or butter can be tested as follows:

We take a tea-spoon full of ghee (or butter) sample to be tested in a test-tube and warming the test-tube. An equal amount of concentrated hydrochloric acid (HCl), and a pinch of common sugar is then added. Shake the test-tube for about one minute to mix and then keep it aside for five minutes. After five minutes, observe the colour of the lower layer. Appearance of a deep red colour (crimson colour) in the lower layer shows the presence of vanaspati in ghee or butter. In other words, appearance of a deep red colour in the lower layer indicates that the ghee or butter has been adulterated by mixing vanaspati.

ii. To Detect the Presence of Argemone Oil in Edible Oil

The presence of vanaspati in ghee or butter is not harmful to our body because vanaspati is not a toxic substance (poisonous substance), though it is an economic loss to the buyer. Because the buyer pays the high price of pure ghee or butter whereas he actually gets some vanaspati also in it. But the adulteration of edible oil like mustard oil with argemone oil is not like that. Argemone oil is a highly toxic substance which can cause a disease called "dropsy". We can test the presence of argemone oil in edible oil as follows. Please note that edible oil means cooking oil.

We take the edible oil sample (to be tested) in a test-tube and add some concentrated nitric acid (HNO_3) to it. Shake the test-tube carefully and observe the colour of the acid layer (which is the lower layer). Appearance of a red or reddish-brown colour in the acid layer shows the presence of argemone oil in the edible oil.

iii. To Detect the Presence of Metanil Yellow in Dal

Metanil yellow is a dye having toxic effects. The presence of metanil yellow in dal like arhar can be tested as follows: We take about 5 grams of dal (to be tested) in a test tube and then add about 5 milliliters of water. Shake the test tube well. Then add a few drops of concentrated hydrochloric acid (HCl) to the test tube. Appearance of a pink colour in the solution shows the presence of metanil yellow in dal

iv. To Detect the Presence of Water in Milk

Mixing water with milk but charging the price of pure milk is an age-old practice. There is a famous joke about it. Once a milk-man came to a house very late in the morning. When the house-wife asked why he was late, the milk-man replied "Madam, it's not my fault; actually the water supply came late!"

The presence of water in milk can be detected by the following two tests:

A. Viscosity Test. When pure milk is adulterated by mixing water, then its viscosity decreases, that is, it becomes very thin and flows easily on a surface. This fact can be used in testing the presence of water in milk, as follows: We put a drop of the milk sample (to be tested) on a glass plate and hold the glass plate vertically.

- (i) If the drop of milk either keeps sticking to the glass plate or flows down slowly, behind a white trail, then the milk sample is pure.
- (ii) If the milk drop runs down quickly on the glass plate, leaving behind no white trail, then the milk has been diluted with water.

B. Density Test. The flowing drop test cannot be applied to test the purity of skimmed milk (the milk from which cream has been removed). A device called lactometer is used to test the purity of skimmed milk. The lactometer is a long glass tube having a thin top and a bulb containing mercury at the bottom. It measures the relative density of a liquid. The lactometer tube has markings of relative density values. When the lactometer is put in the liquid, it starts floating in the liquid, a part of lactometer tube remaining above the liquid level. The relative density value on the lactometer tube in level with the surface of liquid, gives the relative density of the liquid.

The relative density of pure milk is 1.026. Now, water is lighter than pure milk, so if water is mixed in pure milk the density of milk decreases and this can be detected by using a lactometer. In order to test the presence of water in milk, the lactometer is made to float in a sample of the milk (to be tested). If the lactometer shows a reading of 1.026, then the milk is pure. And if the lactometer reading is less than 1.026, then the milk is adulterated with water.

Self- Check Exercise – 11

Q 1 What is food adulteration?

- a) Enhancing the nutritional value of food
- b) Deliberate contamination of food with low quality or toxic substances
- c) Improving the taste of food
- d) Ensuring food safety standards

Q 2 Which substance is commonly mixed with haldi powder (Turmeric powder) as an adulterant?

- a) Argemone seeds
- b) Kesari dal
- c) Lead chromate
- d) Metanil yellow

Q 3 What act aims to prevent the adulteration of food products by dishonest traders?

- a) Prevention of Food Adulteration Act
- b) Food Safety and Standards Act
- c) Consumer Protection Act
- d) Agricultural Marketing Act

Q 4 What is the main motivation behind food adulteration according to the passage?

- a) Ensuring food safety standards
- b) Improving public health
- c) Making easy money at the expense of health
- d) Supporting local farmers

3.6 ENVIRONMENTAL SANITATION; PERSONAL AND ENVIRONMENTAL HYGIENE FOR SCHOOL:

Concept of Environment: Environment etymologically means surrounding. It is the sum total of external factors. Substances and conditions, which influence organism

without becoming their intrinsic part. Because of its being a complex of various components, environment is also referred to as environmental complex. Environment is usually divided into two parts, physical and social environment or biotic environment.

(a) Physical environment: The physical environment consists of forces of nature like wind and gravity conditions like temperature and light time and non-living materials like soil and water.

(b) Social or biotic environment: The social environment is made of all living beings including their reactions, interactions and interrelated actions. Any constituent or condition of the environment, which affects directly or indirectly the form of functioning of the organism in any specific way is called environmental or ecological factor.

Environment around us aims at providing better health. It should be free from various germs, bacteria and chemicals. This will help the individuals possess better health.

Environmental Sanitation: Environmental sanitation means the art and science of applying sanitary, biological and physical science principles and knowledge to improve and control the environment and factors therein for the protection of the health and welfare of the public.

Environmental Hygiene is a group of activities that aims to protect people from dangerous conditions arising from unsanitary shelters, air supplies or bodily nourishment center. These conditions include unsanitary water supplies, waste disposal systems, food sources and temporary or permanent housing structures.

The environmental hygiene is important for the prevention of transmission of infectious diseases within healthcare settings. Environmental hygiene encompasses effective cleaning of surfaces using appropriate products, decontamination of medical equipment and devices used in patient care procedures, safe and appropriate handling of sharps, blood and body fluid spills, waste and liner.

Importance of school hygiene and sanitation

School children spend about one third of their time either in schools or doing school assignments, during which time they may be exposed to a variety of physical, social and psychological harm. Schools provide an ideal opportunity to detect poor hygiene practice by children.

The provision of school hygiene and sanitation ensures the rights of students to acceptable hygiene practices, safe water supply, latrines and a healthy school environment in general. The impact could have further beneficial effects, for example:

- Healthy environments facilitate more effective learning.
- Opportunities for students to gain life-long positive hygiene behaviours.
- Opportunities for increased school enrolment, retention and attendance for girls.

COMPONENTS OF SCHOOL HYGIENE AND SANITATION

Health-related policies in schools

All schools should be aware of the importance of school hygiene and sanitation for their students. Promotion of hygiene, organising hygiene/health clubs, having a clean school compound and supervising classrooms for their cleanliness are some of the items that require the attention of the school authorities. The implementation of policy statements must take into account the availability of human resources and materials.

Promoting Hygiene

Teaching students about health focuses mainly on the dissemination of hygiene information aimed at changing or modifying their behaviour. Health information is usually incorporated within various school subjects such as science, biology, home economics and physical education. However, teaching aimed at changing the behaviour of students is not part of the traditional education system. There are ways to fill this gap. Setting up and supporting health or hygiene clubs in schools, and the effective involvement of the Health Post, are important.

Healthy school environment

The physical and aesthetic values of the school environment and physical buildings need to satisfy the physical, physiological and psychological development of students. The important aspects of a safe and healthful school environment are:

- Adequate classroom space to avoid crowding.
- Classrooms with adequate daylight and ventilation.
- Classrooms that protect students' vision through the appropriate distance between the blackboard and the first line of seats.
- Dimensions of desks and chairs that match the students' physical development.
- The location of the school should be free from any potential physical and chemical hazards (e.g. free from noise and air pollution).
- Playing areas for physical exercise.

Provision of drinking water

Many students may walk hours to get to school. The provision of safe water for drinking and personal hygiene is important and there needs to be adequate facilities in proportion to the number of students. Low-cost water fountains and water taps arranged in a water trough design are acceptable for schools. They should be mounted at the appropriate height from the ground surface to match the height of the students. Water must be available throughout the school day. A water storage tank may be necessary to provide water reserves and satisfy the demand at peak hours. The wastewater that results because of hand washing must be drained to a seepage or soak pit, or ditch.

Provision of Toilets

The provision of toilets is also extremely important. In addition, separate toilets for girls and boys need to be provided to encourage girls to continue their education.

School toilets should meet the following requirements:

- They must be located away from the classroom in order to avoid interfering with the students' learning process. They must be reasonably accessible.

- They must be well-maintained and agreeable to use. They should provide privacy and security.
- There must be hand washing facilities near the toilets. Hand washing with soap after using the toilets and before lunch must be encouraged.
- There should be separate toilets for male and female students. Toilets for teachers must be separated as well.
- Toilets should be hygienic to use and easy to clean. Students themselves should participate in daily cleaning of the toilets. The hygiene/health club should take the leading role in the maintenance and cleanliness of toilets.

Provision of solid waste management facilities

Discarded paper and cartons are the usual type of waste at schools. There could also be chemical wastes from school laboratories. Schools should have the following facilities:

- Waste bins/buckets in each classroom and teacher's office. Waste bins may be placed in the school compound where deemed necessary (around corridors, playgrounds).
- Waste disposal pit at an appropriate location; a local incinerator can be used if the amount of school solid waste is significant.

Classroom sanitation

The cleanliness of the classroom is vital for a good learning process. Students should be involved in the maintenance of classroom cleanliness on a daily basis. The floor of the classroom should be smooth to reduce dust. Dust and cracks in the floor must be avoided because these are good hiding sites for biting animals such as the chigger (also known as the chigger red bug or harvest mite).

Self- Check Exercise – 12

Q 1 Which of the following is NOT a component of environmental hygiene?

- a) Provision of safe drinking water
- b) Proper solid waste management
- c) Promotion of unhealthy behaviors
- d) Maintenance of clean classrooms

Q 2 Why is the provision of school hygiene and sanitation important?

- a) To discourage students from attending school
- b) To protect students from dangerous conditions and promote effective learning
- c) To increase noise and air pollution in school environments
- d) To reduce school enrollment, retention, and attendance for girls

Q 3 Which component of a healthy school environment ensures adequate daylight and ventilation in classrooms?

- a) Provision of drinking water
- b) Classroom sanitation
- c) Healthy school environment
- d) Promotion of hygiene

Q 4 What is an important aspect of solid waste management in schools?

- a) Discarding waste in nearby water bodies
- b) Burning waste openly in the school compound
- c) Encouraging students to participate in waste disposal
- d) Leaving waste bins empty to prevent odor

3.7 SUMMARY

Educating students about health topics is vital for promoting lifelong wellness. Understanding the difference between communicable diseases, which spread from person to person, and non-communicable diseases, which are not infectious, helps in preventing and managing these conditions. Addressing obesity and malnutrition emphasizes the importance of balanced diets and physical activity. Awareness of food adulteration protects against harmful substances in food. Environmental sanitation ensures clean surroundings, reducing the risk of disease. Finally, personal and environmental hygiene practices maintain cleanliness and health, creating a safe school environment conducive to learning and growth.

3.8 GLOSSARY

- **Disease:** A sickness that occurs when there is a disruption in normal body functions, which may result in noticeable symptoms or affect internal organs.
- **Communicable Disease:** An infectious disease that spreads from person to person, animal to person, or through the environment (e.g., AIDS, malaria, tuberculosis).
- **Non-Communicable Disease:** A non-infectious disease that does not spread from person to person (e.g., diabetes, heart attack, color blindness).
- **Incubation Period:** The time between exposure to the disease-causing agent and the appearance of symptoms.
- **Notification:** Informing local authorities about cases of infectious diseases to enable prompt public health measures.
- **Isolation:** Keeping an infected person away from healthy individuals to prevent disease spread.
- **Quarantine:** Restricting the movement of individuals who may have been exposed to a contagious disease to prevent its spread.

3.9 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 8

Answer 1 a) A disease that spreads from one person or animal to another.

Answer 2 c) Tuberculosis.

Answer 3 d) A disease that cannot spread from one person to another.

Answer 4 c) Diabetes.

Answer 5 a) The time it takes for symptoms to appear after the germs enter the body

Answer 6 b) By isolating the affected person.

Self- Check Exercise – 9

Answer 1 c) Excessive enlargement of the body's total quantity of fat

Answer 2 c) Consuming more calories than the body requires

Answer 3 c) Eating fruits and vegetables regularly

Answer 4 c) By following a well-controlled balanced diet and engaging in physical exercise

Self- Check Exercise – 10

Answer 1 c) A pathological state resulting from a deficiency or excess of essential nutrients

Answer 2 b) Poverty

Answer 3 c) Dry hair, swollen lips, and skin dryness

Answer 4 b) Providing knowledge about personal hygiene and health care.

Self- Check Exercise – 11

Answer 1 b) Deliberate contamination of food with low quality or toxic substances

Answer 2 c) Lead chromate

Answer 3 a) Prevention of Food Adulteration Act

Answer 4 c) Making easy money at the expense of health

Self- Check Exercise – 12

Answer 1 c) Promotion of unhealthy behaviors

Answer 2 b) To protect students from dangerous conditions and promote effective learning

Answer 3 c) Healthy school environment

Answer 4 c) Encouraging students to participate in waste disposal

3.10 REFERENCES AND SUGGESTED READINGS

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3.11 TERMINAL QUESTIONS

- Why knowledge of Communicable and Non-Communicable Diseases is must for students.
- What are communicable diseases and write mode of transmission, prevention and sanitation of communicable diseases.
- What is AIDS
- Write short notes on the following:
 - i) Malaria
 - ii) Tuberculosis
 - iii) Typhoid
 - iv) Small pox
- What is Obesity? How is it caused?
- How is obesity harmful to health?
- What is food adulteration?
- What is malnutrition?

UNIT – 4

SCHOOL HEALTH SERVICES

STRUCTURE

4.0	INTRODUCTION
4.1	LEARNING OBJECTIVES
4.2	SCHOOL HEALTH SERVICES
4.3	OBJECTIVES OF SCHOOL HEALTH SERVICES
4.4	ROLE OF HEALTH EDUCATION IN SCHOOL
4.5	HEALTH SERVICES
4.6	SUMMARY
4.7	GLOSSARY
4.8	ANSWER TO SELF-CHECK EXERCISES
4.9	REFERENCES AND SUGGESTED READINGS

4.0 INTRODUCTION

Dear Learners, in this unit an attempt has been made to explain the school health services, Role of health education in schools; Health Services- Care of skin, Nails, Eye health service, Nutritional service, Health appraisal, Health record, Healthy school environment, first - aid and emergency care. School health services aim to promote and protect the health and well-being of students, ensuring they are physically and mentally ready to learn. Health education plays a crucial role in schools by teaching students about healthy lifestyles, disease prevention, and personal hygiene.

4.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- understand the concept of school health services.
- understand the role of health education in school
- explain school health services.
- discuss components of school health services.

4.2 SCHOOL HEALTH SERVICES

Health services comprise the activities designed to determine the health status of an individual. Health services are an important part of any health

programme and should include health appraisal, counseling, examinations for disease and disability, protective measures of first aid, emergency care, mid-day meals, vaccinations and inoculations, and follow up procedures with remedial measures. The objective of health services is to help the individual in conserving, maintaining and improving his health. Health services also include periodical health check-ups, keeping of commutative records, and providing medical advice whenever demanded or required.

“School Health Services is the comprehensive i.e. integrated preventive, promotive, curative & rehabilitative services to the school children, the teachers & all the supportive staff & provide remedial measure & referral services when it is needed”. The school health services consist of all school activities directly concerned with the present health of students.

Self- Check Exercise – 13

Q 1 Which of the following is NOT included in school health services?

- a) Health appraisal
- b) Counseling
- c) Homework assistance
- d) Vaccinations and inoculations

Q 2 Who does school health services cater to?

- a) Only students
- b) Students, teachers, and all supportive staff
- c) Only teachers
- d) Only administrative staff

4.3 OBJECTIVES OF SCHOOL HEALTH SERVICES:

The main objectives of school health service are the prevention of illness as well as the promotion of health and well -being of the students through:

- Early detection and care of students with health problems.
- Development of healthy attitudes and healthy behaviors by students.
- Ensure a healthy environment for children at school.

- Prevention of communicable diseases at school.

Components of School Health Services

The School Health Services include:

1. Medical inspection of the students.
2. Maintaining records of medical inspection and health of the students.
3. Sending reports of the medical inspection of the students to their parents.
4. Follow up programme on the medical inspection of the students i.e. remedial steps.
5. Clinical treatment of pupils who suffer from some serious diseases.
6. Protective measures to prevent communicable diseases by timely immunization.
7. First Aid and Emergency care.
8. Provision of health guidance services.
9. Provision of mid-day meals or nutritional services.
10. Health examination of school staff.
11. Correcting medical defects among students.
12. Identification and education of the handicapped students. School health services differ from school to school depending upon the resources of the school.
13. Attending to the healthful school condition.
14. Recording of history and defects regarding special cases.

Self- Check Exercise – 14

Q 1 What is one of the main objectives of school health services?

- a) Increasing absenteeism among students
- b) Promoting academic excellence
- c) Preventing illness and promoting health and well-being
- d) Maximizing classroom disruptions

Q 2 What is the purpose of early detection and care of students with health problems?

- a) To ignore health problems until they become severe
- b) To discourage students from seeking medical help
- c) To promote timely intervention and care for health issues
- d) To increase absenteeism among students

Q 3 What role does first aid and emergency care play in school health services?

- a) Maximizing classroom disruptions
- b) Providing immediate assistance in case of injuries or emergencies
- c) Ignoring students' health issues
- d) Encouraging unhealthy behaviors among students

Q 4 What is one objective of school health services regarding school staff?

- a) Providing mid-day meals for staff
- b) Conducting regular health examinations of staff
- c) Ignoring the health of school staff
- d) Encouraging staff to ignore students' health issues

4.4 ROLE OF HEALTH EDUCATION IN SCHOOL:

Health education develops the awareness, skills, and positive attitudes of students towards health. Health education teaches physical, mental, emotional, and social health. It helps students to improve and preserve their health, avoid illness, and reduce risky behaviors. Health education curricula and training help students learn skills so that they can make healthier decisions in their lives. It is important for students as it builds their health awareness and attitudes. Health education is not just about being well. It also focuses on emotional, mental, and social wellbeing. Educating students on the value of wellness is building their inspiration. As a consequence, they aim to promote good health, prevent illness and avoid risky behavior. Instilling the value of good health in schools helps students make healthier decisions as they grow older and continue to do so in their lives.

Health Education is really important in school. It allows them to realize the risks of using illegal drugs, smoking, and consuming alcohol. It helps avoid deaths, illnesses such as obesity and diabetes, and sexually transmitted diseases. Parents and students must really understand the importance of health education in school. It instills skills, knowledge, and a positive attitude in students. The curriculum for health education in all schools and colleges must include emotional health, social health, physical health, and mental health. All of these are really important. WHO (World Health Organization) promotes school health programs as a strategic means to prevent important health risks among youth and to engage the education sector in efforts to change the educational, social, economic, and political conditions that affect risk. The Importance of Health Education must be understood by all schools. Health education is important in all schools because it:

- Make students aware of their health problems and needs.
- Promote student's lifestyles through the inculcation of correct health concepts and behavioral patterns with the ultimate objective of enabling the students to make the best possible choice for their optimum health and total well-being.
- Improve school and family environment.
- Enhance the role of students in conveying health messages to the community and in giving active support to such national health programs as their country may be launching at the time.
- Foster health and learning with all the measures at its disposal.
- Engages health and education officials, teachers, teachers' unions, students, parents, health providers, and community leaders in efforts to make the school a healthy place.
- Strives to provide a healthy environment, school health education, and school health services.
- Implements policies and practices.
- Strives to improve the health of school personnel, families, and community members as well as students.

Self- Check Exercise – 15

Q 1 What is the primary purpose of health education in schools?

- a) To promote risky behaviors among students

- b) To raise awareness about health issues and develop positive attitudes
- c) To encourage illness and disease among students
- d) To discourage students from making healthy decisions

Q 2 What is the role of health education in preventing illnesses such as obesity, diabetes, and sexually transmitted diseases?

- a) It promotes unhealthy behaviors
- b) It instills skills, knowledge, and positive attitudes in students
- c) It discourages students from seeking medical assistance
- d) It maximizes exposure to health risks

4.5 HEALTH SERVICES – Care of Skin, Nails, Eye Health Service, Nutritional Service, Health Appraisal, Health Record, Healthy School Environment, First Aid and Emergency Care:

A good health services programme should provide an educational experience for children, leading them to adopt desirable health habits in later life. The School health Services programme includes the different protective measures to maintain and improve the health of its students. Its ultimate goal is the attainment of physical, mental and emotional health of every student, up to the highest possible level. Administrative efforts should be directed towards the achievement of this goal.

The quantity of mental work depends upon the condition of our body-the human machine. If the mechanism of the complex human machine is not in order, the output cannot be according to our expectation. Therefore, the teachers should pay attention to the physical health of the pupils. The schools should establish following organized services to ensure normal and sound physical conditions of the pupils.

Programme of School Health Services:

- Medical inspection of the pupils.
- Maintaining records of medical inspection and health of the pupils.
- Dispatching reports to the parents, about the physical health of the pupils.
- Clinical treatment of pupils who suffer from some diseases.

- Paying special attention to the health conditions of the pupils, e.g., posture, skin, eyes, ears, teeth, throat, chest, feet and nervous disorders.
- Recording of history and defects regarding special cases.
- Follow-up work about medical inspection.
- Provision of mid-day meals and looking to the nutrition.
- Attending to the healthful school conditions.

Some of the most important components of School Health Services are discussed below:

1. Medical inspection: The school authorities should provide medical inspection in the school. It should be of two kinds- inspection of the school and inspection of students. It means supervising the hygienic aspects of the school, such as its building, site, ventilation, lighting, sanitation and accommodation. It also includes the supervision of curricular and co-curricular activities, organized in the school. The timetable must suit the health and hygiene of the pupils. Students must not be overloaded with work, in the school and at home. Overstrain; brain fag, eye-strain and spinal deformity must be avoided. Even the choice of paper, ink, reading material, black-board and chalk, has bearing on the health of the pupils. If the pupils do not get adequate protection of health and if they remain unhealthy they cannot derive full benefit from school.

For a full system of medical inspection, there must be a whole time or a part time doctor in every school. A complete medical examination should be conducted in the beginning of each academic year. Defects should be noted in the record sheet and brought to the notice of the class-in charge and the parents of the pupils concerned.

The doctor should pay attention to all the aspects of the physical health of the child. He should investigate into defective vision, discharge in the ears, deafness, pyorrhea in teeth, rickets, and other defects. He should advise the parents as regards the medical treatment. He should also watch the steady growth and development of the child. He may also help the teacher in maintaining healthful and hygiene. He should run the school clinic. She can also work as a health visitor, visit notified cases at home and report the same to the school doctor.

2. Teacher's duties to maintain sound health conditions: The school medical advisor should conduct medical examination occasionally. But the teacher can help by paying attention to the pupil's health. As is in intimate contact with the pupils daily, he should pay attention to all the healthful conditions as follow:

- (i) **Growth and postures:** Teacher can observe the height and weight of the pupils, and see who is under-weighted or over-weighted, who is tall and who is dwarf. Again, he can observe the posture of the pupils while sitting, standing, reading, writing and running. He can check the drooping heads, rounded shoulders and other abnormalities of posture.
- (ii) **Cleanliness:** Teacher should supervise the personal cleanliness of the pupils, i.e. the cleanliness of teeth, hands, feet, eyes, skin, the body and the dress. He should detect skin disease like ring-worm, itches, impetigo, scabies, boils, etc.
- (iii) **Care of Skin:** Teacher can develop in his students the range of practices that support skin integrity, enhance its appearance and relieve skin conditions. They can include nutrition, avoidance of excessive sun exposure and appropriate use of emollients. Skin care is a routine daily procedure in many settings, such as skin that is either too dry or too moist, and prevention of dermatitis and prevention of skin injuries.
- (iv) **Care of Nails:** Teacher can take a close look at student's fingernails to check their normality. Not all nail conditions are normal, however. Teacher can guide the students to consult doctor or dermatologist if he notice:
 - Changes in nail color, such as discoloration of the entire nail or a dark streak under the nail.
 - Changes in nail shape, such as curled nails.
 - Thinning or thickening of the nails.
 - Separation of the nail from the surrounding skin.
 - Bleeding around the nails.
 - Swelling or pain around the nails.
 - Failure of nails to grow out.
- (v) **Eye-care:** When the teacher finds that the pupil does not read or write properly, he should suspect the soundness of his eyes. There can be

numerous defects in the eyes. Some may have astigmatism and squintness. Some may have trachoma. Some may be farsighted. Some may have colour-blindness. Some pupils may have red lips or styes which cause strain. Some younger pupils feel shy of wearing glasses. They wear them when it is very late and when their eye-sight deteriorates still further.

- (vi) **Ear-care:** Attention is to be paid to ears. The slowness in response to the teacher's question may indicate defective hearing. Some pupils discharge yellow material from the ears, and some have other ear diseases.
- (vii) **Care of teeth:** Defective, weak and diseased teeth cause poor mastication, bolting of food, indigestion and digestive and digestive disorders. Dental abnormalities are due to many reasons. Some pupils have not habit of cleansing the teeth, although it costs nothing. The brush sticks are available in all the rural areas, from the branches of the trees. These contain a green material and alkaline acid to cleanse the teeth and kill the bacteria. Dental creams also can be used with profit. The pupils must be made to brush the teeth daily.

Nutritional Service: Schools can play an important role in helping students establish healthy eating behaviors, by providing:

- Nutritious and appealing foods and beverages.
- Consistent and accurate messages about good nutrition.
- Ways to learn about and practice healthy eating.

Nutrition education is a vital part of a comprehensive health education program and empowers children with knowledge and skills to make healthy food and beverage choices. Diet plays an important role in preventing chronic diseases and supporting good health; schools would ideally provide students with more hours of nutrition education instruction and engage teachers and parents in nutrition education activities.

Nutrition education can take place in the classroom, either through a stand-alone health education class or combined into other subjects including:

- Counting with pictures of fruits and vegetables.
- Learning fractions by measuring ingredients for a recipe.

- Examining how plants grow.
- Learning about cultural food traditions.

Mid-day meals: Some special arrangements should be made for a mid-day meal or milk or some other form of adequate refreshment for all children. Nothing causes ill health or physical defect more than malnutrition. Provision of proper nutrition is essential. In the words of Secondary Education Commission, “At no period of life does malnutrition play such a large part in causing ill health or in promoting defects of growth, as in the period of adolescence. Very little is being done at present in educational institutions to see to the proper nutrition of children. We recommend that in residential schools and hostels, balanced diet, suited to different ages, should be prescribed by nutrition experts and management be advised about proper standards for children’s diet.”

Health Appraisal and Record: In a class the teacher himself should maintain an accurate record of the height, weight, chest, and measurement etc. of the pupils. He should look at the child’s posture, cleanliness, hygienic conditions etc. If he sees any deformity or disease, he should report to the doctor and see that the treatment at the clinic is carried out. He should inform the parents also. In case the home is unable to give right kind of food, the school should give it. There might be some provision for this purpose in the school.

The school should maintain a record of weight, size, eye-sight, chest dimensions etc. Each child should be given a card and a duplicate copy should be kept in the register. Notice should be sent to the parent, indicating nature of the medical attention which the child requires. Parents should cooperate with the teacher and cure the diseases of the pupils. Health records should follow the pupil from grade to grade.

The co-operation between the teacher, parent and the doctor will lay a sound foundation for pupil’s physical and mental health. The cases of pupils, suffering from serious physical ailments and defects, should be referred to well-equipped hospitals for specialized treatment. Minor ailments should be treated by the school dispenser under the directions of the school medical officer.

Follow-up work: Medical service will not be effective without proper “follow up” work. Immediate action should be taken after the medical inspection, to remove

defects, discovered as a result thereof. This must be accomplished in the shortest possible time with the minimum interference with school attendance. Secondary Education Commission has remarked, “In any case, such remedial measures, as the school medical officer may suggest, should be adopted and the school authorities should see that they are carried out.”

Communicable disease control: Written and pointed instruction about the teachers’ role in communicable disease control should be given to every teacher in the school. The school authorities should collaborate with the public health officials in formulating plans for the school. Parents should also be kept informed of the school policies and procedures in this direction. Immunization procedures through vaccination are the best for the control of communicable diseases. They are very effective against small-pox, diphtheria, whooping cough and polio. Those students, who have been previously immunized, may be given booster injections. Vaccinations can be given in the school as a part of school health services or in public dispensaries. During epidemics the public health agencies or the school must provide emergency inoculations.

Healthy School Environment: Schools can serve as a great venue to encourage healthy eating and physical activity. The Centers for Disease Control and Prevention recommends schools be more proactive in creating healthier school environments. School authorities can take following steps for healthier school environment:

- Establish healthy eating and physical activity supportive environments.
- Provide a quality school meal programme.
- Implement comprehensive physical education and health education programs.
- Provide students with chronic disease prevention support services.
- Partner with families and community members in the development and implementation of healthy eating and physical activity policies, practices, and programmes.
- Provide health and wellness professional development opportunities – including recess, cafeteria, and out-of-school-time staff members.

First-Aid and Emergency Care: Sometimes unforeseen accidents and illnesses also take place in the school. The school authorities responsible for health services programme, must anticipate such emergencies and plan for them. This needs the co-operation of the school doctor, the school dispenser, the school health educator and the local official health agencies. However, in the school no treatment, except first aid, should be given in such cases. As soon as the injured child is placed in the hands of a physician, the responsibility of the school for his care is ended.

The school authorities should follow the following procedure in all emergency cases:

- Responsibility for first-aid treatment within the school;
- Arrangement of a satisfactory procedure for informing parents;
- Provision for informing and contacting medical authorities where assistance is necessary;
- Provision for satisfactory first-aid equipment;
- Recording and following up of all emergency cases, occurring in the schools; and
- Orienting all school teachers to the policy of emergency care.

Self- Check Exercise – 16

Q 1 What is the purpose of medical inspection in schools?

- a) To promote the sale of medical supplies
- b) To maintain records of student grades
- c) To identify and address health issues among students
- d) To increase the workload of teachers

Q 2 What role does the teacher play in maintaining sound health conditions among students?

- a) They conduct medical examinations occasionally
- b) They supervise the personal cleanliness of students
- c) They prescribe medications for students
- d) They ignore the health concerns of students

Q 3 What is the significance of maintaining health records for students?

- a) To increase the workload of teachers
- b) To track the growth and development of students

- c) To discourage parents from participating in their child's health
- d) To promote unhealthy behaviors among students

Q 4 What is the role of the school in providing first aid and emergency care?

- a) To administer complex medical treatments
- b) To provide immediate assistance in case of accidents or illnesses
- c) To ignore emergencies and leave students to fend for themselves
- d) To increase the risk of injuries among students

4.6 Summary

In this unit we discussed objective of school health services, Role of health education in schools, Health Services- Care of Skin, Nails, Eye Health Service, Nutritional Service, Health Appraisal, Health Record, Healthy School Environment, First Aid and Emergency Care are also discussed in this unit. School health services aim to promote student health and well-being through health education, regular health appraisals, and maintaining health records. Key components include skin and nail care, eye health services, nutritional guidance, and ensuring a healthy school environment. Health education empowers students with knowledge about healthy practices. First aid and emergency care are also essential for addressing immediate health needs and ensuring student safety.

4.7 Glossary

- **School Health Services:** Comprehensive preventive, promotive, curative, and rehabilitative services for students, teachers, and staff, including health appraisal, counseling, disease examinations, first aid, emergency care, and follow-up procedures.
- **Health Appraisal:** Regular health check-ups to assess and monitor the health status of students, aiming for early detection and intervention of health issues.
- **Counseling:** Providing guidance and support to students on health-related issues, helping them develop healthy behaviors and attitudes.

- **First Aid and Emergency Care:** Immediate assistance provided for injuries or sudden illnesses at school, ensuring quick response and proper referral to **medical facilities if necessary.**
- **Health Record:** Keeping detailed records of each student's health history, medical examinations, and any treatments received, ensuring continuous health monitoring.

4.8 Answer to Self - Check Exercise

Self- Check Exercise – 13

Answer 1 c) Homework assistance

Answer 2 b) Students, teachers, and all supportive staff

Self- Check Exercise – 14

Answer 1 c) Preventing illness and promoting health and well-being

Answer 2 c) To promote timely intervention and care for health issues

Answer 3 b) Providing immediate assistance in case of injuries or emergencies

Answer 4 b) Conducting regular health examinations of staff

Self- Check Exercise – 15

Answer 1 b) To raise awareness about health issues and develop positive attitudes

Answer 2 b) It instills skills, knowledge, and positive attitudes in students

Self- Check Exercise – 16

Answer 1 c) To identify and address health issues among students

Answer 2 b) They supervise the personal cleanliness of students

Answer 3 b) To track the growth and development of students

Answer 4 b) To provide immediate assistance in case of accidents or illnesses

4.9 References and Suggested Readings

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4.10 Terminal Questions

- Define health appraisal and elaborate its role in comprehensive school health programme.
- Describe the need and importance of health observation in school health services programmes.

UNIT- 5

PHYSICAL EDUCATION

Structure

5.0	INTRODUCTION
5.1	LEARNING OBJECTIVES
5.2	MEANING OF PHYSICAL EDUCATION
5.3	DEFINITIONS OF PHYSICAL EDUCATION
5.4	SCOPE OF PHYSICAL EDUCATION
5.5	IMPORTANCE OF PHYSICAL EDUCATION IN PRESENT ERA
5.6	MISCONCEPTIONS ABOUT PHYSICAL EDUCATION
5.7	SUMMARY
5.8	GLOSSARY
5.9	ANSWER TO SELF-CHECK EXERCISES
5.10	REFERENCES AND SUGGESTED READINGS
5.11	TERMINAL QUESTIONS

5.0 INRODUCTION

Dear learners, in this unit an attempt has been made to explain the meaning, definition, scope of physical education and importance of physical education in present era. Physical Education refers to the instruction in physical exercise and games, especially in schools, aimed at enhancing physical fitness and promoting healthy lifestyles. Physical Education promotes physical fitness, skill development, and healthy lifestyles through structured physical activities and sports. It plays a crucial role in enhancing physical and mental health, academic performance, and social skills. It often includes both theoretical and practical components. Misconceptions include it being non-academic or only for athletes, which undervalues its comprehensive benefits.

5.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- understand what is physical education
- list the importance of physical education in present era
- discuss the misconceptions about physical education

5.2 MEANING OF PHYSICAL EDUCATION

Ordinarily we consider all activities which make the body healthy and active as physical education. This interpretation however is wrong. Physical education goes beyond that. Its true scope is related to all those activities which build up human physique so that they impart knowledge of human and social behaviour and in turn help all in an all-round development. In short it means that physical education helps not only in physical development of the body but also in all round development of human personality. It is wrong therefore to consider sports as same thing as physical education: It is not. Similarly, games too do not constitute physical education, though games are part and parcel of physical education. Physical education is the education of both mind and body which help in an all-round growth of human personality.

The word physical education is derived from two separate words “physical” and “education”. The simple dictionary meaning of word physical is 'relating to body, it may relate to any one or all of the bodily characteristics. It may be physical strength, physical endurance, physical fitness, physical appearance or physical health. The word “Education” means systematic instructions or training or preparation for life of or some particular task. A combined meaning of these two words would be that systematic instruction or training which relates to physical activities or programme of activities necessary for development and maintenance of human body, development of physical powers or cultivation of physical skill.

Physical education is a part of general education. Both are complementary to each like two faces of the same coin. It involves those activities which help to achieve the goals of education. It helps in the development of both body and mind. It also helps to develop the total personality. In fact, there is no synonym of physical education. It is different from other subjects and has an important position in educational process.

Physical education helps to develop complete and balanced physical, mental, social and emotional facilities of the body. It is natural that physical development goes side by side with mental and emotional development. If a body is healthy, mind also remains healthy. In a sick body, mind also becomes sick i.e. a sound body

makes a sound mind. To bring overall development in a balanced way is recognized as an integral part and the main objective of physical education.

Self- Check Exercise – 17

Q 1 The word “physical” in physical education relates to:

- a) Bodily characteristics like strength, endurance, fitness, appearance, or health
- b) Educational activities
- c) Mental development
- d) Social behavior

Q 2 Why is physical education considered different from other subjects?

- a) It only focuses on physical activities
- b) It is complementary to general education and aims at all-round development
- c) It involves only sports and games
- d) It has no educational value

Q 3 What combined meaning can be derived from the words “physical” and “education”?

- a) Systematic instruction in academic subjects
- b) Training that relates to physical activities necessary for the development and maintenance of the human body
- c) Education only for physical strength
- d) None of the above

5.3 DEFINITIONS OF PHYSICAL EDUCATION

Different scholars have given different definitions of Physical Education but all these definitions reach the same conclusion. Some definitions are as follow:

“Physical education is that part of education which takes place through activities, which involves the motor mechanism of human body which results in an individual’s formulating behavior pattern”. – **Jackson R. Sharman**

“Physical education is that field of education which deals with big muscle activities and their related responses.” - **J.B. Nash**

“Physical education is an integral part of the total education process is a field of endeavor that has as its aim the improvement of human performance through the medium of physical activities that have been selected with a view to realizing this outcome.” - **Charles A. Bucher**

“Physical education is an education through physical activities for the development of total personality of the child to its fullness and perfection in body, mind and spirit.”
– **Central Advisory Board of Physical Education and Recreation**

“Physical education is part of general education programme which is concerned with growth, development and education of children through the medium of big muscle activities. It is education of the whole child by means of physical activities. Physical Activities are the tools. They are so selected and conducted as to influence every aspect of child’s life physically, mentally, emotionally and morally.” – **H.C. Buck**

“Physical education is the sum of a man’s physical activities selected and conducted to develop personality.” - **J.F. Williams**

“Physical education is the sum of those experiences which come to the individual through movement.” - **Delbert Oberteuffer**

“Physical education is the sum of changes in the individual caused by experience centering motor activity.” - **R. Cassidy**

“Physical education is the way of education through physical activities, which are selected and carried on with regard to values in human growth, development and behaviour.” - **AAPHER**

It is clear from the above definitions that physical education is an integral and important part of ‘general education’. We can conclude that physical education is that part of total educational process which is learnt through playful activities. It tends to bring desirable changes in the behaviour and attitude of individuals towards progress. Physical education is not limited to games, sports or exercises. It aims at complete development of the personality through physical activities.

Self- Check Exercise – 18

Q 1 J.B. Nash defines physical education as dealing with:

- a) Small muscle activities
- b) Big muscle activities and their related responses
- c) Emotional responses only
- d) Mental activities only

Q 2 According to the Central Advisory Board of Physical Education and Recreation, the ultimate goal of physical education is:

- a) Academic excellence
- b) Development of total personality including body, mind, and spirit
- c) Mastery of sports techniques
- d) Improvement of cognitive skills

Q 3 According to J.F. Williams, physical education is:

- a) The sum of a man's physical activities aimed at academic success
- b) Conducted to develop personality
- c) Limited to competitive sports
- d) Unrelated to personality development

5.4 SCOPE OF PHYSICAL EDUCATION

Nowadays Physical Education has vast scope. It is not limited to physical activities or exercises. It includes many activities responsible for overall development of an individual. In recent times the scope has tremendously broadened. The scope of physical education is as follows:

Philosophy: Today in the world drastic changes are taking place, so it is necessary to know about philosophical aspect of physical education. It guides professional knowledge of physical education and also explains about career choice. This directs the individual to know about meaning, nature and importance of physical education.

Sports Sociology: This branch of physical education explains the role of sports and games in society. The sociology is concerned with social behavior and human relationship. Many social qualities are developed through participation in physical activities. Physical education plays a big role in sociology.

Sports Psychology: Sports Psychology is concerned with behavior in games and sports. This branch of physical education deals with motivation, cognitive learning, effective learning and psychomotor learning.

Exercise Physiology: This is one of the most important branches of physical education which studied the effects of exercise on human body. It explains the importance of exercises which are meant for physical fitness. It deals with effects of training or exercises on various systems of the body like muscular system, circulatory system, respiratory system, digestive system, nervous system etc.

Corrective Exercises: Corrective exercises help to remove the deformities in the body of a child. Sometimes these defects are there because of defects in muscle development and for this we use light corrective exercises.

Biomechanics: Biomechanics is a branch of physical education which deals with various forces which act on the human body. It deals with mechanical principles of action of human body and sports implements. For example: Mechanical analysis of running, jumping and throws etc. Kinesiology is further branch of biomechanics which deals with the function and action of various joints, muscles and bony structure.

Anthropometry: The branch of physical education deals with various measurements of human body parts. The various anthropometric characteristics like length, width, girth, diameter of bones and joints helps in predicting the playing ability.

Sports Medicine: This branch of physical education deals with various sports injuries and their management. It also deals with nutrition, drugs and ergogenic aids.

Fitness Development: Physical education and its activities help to gain in strength, power, endurance, speed, etc. thus it helps to develop general physical fitness.

Games and Sports for Competition: Physical education promotes individual and team efforts in a healthy way. These activities keep us fit along with good competition.

Recreational Activities: Recreational activities like minor games, chess, carom, horse riding, education campus, hunting, folk dance, fishing etc. are included in the

programmes of physical education. It helps to refresh and recreate the lost energy. Thus, gives us fun, pleasure and enjoyment. It brings wellness in the individual.

An Academic Subject: Physical education can be studied as an academic subject for higher knowledge. It has many related subjects like kinesiology, sports psychology, biomechanics, sports medicine, anthropometry, exercise physiology, etc.

Yogic Exercises: Yoga techniques also involve physical activities, thus it is a part of physical education. It develops physical, spiritual and mental development along with optimum health.

Dance: Dance consists of physical movements and also helps to achieve the same aim.

Self-Defense or Combative Games: These are rigorous activities. It requires lot of physical fitness, thus it is included in physical education.

Adventure Activities: These activities give great thrill and develop exploring qualities through its activities like skiing, river rafting, hiking, trekking, mountaineering, etc. These activities are very popular these days.

Rhythmic Activity: This helps in bringing team spirit and co-ordination as team work, like P.T. drills, calisthenics, aerobic-exercises, etc. These activities are also good for show activity.

Weight Training: It helps in gaining strength through weights, barbells, rods, dumbbells, resistance exercises, etc. which is a part of physical education.

Self- Check Exercise – 19

Q 1 Which branch of physical education deals with the role of sports and games in society?

- a) Exercise Physiology
- b) Sports Sociology
- c) Sports Psychology
- d) Biomechanics

Q 2 Which branch of physical education studies the effects of exercise on the human body?

- a) Anthropometry
- b) Sports Medicine
- c) Exercise Physiology
- d) Biomechanics

Q 3 Biomechanics in physical education deals with:

- a) The effects of training on various systems of the body
- b) The mechanical principles of action of the human body and sports implements
- c) The measurements of human body parts
- d) The behavior in games and sports

Q 4 Anthropometry is concerned with:

- a) The effects of exercise on the human body
- b) Various measurements of human body parts
- c) The management of sports injuries
- d) The behavior in sports and games

Q 5 Which branch of physical education focuses on the management of sports injuries?

- a) Sports Medicine
- b) Sports Psychology
- c) Exercise Physiology
- d) Corrective Exercises

Q 6 Recreational activities in physical education include all of the following EXCEPT:

- a) Chess and carom
- b) Hunting and fishing
- c) Academic subjects
- d) Folk dance and horse riding

5.5 IMPORTANCE OF PHYSICAL EDUCATION IN PRESENT ERA

Physical Education has a special significance, unique role and has made unlimited contribution in the modern age as it caters to the biological, sociological and psychological necessities of the man. Sami Vivekanand has stressed that “What India need today is not the Bhagwat Geeta but the football ground”.

Modern life, as characterized by sedentariness, automation and computerization has created a new class of human beings who just sit for hours

The importance of physical education in helping out the man from various self-created problems arising out of modernization of the society cannot be undermined. The importance of the physical education in modern society can be summarized as under:-

Develops Creativity: Physical education guides our enquiring mind towards creativity, alertness and adventures through physical activities.

Optimum Health: Physical education helps to develop physical fitness, thus helping to develop optimum health.

Develops Healthful Living: It gives knowledge regarding individual health, family health and community health, thus promoting healthful living.

Improves Physical Efficiency: It guides a person how to improve his physical fitness, thus improving his efficiency.

Knowledge about Health: It gives knowledge about hygiene, diet, diseases, injury, etc. It provides the protective and curative aspects of various health problems.

Experience of Life: It gives an experience of healthy living (in practical form) which is very helpful in life, moreover a sense of discipline in life.

Sports Lover: Physical education teaches us to be a good spectator and sports lover. It also helps us to understand sportsperson.

Knowledge about Games: This subject gives knowledge about various games and sports. It helps us to understand rules and regulations, skills techniques, etc.

Good Utilization of free time. It guide us how to use free time in a productive work, i.e., the better utilization of free time. It provides entertainment and recreation along with good health.

Develops Personality: The programmes of physical education develop many personality factors like leadership, discipline, smartness, activeness, etc.

Improves Social Qualities: It gives maximum opportunity to implement the socialization process in a healthy way. It also develops many social qualities and helps in developing human relationships and co-operative attitude.

Outlet to Emotions: Physical activities provide an easy outlet to our emotions and stresses of mind. Physical education also helps to control and regulate expressions.

Teaches Moral Values: It teaches us moral values like patience, tolerance, togetherness, helpfulness, obedience, sharing of work, collective effort, respect to opponent, etc.

Cheerful Life: Physical education helps us to live a prosperous, cheerful and enthusiastic life. This relaxes us from the stresses, thus provides good health. It acts as medium to channelize our surplus energy in a better way.

Good Citizen: Physical education molds the child into a good citizen and active member of society.

So, physical education has great importance and influence over individual's body, mind and soul. Physical education brings optimum health and helps society to create a healthy environment, keeping the W.H.O. objective "live most and serve best".

Self- Check Exercise – 20

Q 1 What is one of the main roles of physical education in modern society?

- a) To promote sedentary lifestyles
- b) To create automation and computerization
- c) To help individuals cope with problems arising from modernization
- d) To eliminate physical activities from daily life

Q 2 How does physical education improves physical efficiency?

- a) By promoting sedentary lifestyles
- b) By guiding individuals on how to improve their physical fitness
- c) By encouraging unhealthy eating habits
- d) By eliminating physical activities from the curriculum

Q 3 Which social qualities are developed through physical education?

- a) Individualism and isolation
- b) Socialization, human relationships, and cooperative attitude
- d) Technological skills

Q 4 How does physical education provides an outlet for emotions?

- a) By promoting mental stress
- b) By providing physical activities that help control and regulate expressions
- c) By encouraging suppression of emotions
- d) By focusing on academic excellence only

Q 5 How does physical education help in utilizing free time?

- a) By encouraging inactivity
- b) By guiding how to use free time productively
- c) By promoting unhealthy habits
- d) By eliminating leisure activities

5.6 MISCONCEPTIONS ABOUT PHYSICAL EDUCATION

Many people do not know the value of physical education. Many people are confused by this term as, they are not aware, what physical education teaches us. Some people think that there is jumping exercises in physical education. A common man considers that physical education is meant only for recreation and entertainment; some consider this as a physical culture to shape the body, etc. So far we have not appreciated physical education in school/college curriculum. It is not treated as a subject of real importance. Many students consider it as a free time subject. In many schools and colleges there is no availability of physical education infrastructure or they lack of proper ground and equipment. Some consider physical education is a waste of time and money. These opinions are faulty. These are the reasons. Why we are far behind in games and sports (at international levels) while many countries have gone far ahead of us. We have not recognized the need and importance of physical education.

It is believed that only the fittest will survive. Physical education programmes guide us to keep ourselves fit and healthy. Without the knowledge of physical education an individual cannot live a happy live. Therefore, it is very essential that physical education should be taught as a compulsory subject in all schools and colleges.

H.C. Buck has rightly said, “Physical education is that part of the general education, which is concerned with the growth, development and education of children through development of big muscle activities.” Thus, we can say that physical education is the education for wholesome development of the child by means of physical activities. It should be selected and conducted so as to influence every aspect of the child’s development. It brings complete growth and development. This is only possible through an understanding of this subject. Physical education turns the child into a good citizen as well as an active member of society. As physical education is an integral part of education, thus the purpose of physical education is the same as that of education, the approach may be different from other subjects but it reaches the same aim.

Physical education is a vast subject. There are several misconceptions about physical education. Many people do not know what it teaches. It is mostly misunderstood as ‘Physical Training Drills’ (P.T. exercises). This is wrong (this phrase is used by the forces to produce tough persons). Others consider physical education as playing activity like football, hockey, races and other competitive activities whereas this is also not true. Some say it is for physical culture to make body shape. Some consider physical education is meant only for recreation, fun and enjoyment. In fact, these wrong opinions have led to many misconceptions about the subject. Some of the misconceptions are as under:

Wastage of Time: Many parents, students and teachers think that participation in physical activity is just wastage of time. However, this opinion is totally wrong. It develops body and mind, as both are inter-related aspects of same unit. In a sound body, sound mind exists; hence if physical condition of body is good, the mental condition of the individual will also improve.

Participation in Games only: Many people think that it is participation in games and sports. Whereas, physical education enables a person to maintain health and fitness through physical activity. Games and sports are a good medium to achieve its objectives.

Poor Social Status: Participation in physical activity is generally considered to be for those who have poor social status and are not given any recognition by society. Whereas, this trend is now changing. Today there are many sports awards like

Arjuna award, Rajiv Gandhi Khel Ratna award, Padma Shree award given to sportsmen that add to their social status.

No Job, Career or Profession: Today special attention is given to sportspersons for selection in various competitive examinations. There are many jobs for sportspersons in various departments. In many professions sportsmen are accepted happily.

Leads to Indiscipline: This opinion is totally wrong. A good sportsman always behaves in a disciplined manner and follows rules and regulations on the sports field and in real life.

Wastage of Money: Many games and sports require special type of equipment, apparatus, playfield, etc. which are costly. These days many facilities are provided by the government in the form of scholarships, awards and stipends to the sportspersons. Today the government has set up various institutions which provide free education, diet, equipment, etc. to good sportsmen.

Rest Period: Many people think that this is a rest period as it does not have any academic value. This opinion is also wrong as this subject is very demanding in coming time and has academic value. It has its curriculum which involves theory as well as practical in it. Thus, it is not rest or free period. Its approach improves the health status at individual and community levels.

Self- Check Exercise – 21

Q 1 What is a common misconception about physical education?

- a) It is meant only for recreation and entertainment
- b) It is an integral part of the general education system
- d) It is a compulsory subject in all schools and colleges

Q 2 Which statement is true regarding the role of physical education in schools and colleges?

- a) It is often treated as a subject of real importance
- b) It is considered a free time subject by many students
- c) Every school and college has proper infrastructure for physical education
- d) It is seen as essential for academic excellence

5.7 SUMMARY

Dear learners, in this unit you have studied the meaning, definition, scope of physical education and importance of physical education in present era. Physical Education extends beyond physical activity to encompass holistic human development, including mental, emotional, and social growth. It integrates physical fitness with educational objectives, promoting overall well-being and personality development. Physical education involves systematic training in activities that develop physical skills, strength, and health, supporting both mind and body. Contrary to common misconceptions, physical education is not limited to sports or games but is a vital part of education that fosters balanced physical, mental, and emotional development, essential for a healthy, productive life.

5.8 GLOSSARY

- **Physical Education:** A comprehensive educational field focusing on physical activities that enhance physical fitness, mental well-being, social skills, and overall personality development.
- **All-round Development:** The balanced growth of all aspects of a person's personality and abilities.
- **Physical Fitness:** A state of health and well-being achieved through regular physical activity.
- **Physical Skills:** Abilities developed through physical activities, including coordination, strength, and agility.

5.9 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 17

Answer 1 a) Bodily characteristics like strength, endurance, fitness, appearance, or health

Answer 2 b) It is complementary to general education and aims at all-round development

Answer 3 b) Training that relates to physical activities necessary for the development and maintenance of the human body

Self- Check Exercise – 18

Answer 1 b) Big muscle activities and their related responses

Answer 2 b) Development of total personality including body, mind, and spirit

Answer 3 b) Conducted to develop personality

Self- Check Exercise – 19

Answer 1 b) Sports Sociology

Answer 2 c) Exercise Physiology

Answer 3 b) The mechanical principles of action of the human body and sports implements

Answer 4 b) Various measurements of human body parts

Answer 5 a) Sports Medicine

Answer 6 c) Academic subjects

Self- Check Exercise – 20

Answer 1 c) To help individuals cope with problems arising from modernization

Answer 2 b) By guiding individuals on how to improve their physical fitness

Answer 3 b) Socialization, human relationships, and cooperative attitude

Answer 4 b) By providing physical activities that help control and regulate expressions

Answer 5 a) By guiding how to use free time productively

Self- Check Exercise – 21

Answer 1 a) It is meant only for recreation and entertainment

Answer 2 b) It is considered a free time subject by many students

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5.11 TERMINAL QUESTIONS

- Define Physical Education. Describe the scope of physical education.
- Describe the importance of physical education in present era.
- Write down the misconceptions about Physical Education.
- What do you know about the concept of physical education in modern times?

UNIT – 6

AIMS AND OBJECTIVES OF PHYSICAL EDUCATION

STRUCTURE

6.0	INTRODUCTION
6.1	LEARNING OBJECTIVES
6.2	AIM OF PHYSICAL EDUCATION
6.3	OBJECTIVES OF PHYSICAL EDUCATION
6.4	SUMMARY
6.5	GLOSSARY
6.6	ANSWER TO SELF-CHECK EXERCISES
6.7	REFERENCES AND SUGGESTED READINGS
6.8	TERMINAL QUESTIONS

6.0 INTRODUCTION

Dear learners, in this unit an attempt has been made to explain the aims and objectives of physical education. The aims and objectives of Physical Education focus on promoting overall health, physical fitness, and well-being. Physical Education aims to develop motor skills, enhance mental and emotional health, foster social interaction, and instill lifelong habits of physical activity. It also seeks to build discipline, teamwork, and leadership qualities, contributing to the holistic development of individuals.

6.2 LEARNING OBJECTIVES

After going through this unit you will be able to:

- Understand the aims and objectives of physical education.

6.3 AIM OF PHYSICAL EDUCATION

Aim of physical education is the highest possible achievement or the ultimate goal. Aim revolves around a definite purpose and it has many objectives. These objectives have many goals to reach the aim.

According to National Plan of Physical Education and Recreation: “The aim of Physical Education is to make every child physically, mentally and emotionally fit

and also to develop in him such personal and social qualities as will help him to live happily with others and build him up as a good citizen.”

According to J.F. Williams: “Physical Education should aim to provide skilled leadership, adequate facilities and ample time that will afford an opportunity for the individuals or groups to act in situation that are physically wholesome, mentally stimulating and satisfying and socially sound.”

According to J.R. Sharman: “The aim of physical education is to influence the experiences of persons to the extent that each individual within the limits of his capacity may be helped to adjust successfully in society, to increase and improve his wants, and to develop the ability to satisfy his wants”.

From the above definitions, we arrive at the conclusion that the aim of physical education is overall development of personality of an individual. It emphasizes the balanced development of physical, mental, social, intellectual and emotional behaviour.

Self- Check Exercise – 22

Q 1 What is the ultimate goal or aim of physical education according to the passage?

- a) To achieve academic excellence
- b) To ensure the highest possible achievement in physical, mental, and emotional fitness
- c) To limit physical activity to recreational purposes
- d) To develop financial skills

Q 2 According to the National Plan of Physical Education and Recreation, physical education aims to make every child:

- a) Academically proficient
- b) Physically, mentally, and emotionally fit
- c) Skilled in technology
- d) Wealthy and successful

6.4 OBJECTIVES OF PHYSICAL EDUCATION

As told earlier, 'aim' is the ultimate goal to be achieved. Often the aim is one, but to attain it, there may be many objectives. In the same way, the aim of physical education is one (complete development of a personality) but there are many objectives to achieve this. Many educationists have expressed their views regarding these objectives of physical education:-

According to:

J.B. Nash: (i) Neuro-muscular development, (ii) Emotional development, (iii) Interpretive development, (iv) Organic development.

H.C. Buck: (i) Organic development, (ii) Development of neuro-muscular co-ordination, (iii) Development of psychological balance, (iv) Development of social attitude and conduct, (v) Development of healthy habits.

From the objectives given by different educationists we can conclude that the main objectives of physical education are:

1. Physical development
2. Psychological development
3. Social Development
4. Emotional development
5. Development of healthy habits

A brief description of these objectives is given below:-

1. **Physical Development:** The first and primary objective of physical education is to develop good physique. To achieve the ultimate aim of physical education, the objective of physical development has to be achieved. According to this objective, body should grow in a proper way. Physical activities help in developing the body. Our body is a kind of machine which grows and develops with physical activities. Physical development improves our neuro-muscular responses and leads to maximum organic development. Thus, physical activities must be performed to

develop optimum growth. This objective also guides a person to make his body strong, well-shaped, good looking, good working of internal organs, good health and improves the physical personality. As body and mind are inter-related (there is psycho-physical unity of body and mind), we must perform physical activities regularly and take active part in these with full enthusiasm. This makes a sound body which is a home of sound mind, thus helps to develop good health of individual.

2. **Psychological Development:** This development is related with positive thoughts, ideas, behaviour, attitude, conduct and responses. This objective improves the psychological balance of an individual i.e., mental progress or mental development. This objective directs the growth and development in a sequential manner. This development gives identity to one's personality by good behaviour. The positive thoughts and ideas guide the individual towards progress and hence make a person a good citizen. The development of positive mind helps us to achieve the aim. This objective of physical education enables a person to overcome various challenges of life in a good manner. Psychological development makes a person active and develops the well-balanced life.

3. **Social Development:** Man is a social animal and cannot live without society. Man is a part of society and has to follow the rules, regulations, traditions and laws of society. His activeness in society proves his identity. In society many learn the socialization process. Society also helps to improve their status. This objective develops the social qualities like co-operative behaviour, friendship, togetherness, honesty, obedience, sincerity, tolerance, adjustment, leadership, boldness, self-control, self-discipline, etc. This objective helps to stop the evils of society and brings up the progress of the community. Social development helps to achieve the aim of education and physical education, i.e., to be an ideal citizen and a useful member of the society. Physical education programmes provide good opportunity and practical experience to develop socialization process.

4. **Emotional Development:** Emotions are very important part for optimum development of man's personality. Emotions like love, hate, anger, jealousy, aggressiveness, cheerfulness, pleasure, anxiety, etc., are parts of human personality. These emotions help to achieve optimum progress, thus it helps to achieve aim. Emotions must be expressed, sometimes in a controlled way

depending upon the situation. Physical education provides good opportunity to practices these. Thus, emotional development helps man to achieve the aim of physical education.

5. **Development of Healthy Habits:** Many healthy habits related to exercise; rest, sleep, personal hygiene and diet etc. are developed through physical education.

Self- Check Exercise – 23

Q 1 According to J.B. Nash, which of the following is NOT an objective of physical education?

- a) Neuromuscular development
- b) Emotional development
- c) Interpretive development
- d) Financial development

Q 2 How does physical education contributes to social development?

- a) By teaching academic subjects
- b) By developing social qualities like cooperation, honesty, and leadership
- c) By focusing on financial growth
- d) By promoting individualism and isolation

6.4 SUMMARY

The aim of Physical Education is to achieve the highest level of physical, mental, and emotional fitness. It seeks to develop personal and social qualities that foster harmonious living and good citizenship. Objectives include physical development, psychological balance, social skills, emotional maturity, and healthy habits. Physical Education programs provide opportunities for holistic growth, integrating physical activities with mental and social development for overall personality enhancement.

6.5 GLOSSARY

- **Aim of Physical Education:** The ultimate goal focused on achieving the highest level of physical, mental, and emotional fitness. It encompasses the

development of personal and social qualities conducive to harmonious living and good citizenship.

6.6 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 22

Answer 1 b) To ensure the highest possible achievement in physical, mental, and emotional fitness

Answer 2 b) Physically, mentally, and emotionally fit

Self- Check Exercise – 23

Answer 1 d) Financial development

Answer 2 b) By developing social qualities like cooperation, honesty, and leadership

6.7 REFERENCES AND SUGGESTED READINGS

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6.8 TERMINAL QUESTIONS

- Explain in detail the aim and objectives of Physical Education.
- What are the objectives of Physical Education?

UNIT – 7

TOURNAMENTS

STRUCTURE

7.0	INTRODUCTION
7.1	LEARNING OBJECTIVES
7.2	TOURNAMENT & IMPORTANCE OF TOURNAMENT
7.3	TYPES OF TOURNAMENT AND ITS ORGANIZATION
7.4	PROCEDURE OF PLANNING KNOCK-OUT TOURNAMENT:
7.5	DRAWING OF FIXTURES
7.6	MEANING OF SEEDING SYSTEM
7.7	LEAGUE OR ROUND ROBIN TOURNAMENT
7.8	METHOD FOR DRAWING FIXTURE FOR SINGLE LEAGUE
7.9	CYCLIC METHOD
7.10	TABULAR METHOD
7.11	COMBINATION TOURNAMENT
7.12	CHALLENGE TOURNAMENT
7.13	SUMMARY
7.14	GLOSSARY
7.15	ANSWER TO SELF-CHECK EXERCISES
7.16	REFERENCES AND SUGGESTED READINGS
7.17	TERMINAL QUESTIONS

7.0 INTRODUCTION

Dear learners, in this unit an attempt has been made to explain the tournaments, types of tournaments and their planning. Tournaments play a pivotal role in various fields, serving as platforms that foster competition, skill development, and community engagement. They encompass diverse types such as knockout tournaments, where participants are eliminated upon losing a match, and round-robin leagues, ensuring every competitor plays against each other. Combination tournaments blend formats to cater to varied preferences, while challenge tournaments allow individuals to vie for superiority in direct contests. Understanding these structures enables efficient organization, ensuring fair play and maximizing participant engagement.

7.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- understand tournament and importance of tournament;
- explain types of tournaments.

- understand how fixture is prepared by different methods.
- explain what is Bye.

7.2 TOURNAMENT

The dictionary meaning of tournament is a large contest of many rounds among various teams.

A tournament is a competition held among different teams in a particular game or sport according to a fixed schedule where a winner is decided. Tournament or competitions are held according to set rules and regulations. There are various tournaments in the field of sports as district level, state level, national level and international level etc.

IMPORTANCE OF TOURNAMENT:

Tournaments or competitions are essential and most important part of physical education. These are the best ways for satisfying the natural urge of competition or fight which is present in every human being.

Tournaments are very important in the field of sports; players participate in tournaments with great zeal and zest. The tournament are not only significant to the players but to the coaches and physical education teachers also. The importance of tournament is described below:

- Tournaments are natural climax to the year's work in any activity. These are source of inspiration and encouragement to students and also help in smooth and regular functioning of various physical education programmes in school.
- Tournament is the best occasion when a student can display his skills, abilities and talents.
- Tournaments help in assessment and evaluation of one's achievements while mastering any activity of physical education. It helps the students in realizing their faults and drawbacks so that they can give better performance next time.
- Tournaments are incentives to the students for further development. Thus, they help in making the physical education a progressive discipline.

- Tournament helps in satisfying the natural urge of competition and fight present in human beings. It is very essential for developing a mentally sound personality.
- Tournament instills a spirit of healthy competition and sportsmanship in the students which becomes their asset in later life.
- Tournaments, organized at international level, may pave a path for ending the enmity and for promoting friendship and goodwill between the nations.
- Organizers of the tournament are also benefitted from the tournaments. They get new experiences about organization and administration which will be helpful in the physical education programmes.
- Tournaments are one of the most popular ways of entertainment. Through competitions, recreation and enjoyment can be provided not only to the participants but also to the public so that they can refresh themselves from the tensions of daily life.
- Tournaments play a prominent role into creating an interest in public for any game. They are the powerful media for popularizing a sport.

Self- Check Exercise – 24

Q 1 What is the dictionary meaning of a tournament?

- a) A single round contest among various teams
- b) A small competition with few participants
- c) A large contest of many rounds among various teams
- d) A recreational activity without any rules

Q 2 How do tournaments contribute to the development of students' personalities?

- a) By encouraging selfishness
- b) By instilling a spirit of healthy competition and sportsmanship
- c) By reducing their interest in physical activities
- d) By promoting isolation from peers

Q 3 How do tournaments help in popularizing a sport?

- a) By making the sport less accessible to the public
- b) By creating interest and excitement in the public

- c) By limiting media coverage
- d) By discouraging youth participation

7.3 TYPES OF TOURNAMENT AND ITS ORGANIZATION

In general, tournaments are of following types:-

- A. Knock-out tournament.
- B. League or Round Robin tournament.
- C. Combination tournament.
- D. Challenge tournament.

A. **Knock-out Tournament:** In these types of tournaments, a team once defeated gets eliminated from the competition. A defeated team is not allowed to continue in the tournament. Only the victorious or winner teams play with each other until one team emerges as a winner. It is the quickest way of determining the winner. The teams are matched by drawing out the lots. Such tournaments require less expenditure and less time as well because the defeated teams get eliminated and ultimately, two teams remain to compete for the title.

7.4 PROCEDURE OF PLANNING KNOCK-OUT TOURNAMENT:

As said before, in knock-out tournament, a team once defeated gets eliminated from tournament and is not allowed to participate. For a proper organization of such tournament, it is necessary to match the teams beforehand. Following points must be thoroughly known:-

- I. Number of teams participating in the tournament.
- II. In how many groups must be the teams be divided?
- III. If teams are divided in two halves, how many teams shall be there in each half?
- IV. If teams are divided into four groups, how many teams shall be there in each quarter?

7.5 DRAWING OF FIXTURES:

After deciding the afore-mentioned points, fixtures for various matches are drawn.

1.) The total number of matches in a knock-out competition is equal to the total number of teams -1. For example, if a total of 8 teams are participating in the competition, then the total number of matches will be $= 8-1= 7$ i.e. total 7 matches will be played.

2.) Before drawing a fixture, two things are ensured i.e. whether the number of teams participating is a power of two or not. This information decides whether any bye/s shall be given or not. This makes the difference in the method of drawing fixture. If the number of teams is in the 'Power of Two' ($2^1, 2^2, 2^3, 2^4, 2^5, 2^6, 2^7 \dots, i.e. 2, 4, 8, 16, 32, 64, 128 \dots$) then fixing the fixture is a bit easier. First divide the total teams into equal halves and then by lot enter the teams in both halves. The winning teams of both the halves should compete at last.

Method of determining the number of teams in upper and lower half

- **When the total number of teams is even; then**

The teams in upper half would be $= \frac{N}{2} = \frac{\text{Total Number of teams}}{2}$

The teams in lower half would be $= \frac{N}{2} = \frac{\text{Total Number of teams}}{2}$

(N stands for total number of teams participating in the tournament)

Suppose 8 teams are participating in the tournament, then the number of teams in the upper half and lower half would be $= \frac{N}{2} = \frac{8}{2} = 4$ teams in each half.

- **When the total number of teams is odd; then**

The teams in upper half would be $= \frac{N+1}{2} = \frac{\text{Total Number of teams}+1}{2}$

The teams in lower half would be $= \frac{N-1}{2} = \frac{\text{Total Number of teams}-1}{2}$

Suppose 15 teams are participating in the tournament, then the number of teams in the upper half would be $= \frac{N+1}{2} = \frac{15+1}{2} = \frac{16}{2} = 8$

The teams in lower half would be $= \frac{N-1}{2} = \frac{15-1}{2} = \frac{14}{2} = 7$

Example: - Drawing fixture for 8 teams.

Since the number of teams is in power of two (2), it should be divided into two equal halves. Have a sheet of paper and write down the serial numbers 1-8. Make 8 uniform slips of paper, write the name of one team in a slip and fold it in a uniform manner. In this way complete all the 8 slips. Then put all the 8 slips in a box and mix it properly, may be by shaking the box. Make sure no slip discloses the identity of the team entered in it. Now take slips one by one. As each slip is picked up, open it, find out the name of the concerned team and enter it serially from the top to the bottom till all teams are entered on that sheet. Now from the top they should be bracketed in pairs for the first round. Then the other rounds should also be bracketed from the top till the final match is played between the two teams of two different halves.

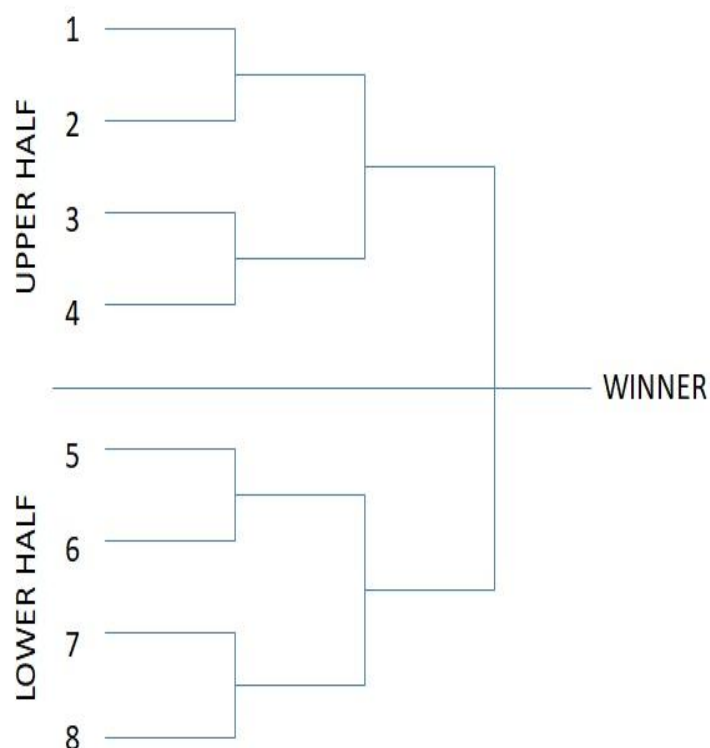
Total number of teams = 8

Total Number of matches = $N - 1 = 8 - 1 = 7$

Number of teams in upper half = $\frac{\text{Total Number of teams}}{2} = \frac{N}{2} = \frac{8}{2} = 4$

Number of teams in lower half = $\frac{\text{Total Number of teams}}{2} = \frac{N}{2} = \frac{8}{2} = 4$

Fixture for 8 teams:



- 3.) If the number of competing teams is not in power of two (3, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 19.....) the byes shall be given irrespective of the odd/even number of teams in the first round so that in the subsequent rounds the number of teams shall be brought to the power of two. Now, the question arises what is bye? How do we decide the number of byes?

BYE

Bye is a sort of privilege to a team. A team who is given bye does not play in the first round. 'Bye' becomes a necessity when number of participating teams is not in power of two. 'Bye' brings the number of teams to power of 2 in succeeding rounds and it is easier to draw fixtures. Number of byes is decided as follows:-

The number of "Byes" to be given shall be decided by subtracting the number of teams from its next higher number which is the power of two. For the convenience and better understanding of students, we shall discuss both the situations i.e., when the number of teams is "EVEN" as well as "ODD".

Example: For instance, if 10 teams are competing in a tournament then how many byes is to be given?

Total Number of teams (N) = 10

Next power of 2 = $2^4 = 2 \times 2 \times 2 \times 2 = 16$

Number of Byes = Next Power of Two – Total Number of Teams

Number of Byes = $16 - 10 = 6$

So, the number of byes to be given shall be six (6).

Example: For instance, if 21 teams are competing in a tournament then how many byes is to be given?

Total Number of teams (N) = 21

Next power of 2 = $2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$

Number of Byes = Next Power of Two – Total Number of Teams

Number of Byes = $32 - 21 = 11$

So, the number of byes to be given shall be eleven (11).

Method of determining the byes to be given in the upper and lower half:

i. When the total number of byes is even: for example six byes; then

The byes in upper half would be = $\frac{nb}{2} = \frac{\text{Total number of Byes}}{2} = \frac{6}{2} = 3$

The byes in lower half would be = $\frac{nb}{2} = \frac{\text{Total number of Byes}}{2} = \frac{6}{2} = 3$

ii. When the total number of byes is odd: for example seven byes; then

The byes in upper half would be = $\frac{nb-1}{2} = \frac{\text{Total number of Byes}-1}{2} = \frac{11-1}{2} = \frac{10}{2} = 5$

The byes in lower half would be = $\frac{nb+1}{2} = \frac{\text{Total number of Byes}+1}{2} = \frac{11+1}{2} = \frac{12}{2} = 6$

(nb stands for Total Number of Byes)

Fixture for 10 teams

Total Number of teams = N = 10

Total Number of matches = $N-1 = 10-1 = 9$

$$\text{Number of teams in upper half} = \frac{\text{Total Number of teams}}{2} = \frac{N}{2} = \frac{10}{2} = 5$$

$$\text{Number of teams in lower half} = \frac{\text{Total Number of teams}}{2} = \frac{N}{2} = \frac{10}{2} = 5$$

Number of Byes = Next Power of Two – Total Number of Teams

$$\text{Next power of 2} = 2^4 = 2 \times 2 \times 2 \times 2 = 16$$

$$\text{Total Number of Byes} = 16 - 10 = 6$$

$$\text{Number of byes in upper half} = \frac{nb}{2} = \frac{\text{Total Number of Byes}}{2} = \frac{6}{2} = 3$$

$$\text{Number of byes in lower half} = \frac{nb}{2} = \frac{\text{Total Number of Byes}}{2} = \frac{6}{2} = 3$$

Fixture for 10 Teams



Fixture for 21 teams:

$$\text{Total Number of teams} = N = 21$$

$$\text{Total Number of matches} = N - 1 = 21 - 1 = 20$$

$$\text{Number of teams in upper half} = \frac{N+1}{2} = \frac{\text{Total Number of teams}+1}{2} = \frac{21+1}{2} = \frac{22}{2} = 11$$

$$\text{Number of teams in lower half} = \frac{N-1}{2} = \frac{\text{Total Number of teams}-1}{2} = \frac{21-1}{2} = \frac{20}{2} = 10$$

Number of Byes = Next Power of Two – Total Number of Teams

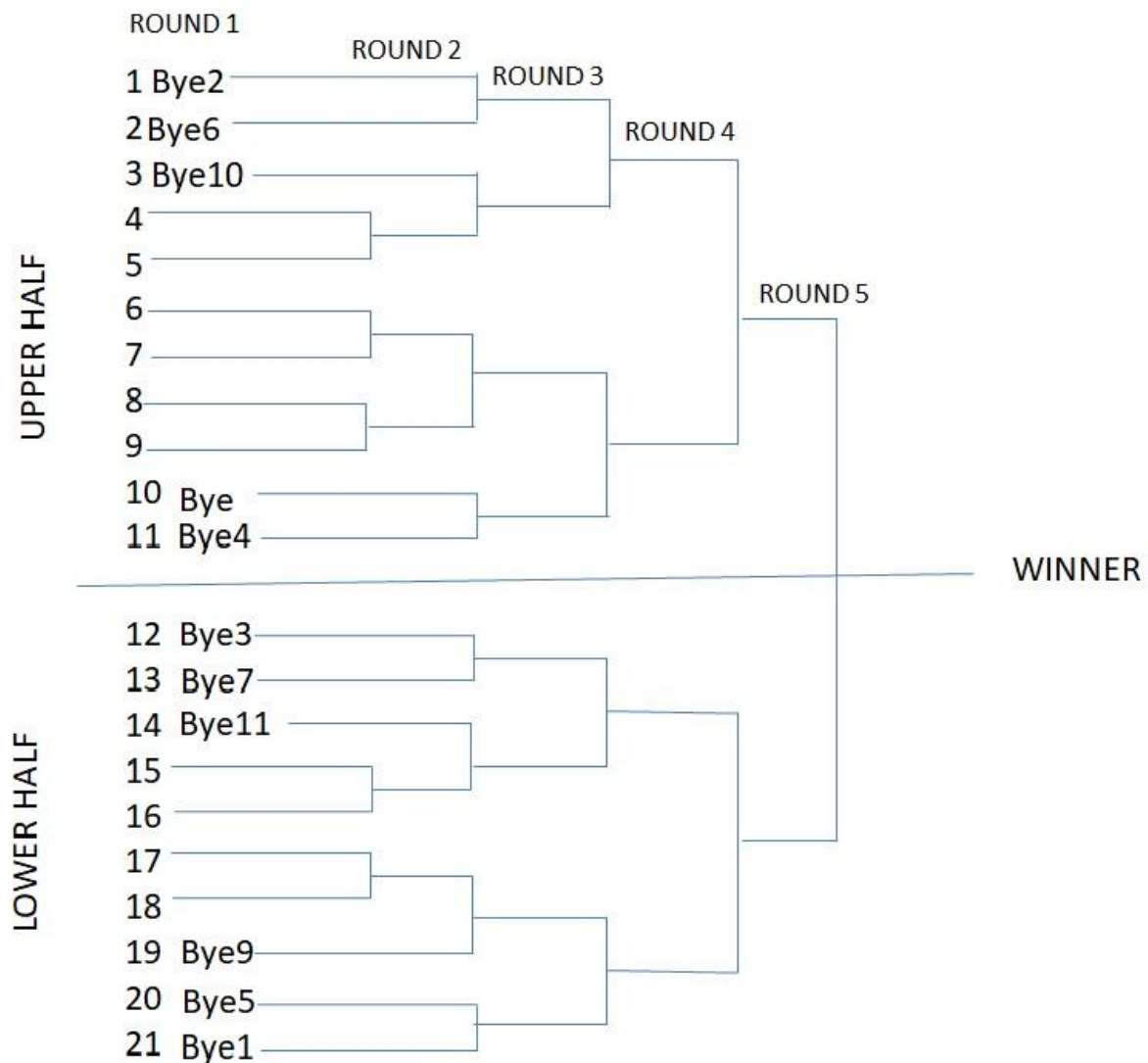
$$\text{Next power of 2} = 2^5 = 2 \times 2 \times 2 \times 2 \times 2 = 32$$

$$\text{Total Number of Byes} = 32 - 21 = 11$$

$$\text{Number of byes in upper half} = \frac{nb-1}{2} = \frac{\text{Total number of Byes}-1}{2} = \frac{11-1}{2} = \frac{10}{2} = 5$$

$$\text{Number of byes in lower half} = \frac{nb+1}{2} = \frac{\text{Total number of Byes}+1}{2} = \frac{11+1}{2} = \frac{12}{2} = 6$$

Fixture for 21 Teams



7.6 MEANING OF SEEDING SYSTEM:

Seeding means sorting out of the stronger teams and fitting them in the fixture so that they do not clash in earlier rounds. It has been seen that many times, stronger teams play in the early rounds and comparatively weak teams reach the finals. This mars the interest of the spectator as well as players. Seeding system is being used to remove this fault. Seeded teams are equally divided in both the groups. Generally, byes are given to such teams. But seeding system is useful only if the standard of all the teams is thoroughly known to the organizers

Self- Check Exercise – 25

Q 1 In a knock-out tournament, what happens to a team once it is defeated?

- a) It continues to play in the tournament
- b) It is eliminated from the competition
- c) It gets a second chance to compete
- d) It automatically wins the next match

Q 2 How is teams matched in a knock-out tournament?

- a) Based on their previous performance
- b) By drawing lots
- c) According to their ranking
- d) Randomly assigned by the organizers

Q 3 How are the number of byes calculated in a knock-out tournament?

- a) Total number of teams + 1
- b) Next power of two minus total number of teams
- c) Total number of teams divided by 2
- d) Total number of teams multiplied by 2

7.7 League or Round Robin Tournament: In such tournament, every team play with every other participating team irrespective of the victory or defeat. This tournaments is of two types :-

- i. Single League
- ii. Double League

- (I) In single league tournament, each team plays with every other team only once. In such tournament, number of matches to be played is $\frac{N(N-1)}{2}$ where 'N' stands for 'number' of teams participating in that particular tournament. For instance, let us suppose that 10 teams are participating in a single league tournament. Total number of matches to be played in tournament will be

$$\frac{N(N-1)}{2} \text{ i.e. } \frac{10(10-1)}{2} = \frac{10(9)}{2} = \frac{90}{2} = 45$$

- (II) In double league tournament, each team is supposed to play two matches with every other participating team. Total number of matches to be played will be $N(N-1)$. For instance, if 10 teams are participating in a tournament, total number of matches to be played will be $10(10-1) = 10 \times 9 = 90$.

Although league tournaments are very expensive and require a lot of time, they have got certain distinct advantages over other types of tournament. It gives better and sufficient opportunity to every team to display their skills and talent. In knock-out tournament, a good team may get defeated by a sheer chance or by a freak of ill-luck and it gets eliminated. It is not so in league tournament where every defeated team is given opportunity to improve its performance in next matches. There is no relevance of chance or luck in such matches. With more number of matches the teams can improve their skill.

7.8 METHOD FOR DRAWING FIXTURE FOR SINGLE LEAGUE

There are three methods of drawing fixture for Single league Tournament such as:

- Cyclic method
- Tabular method
- Stair Case method

7.9 CYCLIC METHOD

While drawing the fixture with cyclic method the following things are determined beforehand. This will help you to make cross checks, to know the rightness of your fixtures.

- Total number of matches.
- In case of even number of teams, number one is fixed; the other numbers are rotated clock-wise.
- In case of odd number of teams, bye is fixed; all the teams are rotated clock wise.
- The total number of rounds for even number of teams shall be $N - 1$ and for odd-number of teams shall be 'N' rounds. ('N' stands for total number of teams)

Suppose the number of teams is 6

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{6(6-1)}{2} = \frac{6(5)}{2} = \frac{30}{2} = 15$$

$$\text{Number of rounds} = N-1 = 6-1 = 5$$

Suppose the number of teams is 7

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{7(7-1)}{2} = \frac{7(6)}{2} = \frac{42}{2} = 21$$

$$\text{Number of rounds} = N = 7$$

Suppose the number of teams is 8

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{8(8-1)}{2} = \frac{8(7)}{2} = \frac{56}{2} = 28$$

$$\text{Number of rounds} = N-1 = 8-1 = 7$$

Suppose the number of teams is 9

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{9(9-1)}{2} = \frac{9(8)}{2} = \frac{72}{2} = 36$$

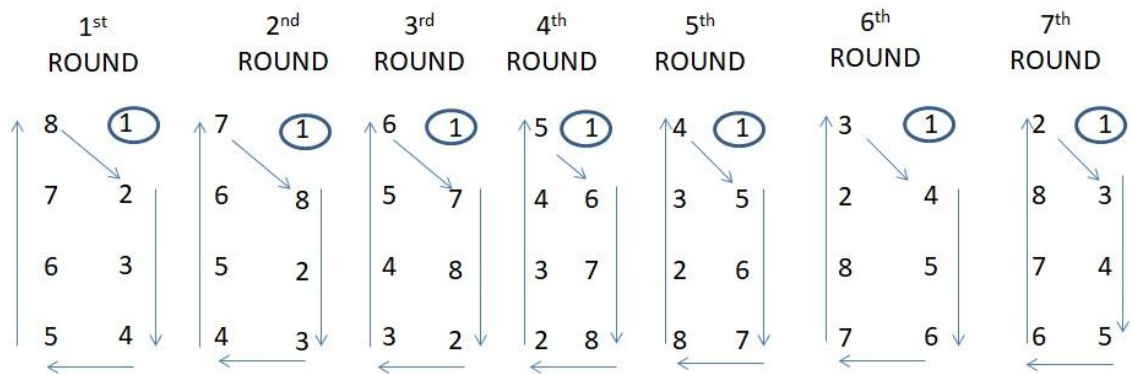
Number of rounds = N = 9

Fixture for 8 teams by cyclic method:

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{8(8-1)}{2} = \frac{8(7)}{2} = \frac{56}{2} = 28$$

$$\text{Number of rounds} = N-1 = 8-1 = 7$$

FIXTURE FOR 8 TEAMS BY CYCLIC METHOD



Fixture for 7 teams by cyclic method:

$$\text{Number of matches} = \frac{N(N-1)}{2} \text{ i.e. } \frac{8(8-1)}{2} = \frac{8(7)}{2} = \frac{56}{2} = 28$$

$$\text{Number of rounds} = N-1 = 8-1 = 7$$

FIXTURE FOR 7 TEAMS BY CYCLIC METHOD



Note: 'B' stands for Bye

Self- Check Exercise – 26

Q 1 What is the total number of matches played in a Single League tournament with 10 teams?

- a) 10
- b) 45
- c) 28
- d) 9

Q 2 What is the primary advantage of a League or Round Robin tournament compared to a Knock-out tournament?

- a) It requires fewer matches
- b) It allows more teams to participate
- c) It is less time-consuming
- d) It gives every team multiple opportunities to play

Q 3 What is the total number of rounds in a Single League tournament with 9 teams?

- a) 8
- b) 9
- c) 10
- d) 11

Q 4 What is the number of rounds in a Single League tournament with 8 teams?

- a) 7
- b) 6
- c) 8
- d) 9

7.10 TABULAR METHOD

In this method the fixtures are drawn in a tabular form. The number of columns shall be drawn horizontally as well as vertically. The number of columns depends on the number of teams, i.e. Even or Odd.

For even number of teams, the number of columns shall be $n + 1$ and byes shall not be given, whereas for odd number of teams, number of columns shall be $n + 2$ and byes shall be given. Here 'n' stands for number of teams.

Procedure for Drawing Columns:

- Draw the required number of columns horizontally and vertically.
- Draw a line diagonally from the left top most corner to the opposite right bottom corner.
- Enter the teams and bye if needed in the square of the first vertical column as shown in the illustrations given below (fixture for 8 and 9 teams).
- The squares that fall on one side of the diagonal line except squares in the BYE column indicate the matches to be played in a single league.
- The numbers that are entered in the squares indicate the particular rounds in which the concerned teams have to play.

Fixture for 8 teams

Suppose A, B, C, D, E, F, G and H are the names of participating teams

Number of columns = $N+1 = 8+1=9$

Number of Rounds = $N-1 = 8-1 =7$

	A	B	C	D	E	F	G	H
A		1	2	3	4	5	6	7
B			3	4	5	6	7	2
C				5	6	7	1	4
D					7	1	2	6
E						2	3	1
F							4	3
G								5
H								

Procedure for entering the numbers inside the squares indicating the rounds:

- 1) In the squares of the horizontal column immediately below the teams, enter the numbers serially from number one (1) onwards.
- 2) The number in the last square of that horizontal column indicates the maximum number of rounds for the league (see the examples given above and below).
- 3) Then in each vertical column (except the last vertical column) enter the number serially starting from the number next to that placed at the top.
- 4) The serial numbers to be entered in any of the squares should not exceed the number indicating the maximum number of rounds.
- 5) The entry of numbers in the squares of the last vertical column will be as follows:
 - Note the number entered in the top square of the vertical column.
 - In the next immediate underneath square enter number 2.
 - Then proceed entering numbers in the other squares every time adding 2, (i.e. 4, 6, 8 etc.) until the number becomes one less than the number at the top most square.
 - Now, enter number 1, in the next square and proceed entering the numbers in the other squares every time adding 2, (i.e. 3, 5, 7, etc.) until the bottom - most square is filled up.
 - It may be noted that the number of the bottom most square will be two less than the number at top most square.

Fixture for 9 teams

Suppose A, B, C, D, E, F, G, H and I are the names of participating teams

Number of columns = $N+2 = 9+2=11$

Number of Rounds = $N = 9$

	A	B	C	D	E	F	G	H	I	BYE
A		1	2	3	4	5	6	7	8	9
B			3	4	5	6	7	8	9	2
C				5	6	7	8	9	1	4
D					7	8	9	1	2	6
E						9	1	2	3	8
F							2	4	5	1
G								5	6	3
H									7	5
I										7
BYE										

Self- Check Exercise – 27

Q 1 In the Tabular Method for drawing fixtures, how many columns are drawn for an even number of teams?

- a) N
- b) N + 1
- c) N - 1
- d) N + 2

Q 2 For an odd number of teams in the Tabular Method, how many columns are drawn?

- a) N
- b) N + 1
- c) N - 1
- d) N + 2

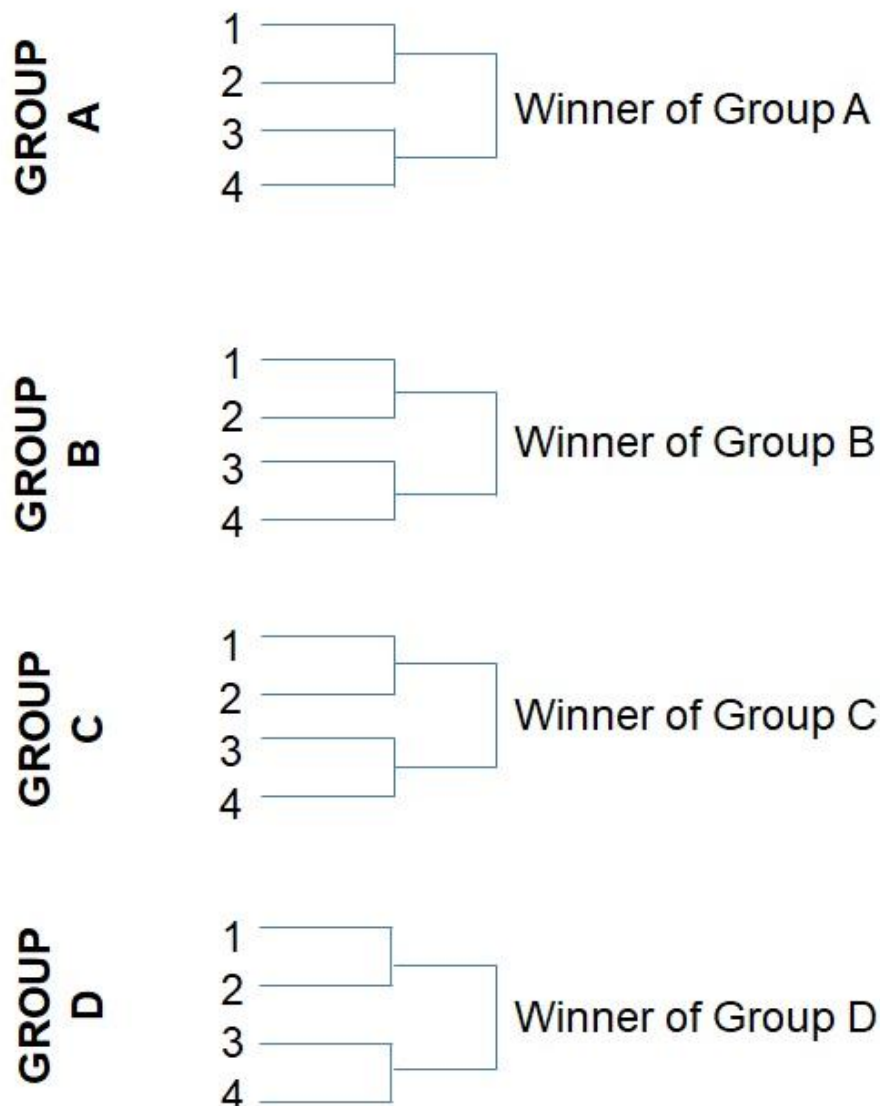
Q 3 What does the "BYE" column represents in the Tabular Method?

- a) Teams that have won all matches
- b) Teams that have lost all matches
- c) Teams that do not participate in a particular round
- d) Teams that are leading in the tournament

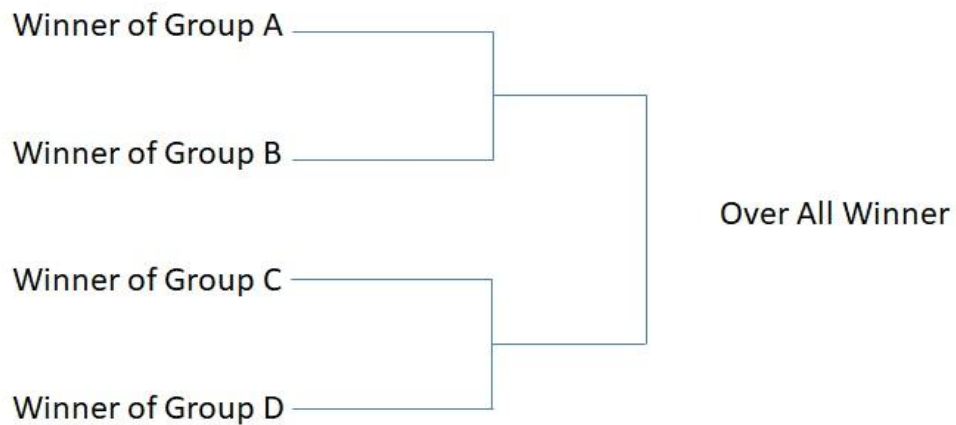
7.11 COMBINATION TOURNAMENT:

When a tournament is conducted by dividing the teams into a number of groups, or zones, it is known as 'combination tournament'. Such tournaments are organized when the number of teams is more. The teams concerning same group play among themselves and decide the winner. Then the winners of various groups play with one another. Generally, one of the following systems is followed:-

- (i) **Knock-out cum knock-out** : This system can be understood by following example. There are four groups – A, B, C and D. Each group comprises of four teams. Matches will be played as follows :-

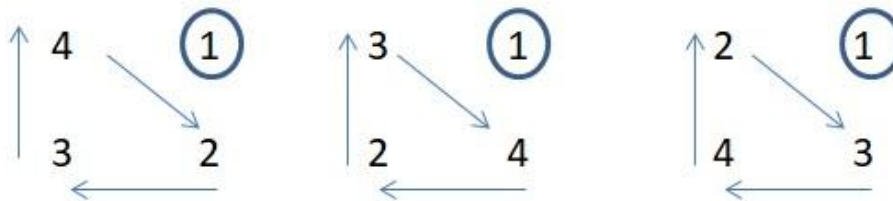


After this, winners of all groups will play matches on knock out basis.

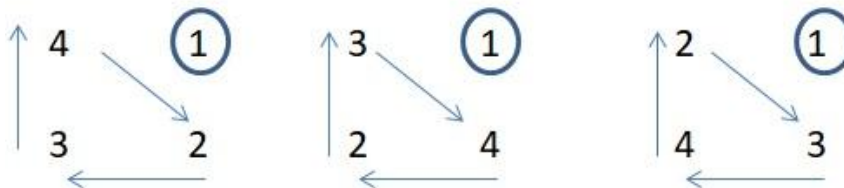


- (ii) **League cum League** : Let us suppose that there are four groups – ‘A’, ‘B’, ‘C’ and ‘D’ and each group comprises of four teams. The teams concerning same group will play matches on league basis.

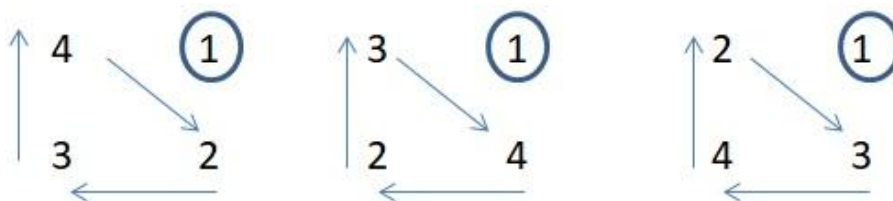
GROUP A



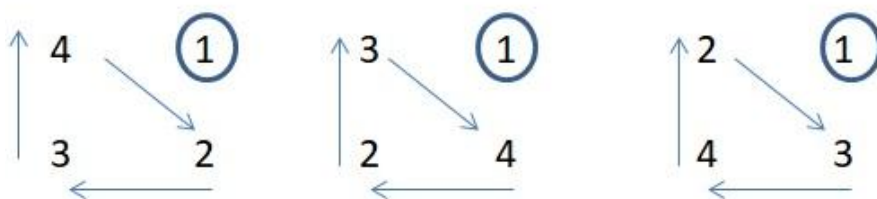
GROUP B



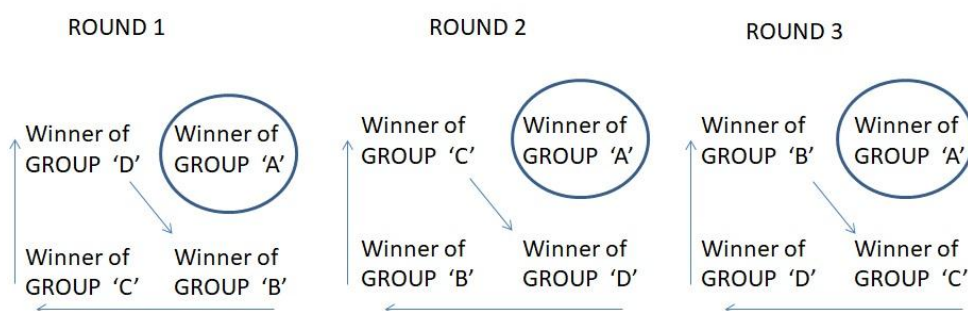
GROUP C



GROUP D

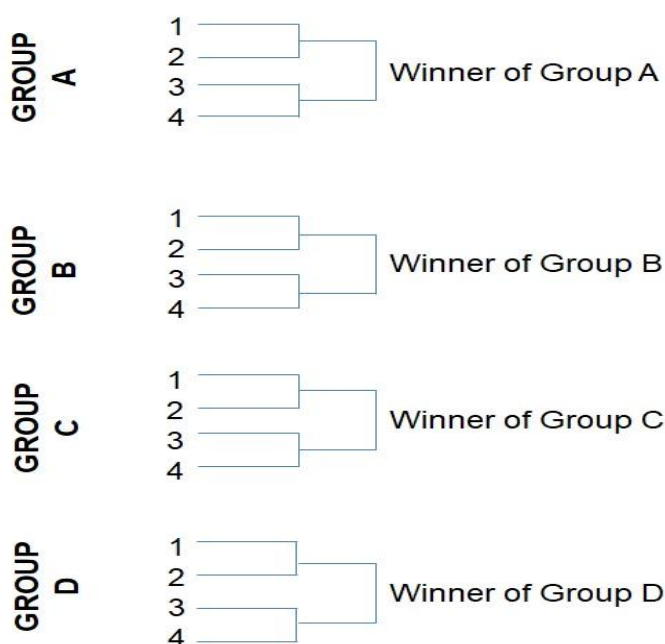


Winner of all the groups will play matches on league basis in the following way:-

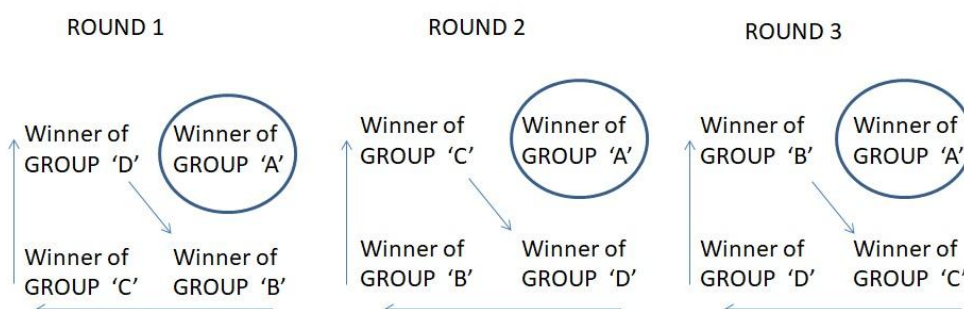


- (iii) **Knock out cum league System:** In this system, teams of same groups play matches on knock out basis. Then winners of the groups play among themselves on league basis.

Let us suppose that there are four groups – 'A', 'B', 'C' and 'D' and each group comprises of four teams. The teams concerning same group will play matches on knock out basis in the following way:



The winner of various groups play among themselves on League basis and champion will be decided.



- (iv) **League cum Knock out System:** In this system, teams of same group play with each other on league basis and winner is decided. Winners of different groups play on knock out basis and champion will be decided.

Self- Check Exercise – 28

Q 1 What is the "Knock-out cum knock-out" system in a Combination Tournament?

- Teams play in a league format first, then in a knockout format.
- Teams play in a knockout format within their groups, and then winners play in a knockout format again.
- Teams play in a league format, then winners play in a knockout format.
- Teams play in a knockout format only.

Q 2 What is the "Knockout cum league" system in a Combination Tournament?

- Teams play in a league format, then in a knockout format.
- Teams play in a knockout format within their groups, and then winners play in a league format.
- Teams play in a knockout format only.
- Teams play in a league format within their groups, then winners play in a knockout format.

Q 3 What is the purpose of dividing teams into groups or zones in a Combination Tournament?

- To ensure teams from different countries compete against each other.
- To increase the number of matches played.
- To allow teams to play against familiar opponents.

d) To organize matches more efficiently and fairly.

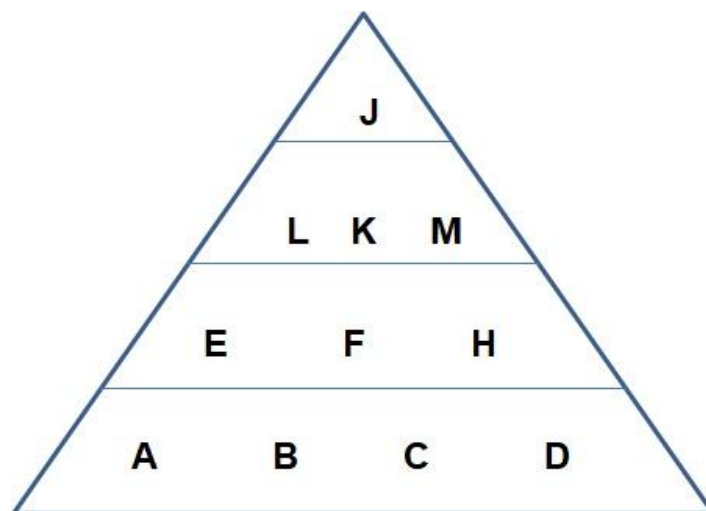
7.12 CHALLENGE TOURNAMENT:

Challenge tournaments are organized for individual games. In all those games, where one player (Single) or two players (Double) participate from one side, champion is decided by challenge tournament. Such sports include tennis, badminton, wrestling, boxing, table tennis etc. One of the following systems should be followed for organizing any challenge tournament:

- (i) **Ladder Tournament:** In such tournament, all the players are placed in an order in the form of ladder. It is done either arbitrarily or through lots. Every individual challenges the other participants. Thus, in this system, only preliminary rating is done. Various rules of this system are as follows:-
- In the beginning, the players are given suitable placing in the ladder either through lots or depending upon their previous performance.
 - Before starting the tournament, duration of the tournament must be decided to as to avoid confusion at the end.
 - Each player can challenge any player who is above him in placing e g in the picture; 'E' can challenge 'C' and 'C' can challenge 'D'.
 - If the challenging player wins his match, he will exchange his place with the defeated player. For instance, if 'C' challenge 'D' and wins his match against 'D', then he will get placing of 'D' and 'D' will go to his place.
 - If a player does not accept the challenge within stipulated time or does not play the match, then the challenging player will occupy his placing.
 - After a challenge match, the players cannot challenge each other again till one of them plays another match with another participant. For instance, if 'C' challenges 'D' and loses the match, he cannot challenge 'D' till 'D' plays a match with 'B' or 'C' plays a match with 'E'.
 - After completion of the stipulated time, the players are ranked according to their placing. The player with top ranking is announced as 'champion'.

A
B
C
D
E

- (ii) **Pyramid Tournament:** It is a modification of ladder system for holding challenge tournaments. The players are grouped together either arbitrarily or through drawing of lot or according to previous performance of the player. Then, players are placed in a pyramid formation as shown.



One can challenge any player in his row and if successful, he should challenge player in the row above him. If successful, they will exchange places. For instance any one of 'A', 'B', 'C', 'D' can challenge any one of 'E', 'F' and 'H'. Then players will exchange places. After completion of definite period, the player with highest ranking is termed as champion.

Self- Check Exercise – 29

Q 1 Which sports are typically organized using Challenge Tournaments?

- a) Football and Basketball
- b) Tennis and Badminton
- c) Cricket and Rugby
- d) Golf and Swimming

Q 2 What is the Ladder Tournament system in Challenge Tournaments?

- a) Players are grouped together arbitrarily.
- b) Players challenge each other and exchange places based on results.
- c) Players compete in a pyramid formation.
- d) Players play matches against all other participants.

Q 3 How is players placed initially in a Ladder Tournament?

- a) Based on their age.
- b) Based on their previous performances.
- c) Based on their height.
- d) Based on their weight.

7.13 SUMMARY

In this unit we discussed about the tournaments, types of tournaments and different methods to draw fixture. Tournaments are crucial for fostering competition, skill development, and community engagement across various domains. They encompass several types: knockout tournaments eliminate participants upon defeat, round-robin leagues ensure each competitor plays against all others, combination tournaments blend formats, and challenge tournaments allow direct contests for superiority. Understanding these structures is key to organizing tournaments effectively, ensuring fairness, maximizing participant involvement, and promoting the growth of skills and camaraderie.

7.14 GLOSSARY

- **Tournament:** A competition where teams or individuals compete against each other in a series of matches or rounds according to a set schedule, with the aim of determining an overall winner.

- **Knock-out Tournament:** Teams compete until they lose, at which point they are eliminated from the competition.
- **League or Round Robin Tournament:** Each team competes against every other team, and points or wins determine the overall ranking.
- **Combination Tournament:** Teams are grouped into zones or groups, with winners advancing to subsequent rounds in various formats.
- **Challenge Tournament:** Typically used in individual sports like tennis or boxing, where participants challenge each other to determine a champion.

7.15 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 24

Answer 1 c) A large contest of many rounds among various teams

Answer 2 b) By instilling a spirit of healthy competition and sportsmanship

Answer 3 b) By creating interest and excitement in the public

Self- Check Exercise – 25

Answer 1 b) It is eliminated from the competition

Answer 2 b) By drawing lots

Answer 3 b) Next power of two minus total number of teams

Self- Check Exercise – 26

Answer 1 b) 45

Answer 2 d) It gives every team multiple opportunities to play

Answer 3 b) 9

Answer 4 a) 7

Self- Check Exercise – 27

Answer 1 b) $N + 1$

Answer 2 d) $N + 2$

Answer 3 c) Teams that do not participate in a particular round

Self- Check Exercise – 28

Answer 1 b) Teams play in a knockout format within their groups, and then winners play in a knockout format again.

Answer 2 b) Teams play in a knockout format within their groups, and then winners play in a league format.

Answer 3 d) To organize matches more efficiently and fairly.

Self- Check Exercise – 29

Answer 1 b) Tennis and Badminton

Answer 2 b) Players challenge each other and exchange places based on results.

Answer 3 b) Based on their previous performances.

7.16 REFERENCES AND SUGGESTED READINGS

- Barrow, Harold M., “man and Movement: Principles of Physical Education”. Philadelphia, 1983.
- Bucher, Charles A. “Foundation of Physical Education”, 8th Ed. C.V. Mosby Co., St. Louis, 1979.
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- Kamlesh, M.L. and Sangral M.S., “Methods in Physical Education”, Prakash Brothers, 5-6 Book Market Ludhiana, 1986.

7.17 TERMINAL QUESTIONS

- What do you mean by Tournament? Discuss merits and demerits of Knock out and league tournaments.
- What do you understand by league or Round Robin Tournaments? Enlist its types.
- Draw a fixture for 25 teams by knockout system.
- Draw a fixture for 7 teams by league/round robin system.

UNIT – 8

ORGANISATION STRUCTURE OF AN ATHLETIC MEET

STRUCTURE

8.0	INTRODUCTION
8.1	LEARNING OBJECTIVES
8.2	ORGANISATION STRUCTURE OF AN ATHLETIC MEET
8.3	PRE-MEET WORK
8.4	DURING MEET WORK
8.5	POST MEET WORK
8.6	SUMMARY
8.7	GLOSSARY
8.8	ANSWER TO SELF-CHECK EXERCISES
8.9	REFERENCES AND SUGGESTED READINGS
8.10	TERMINAL QUESTIONS

8.0 INTRODUCTION

Dear learners, in this unit an attempt has been made to explain the organization structure of an athletic meet. The organization structure of an athletic meet encompasses planning, coordination, and execution of various roles and responsibilities to ensure the event's smooth conduct. It typically includes event directors; officials, technical staff, volunteers, and support personnel who manage logistics, competitions, safety, and participant welfare throughout the event.

8.1 LEARNING OBJECTIVES

After going through this unit you will be able to:

- understand organization structure of an Athletic Meet.
- organize an Athletic Meet in an institution in future.

8.2 ORGANISATION STRUCTURE OF AN ATHLETIC MEET

Athletic meet of an institution, is also called sports Meet. Sports meet may be divided into two categories from the conduct and organization point of view, such as Standard and Non-Standard Sports Meet. A Standard Athletic meet is a meet conducted according to the International Rules of Competition. In Non-Standard meet it is not necessary to follow the international rules of competition.

Here, we shall discuss only Standard Athletic/Sports Meet. Since in the schools, colleges or universities meets often international rules of competition are followed. The organizing and conducting part of an athletic meet involves lot of planning and preparation. The assistance and cooperation of several individuals is required for the successful and smooth conduct of the sports meet.

There are some important points which one should keep in mind while planning to organize an Athletic Meet, such as:

1. Suitable month and date to hold an athletic meet.
2. Approximate number of participants.
3. Selection of Athletic events to be included in the programme.
4. Selection and Availability of Chief Guests for the inauguration of the meet and prize distribution.
5. Selection of groups for the march past.
6. Availability of finances required for the purchase of prizes, refreshment, and other materials.
7. Kind of prizes to be purchased.
8. Menu of refreshment to be served.
9. Identification of special invitees and their approximate number.

The above mentioned points should be settled at the level of the head of the institution with the consultation of Head/Director of Physical Education and Sports Department.

Then the work involved in the organization and the conduct of the sports meet may be divided under three heads, such as:

- Pre-Meet Work
- During Meet Work
- Post Meet Work

8.3 PRE-MEET WORK

There shall be an organizing committee which shall be responsible for the successful and smooth conduct of the Annual Sports Meet. Several sub-committees shall be formed and work under the organizing committee.

The sub-committees and their duties are as follows:

- (i) Committee for publicity: This Committee shall announce the date, the place; the events etc. of the sports meet through the press, posters and other sources.
- (ii) Committee for Grounds and Equipment: This committee shall be headed by the technical person. The committee shall be responsible to secure the grounds and make arrangements for the proper laying out of the track and field. The members shall also collect all the necessary equipment and other materials and keep them ready for the meet.
- (iii) Committee for the Officials: The committee shall write to various qualified and competent persons to officiate the Track and Field events and get their acceptance/willingness. This committee may also contact the Chief Guests for the inauguration and prize distribution as per the directions of the Organizing Committee.
- (iv) Committee for Accommodation and Seating Arrangement: This committee shall arrange for the accommodation of competitors and officials coming from outstations. Further, this committee shall be responsible for the proper pandal and seating arrangements around the athletic arena for the convenience of the competitors, officials, spectators, guest etc. A separate arrangement shall be made for the press people. Also this committee shall make parking arrangements for cars, scooters and cycles.
- (v) Committee for Reception: This Committee will receive the chief guests for inauguration and prize distribution. It will see that the special invitees are welcomed on the day of the Meet and taken to the seats reserved for them.
- (vi) Committee for Decoration and Ceremonies: It is the responsibility of this committee to see that the athletic arena and pandal are decorated nicely in a pleasant manner and also to make necessary arrangements for the opening ceremony, victory ceremony, and the closing ceremony of the Athletic meet. This committee will also arrange trophies, medals and other awards.

- (vii) Committee for Purchase of Trophies/Awards: This committee will ensure that all the trophies/awards are purchased according to the number of events and also within the price fixed by the organizing committee. All the trophies and awards shall be handed over to the ceremony committee to arrange them for distribution.
- (viii) Committee for Refreshment and Entertainment: This committee shall take charge of supplying refreshments and drink to the competitors, officials, special invitees etc. They shall also arrange for some entertainment programme at the end of the sports meet.
- (ix) Committee for Entries and Programme: This committee shall receive entries, allot numbers to the competitors, arrange the heat, fill in the record sheets, with the names and numbers of the competitors for the respective events, and prepare the programme for the conduct of the meet.
- (x) Committee for maintaining Discipline: The members of this committee are technically known as marshals. They maintain discipline on the athletic arena. They do not allow trespassing. Only the athletes, who are actually participating in a particular event, are allowed to enter on the athletic field.

The programme may be prepared in the following order:

- (a) On the cover page the name of the institution with logo/seal, the name of the Chief Guests, who will inaugurate the meet and give away the prizes, the date and time of inauguration, events and prize distribution.
- (b) The names of various committees and their respective members.
- (c) The names of the official's event wise.
- (d) Order of events.
- (e) Consolidated score sheets.

In preparing the order of events the following points may be taken into consideration:

- (i) As far as track events are concerned, they must be arranged in the following order: Hurdles, sprints, long distance races, middle distance races and relay races.

- (ii) Track events and Field events should be conducted simultaneously.
- (iii) Since sprinters will usually be long jumpers and shot-putters may also be discus and hammer throwers, these events may not, as far as possible, be conducted side by side.
- (iv) Events like pole vault and high jump, javelin throw and discus throw need longer time to finish, therefore, they have to be started earlier.

8.4 DURING MEET WORK

On the day of Athletic meet all the officials, and the competitors shall report well before the commencement of an event. The officials are given badges or arm bands, copies of the programme and the concerned score/record sheets. The competitors shall receive their chest numbers, programme copies, and necessary instructions. The Sports Meet shall then be started with an opening ceremony which usually consists of the March Past of the athletes, salute taking by the chief guest declaration of opening of the meet by the Chief Guest, unfurling of the flag, oath taking by the athlete, carrying of torch and lighting torch, releasing balloons and pigeons etc. Then the events shall be conducted according to the programme. The victory ceremony will take place as soon as the final of each event is over. After the conduct of all the events as per the program, all the competitors shall assemble for the closing function, then the presentation of the trophies, certificates etc. shall take place. Sometime before the closing ceremony, cultural programme is organized for the participants, officials, spectators, guests etc. At last jumble march past takes place, athletes assemble in front of the Rostrum. With the singing of National Anthem, lowering of flag, declaration of closing the Athletic Meet by the Chief Guest, handing over flag to the chief guest by the guard of the honour, the chief guest hands over the flag to the head of the institution/HOD, Physical Education/ Sports for keeping it under safe custody till the next athletic meet. The Sports meet will come to a close.

8.5 POST MEET WORK

After the meet is over, it is necessary to return the equipment and other materials borrowed from others. Thanks giving letters are sent to those who helped in the conduct of the sports meet. Finally, all accounts are settled under the rules.

Self- Check Exercise – 30

Q 1 What is the purpose of dividing the organization and conduct of an athletic meet into Pre-Meet Work, During Meet Work, and Post-Meet Work?

- a) To simplify the process
- b) To allocate responsibilities effectively
- c) To minimize the workload
- d) To reduce the number of committees needed

Q 2 What is the purpose of the Committee for Entries and Programme?

- a) Organizing the opening ceremony
- b) Arranging accommodation for outstation participants
- c) Preparing the programme for the conduct of the meet
- d) Maintaining discipline during the meet

Q 3 What is the purpose of the Post-Meet Work?

- a) Returning borrowed equipment and settling accounts
- b) Organizing the opening ceremony
- c) Sending thank-you letters to participants
- d) Planning the next athletic meet

8.6 SUMMARY

In this unit we discussed the organization structure of an athletic meet. The organization structure of a standard athletic meet involves meticulous planning and execution across three phases: pre-meet, during meet, and post-meet. It begins with forming committees like publicity, grounds and equipment, officials, accommodation, reception, decoration, prizes, refreshment, entries, and discipline. Each committee handles specific responsibilities from logistics to ceremony arrangements. During the meet, events commence with an opening ceremony, followed by scheduled competitions and a closing ceremony with awards and cultural programs. Post-meet

tasks include equipment return, acknowledgments, and financial settlements. This structured approach ensures the smooth conduct and success of the athletic meet.

8.7 GLOSSARY

- Pre-meet: Initial phase involving planning and preparation before the event.
- During meet: Phase encompassing the actual execution of the athletic meet.
- Post-meet: Phase focusing on tasks after the event's completion.

8.8 ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 30

Answer 1 b) To allocate responsibilities effectively

Answer 2 c) Preparing the programme for the conduct of the meet

Answer 3 a) Returning borrowed equipment and settling accounts

8.9 REFERENCES AND SUGGESTED READINGS

- Barrow, Harold M., “man and Movement: Principles of Physical Education”. Philadelphia, 1983.
- Bucher, Charles A. “Foundation of Physical Education”, 8th Ed. C.V. Mosby Co., St. Louis, 1979.
- Krishna Murthy V. & Paramesara Ram, N. “ Educational Dimensions of Physical Education”, 2nd Revised edition, Print India, New Delhi, 1990.
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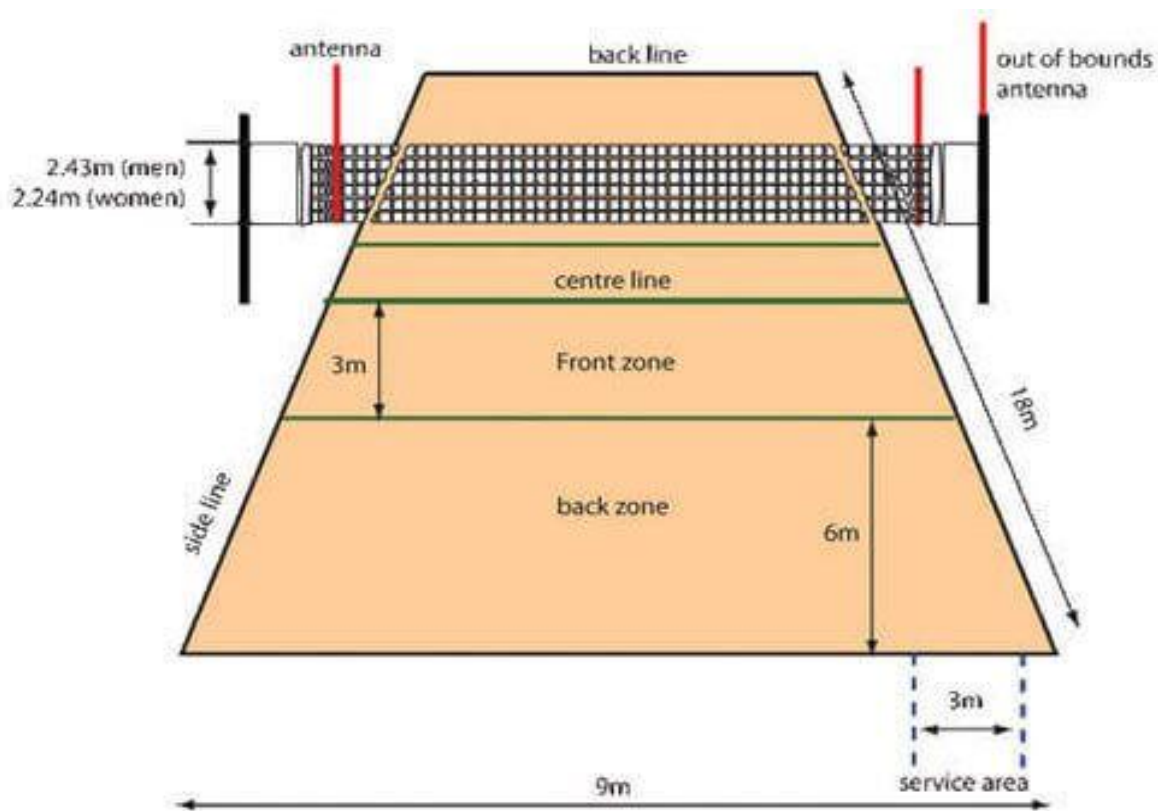
8.10 TERMINAL QUESTIONS

- Explain in detail the method of organizing an Athletic Meet, under the following heads: Pre Meet Work; During Meet Work; and Post Meet Work
- How would you organize an Athletic Meet?
- Enlist the points which would be considered before organizing a standard Athletic Meet.

Activity (Any one of the following Games)	GAMES AND SPORTS– VOLLEYBALL, BADMINTON, KABADDI, TABLE TENNIS, KHO – KHO, BASKETBALL, HOCKEY
--	--

VOLLEYBALL

PLAYFIELD AND EQUIPMENTS



Volleyball Playfield	= 18 m x 9 m
Free Zone Area	= 24 m x 15 m (minimum 3 m on all sides)
Length of Service Line	= 9 m
Size of Net	= 9.5 m x 1 m (width)
Height of Net	= 2.43 m (men), 2.24 m (Women)
Pole to Pole Distance	= 10 to 12 m
Height of Antenna	= 80 cm above net (over Side Line)
Circumference of Ball	= 65 to 67 cm
Weight of Ball	= 270 g + 10g
No. of Players	= 12 (6 Playing and 6 Substitutes including Libro)
Width of Line	= 5 cm
No. of Points in a Set	= 25 Points in fifth Set (M) or third Set (W)
Officials	= 1 Referee, 1 Assistant Referee, 1 Scorer, 1 Table Official, 1 Commissioner of match, 4 Line Judges
Time-Out	= 1 Time-Out in each set and 2 Time-Out in

	final	set (of 30 seconds)
Tie-Rule	=	At 24 Points or 14 Points (two consecutive Points)

LATEST RULES OF THE GAME

- Volleyball involves two teams of 6 players who try to send the ball over the net to touch the ground on the opposing team's side.
- The team that wins a rally wins a point, moreover, wins the right to serve at the same point.
- A set is won by a score of 25 points.
- If there is a tie at 24 points or at 14 points (in final game), then game continues until one team has a 2 points lead.
- A match is won by 3 sets (out of 5). Fifth set for men and third set for women is of 15 points.
- The ball is put in play by the back-row player on the right, who can serve anywhere along the 9 meter width of the service zone.
- The player has 8 seconds to make service in a single attempt to get the ball over the net (it many touch net).
- The rally ends when the ball touches the ground or when it is hit out of bounds or when the player does not return it legally.
- When a team wins service, the players rotate one position clockwise. This rule was instituted so that players would have to play in both the front and back zones.
- Each team can touch the ball maximum of 3 times in addition to the block, before sending it into the other team's court. Once a player has touched the ball, he cannot touch it again until it has been touched by another player in either team.
- The ball can touch any part of the body and it must be hit (not held or thrown).
- It is illegal for a player or players to form a screen to keep the other team from seeing the server.
- A team can make a maximum of 6 substitutions per set.
- The service touching the top border of the net is a legal service.
- A player cannot be substituted again on the same position, if already has been replaced. Warming-up of time period in the playfield for both teams is 3

to 5 min before the match. The area of warming-up extends 3 m to sides or on nearly playfield.

Self- Check Exercise – 31

Q 1 What are the dimensions of a standard volleyball playfield?

- a) 15 m x 8 m
- b) 20 m x 10 m
- c) 18 m x 9 m
- d) 12 m x 6 m

Q 2 How many players are there in a volleyball team?

- a) 5
- b) 7
- c) 12
- d) 10

Q 3 What is the rule regarding player rotation in volleyball?

- a) Players rotate clockwise after winning a point
- b) Players rotate counterclockwise after winning a point
- c) Players stay in the same position throughout the game
- d) Players rotate after each serve

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 31

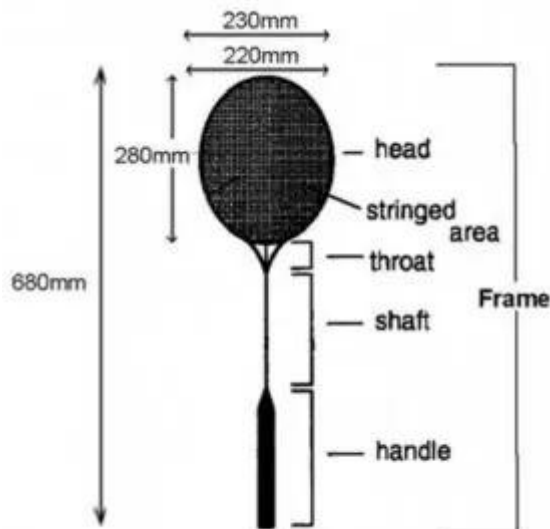
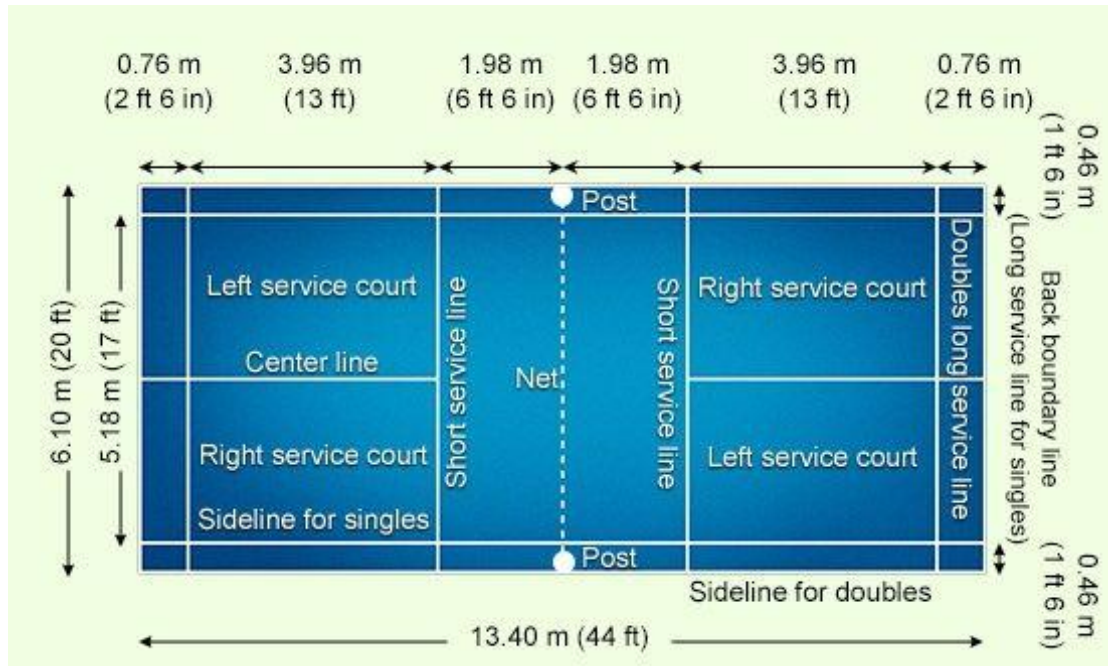
Answer 1 c) 18 m x 9 m

Answer 2 c) 12 (6 Playing and 6 Substitutes including Libro)

Answer 3 a) Players rotate clockwise after winning a point

BADMINTON

PLAYFIELD AND EQUIPMENT SPECIFICATION



Size of Badminton Court (Single) = 13.40 m x 5.18 m (44 Feet x 17 Feet) including lines

Size of Badminton Court (Double) = 13.40 m x 6.10 m (44 Feet x 20 Feet) including lines

Height of Poles	= 1.55 m (5 Feet 1 inch) over Sideline for Doubles
Height of Net at Centre	= 1.52 m (5 Feet)
Weight of Shuttle Cock	= 4.74 gms to 5.50 gms with 16 Feathers
Width of Lines	= 4 cm as part of court.
No. of Points in Game	= 21 point game in best of three for all categories.
Deuce	= At 20 all the difference of two points is considered
Racket	= 68 cm long and 23 cm wide head.
Officials	= 1 Umpire, 1 Service Umpire, 4 to 8 Linesmen, 1 Match Referee.
Free Space	= 2 meter on all sides of court.

LATEST RULES OF THE GAME

- In this game, the player hits shuttle cock back and forth over the net with a racket.
- Badminton is played in singles, doubles and mix doubles.
- There are two ways to win a rally; getting the shuttle cock to hit the opponents' side court or forcing opponent to commit a fault.
- A fault occurs when the shuttle cock is hit out of bounds; touches the court; does not go over the net; touches a player or his cloths; infringement of rules, etc.
- A game consists of 21 points continuous scoring, in the best of three games (all categories according to new rules). A winner is one who wins two games.
- In case of tie at 20th point then difference of two points will be considered for deciding game.
- Continuous point scoring is followed according to new rules; the player who is serving if lose the rally, then he will lose the right to serve as well as one point.

- The points are told as 'Love All' in the beginning. In singles game, all even points services are done from right side of the half court and all odd point services are done from left side of own court.
- Change of sides is done after each game and also on the 11th points in the final game.

Singles Game: In singles game, one player in each plays and covers the single court area of own half court by hitting the shuttle over the net. He performs all the even points services from the right side of the court to the right side of opponents court like 0, 2, 4, 6, So on. All odd points' services are performed from the left side of the court. The service is performed diagonally so that shuttle should land to the same side in opponent's court afterward rally can go in singles court area. A continuous service is given as long as he is gaining points. Usually a long and high service is performed in singles.

Doubles Game: In doubles game, a team of two players, each plays against the other. They begin the game with the service from the right side of the court which is to be lifted only by the same side player in opponent's court. A team who is serving, if wins the rally then rotates the sides for next service from other side of own half court. It is to be performed by the same player as long as they are gaining points. Any one player can service in each team according to new rules in 2006. The strategy of doubles game is to perform low and short service. Team gets advantage if they play attacking game. Good combination of team rotates front and back to get more chance of attacking while defensive game is played by side-to-side area.

Self- Check Exercise – 32

Q 1 What are the dimensions of a standard badminton court for singles play?

- a) 13.40 m x 5.18 m
- c) 18 m x 9 m
- d) 20 m x 10 m

Q 2 What is the height of the net at the center for a standard badminton court?

- a) 1.52 m

- b) 1.55 m
- c) 2.0 m
- d) 1.80 m

Q 3 In singles badminton, from which side of the court are even-numbered points served?

- a) Right side
- b) Left side
- c) Back side
- d) Front side

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 32

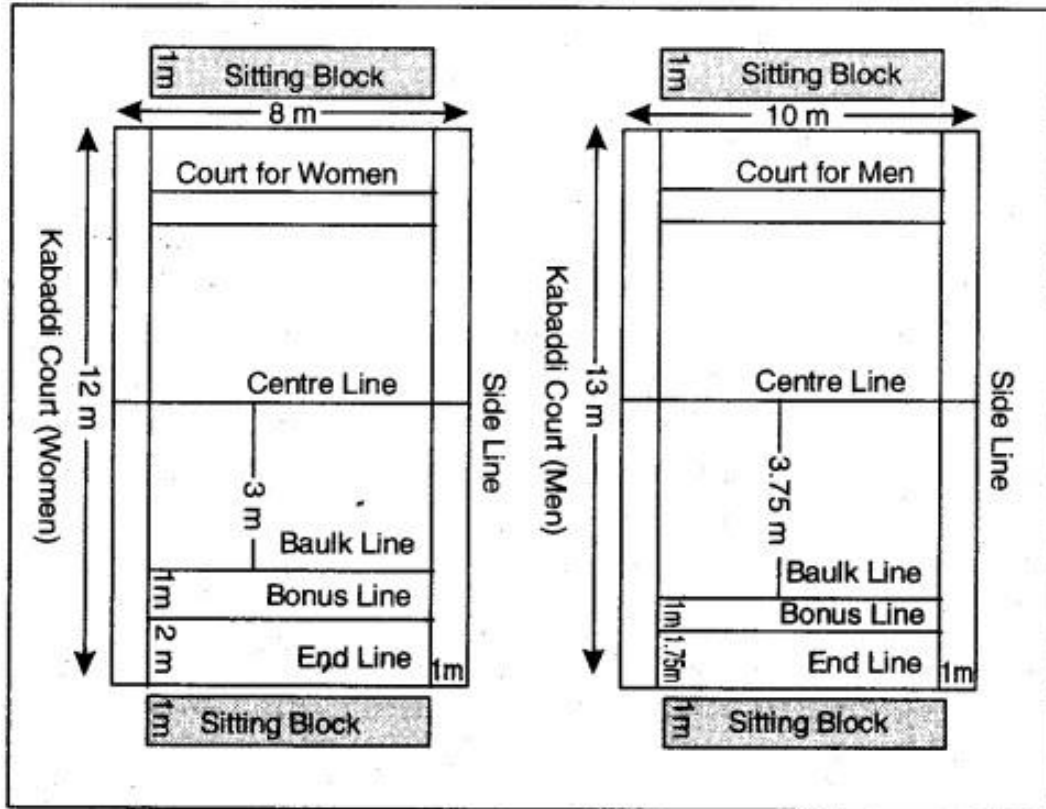
Answer 1 a) 13.40 m x 5.18 m

Answer 2 a) 1.52 m

Answer 3 a) Right side

KABADDI

Kabaddi Court



Dimension of Playfield

= Men 13.00 m x 10m, Women 12 m x 8 m

Width of Lobby

= 1 m on sides

Distance of Baulk Line

= 3.75 m (Men), 3 m (Women) from Midline

No. of Players

= 12 (7 Playing, 5 Reserves)

Duration of Game

= 2 Halves of 20 min (5 min rest in-between) Men 2 Halves of 15 min (5 min rest-between) Women

Surface of Playfield

= Mats

Lona

= 2 Points (all players are Out)

Officials

= 1 Referee, 2 Umpire, 1 Scorer, 2 Linesmen

Raider Speaks/Cant

= 'Kabaddi' Kabaddi in a single breath

Free Space Area

= 3 to 5m on all sides

LATEST RULES OF GAME

- In this game, two teams of seven players each, take their positions in its own half side of playfield.
- One player (raider) gets the chance to 'raid' in opponent side, by speaking lant or 'Kabaddi-Kabaddi' in a single breath.
- He moves in a dodging and faking pattern in an attempt to touch the opponent players and reach back safe to his side.
- The opponent players also try to catch or hold of the raider so that he cannot go back to his side.
- Player is benefited with points if he touches opponent player and comes back safely to own half diving raid.
- If raider is unsuccessful like, caught by opponents or breaks cant, goes out of playfield, then he is punished as 'out' and sits behind the end line in sitting block. They will sit till their teammates are able to get him a life. This way raids continue during play.
- A raider is awarded one point if he crosses the bonus line when the number of opponents is five (or more than five) and reaches back safe.
- An addition of 2 points 'Lona' are given if all the opponent players are made to sit in sitting block during play.
- Each raider has to cross Baulk Line during raid. Lobby area cannot be used except during struggle.
- No player can hit or push or hurt opponent intentionally. The common fouls are violent tackling, more than 5 seconds to Raid, hitting the out raider, side push, etc.
- The duration of match shall be two halves of 20 minutes (M) or 15 minutes (W); with rest period of 5 minutes in between each half.

Self- Check Exercise – 33

Q 1 What are the dimensions of the playfield for men's Kabaddi?

- a) 12 m x 8 m
- b) 13 m x 10 m
- c) 10 m x 6 m

d) 15 m x 12 m

Q 2 How wide is the lobby area on the sides of the Kabaddi playfield?

a) 0.5 m

b) 1 m

c) 2 m

d) 3 m

Q 3 What term is used to describe the situation where all opponent players are made to sit in the sitting block during play?

a) Out

b) Lona

c) Raid

d) Bonus

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 33

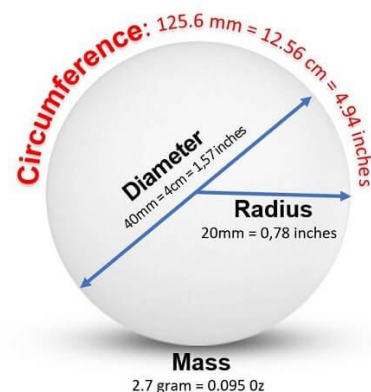
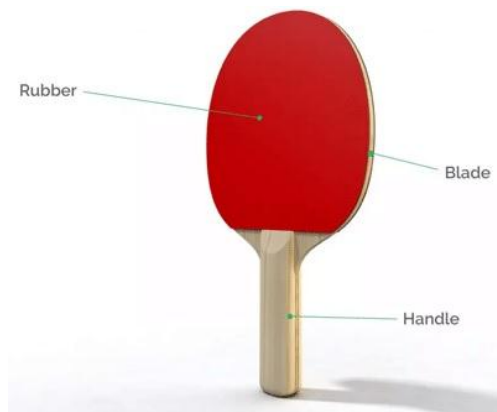
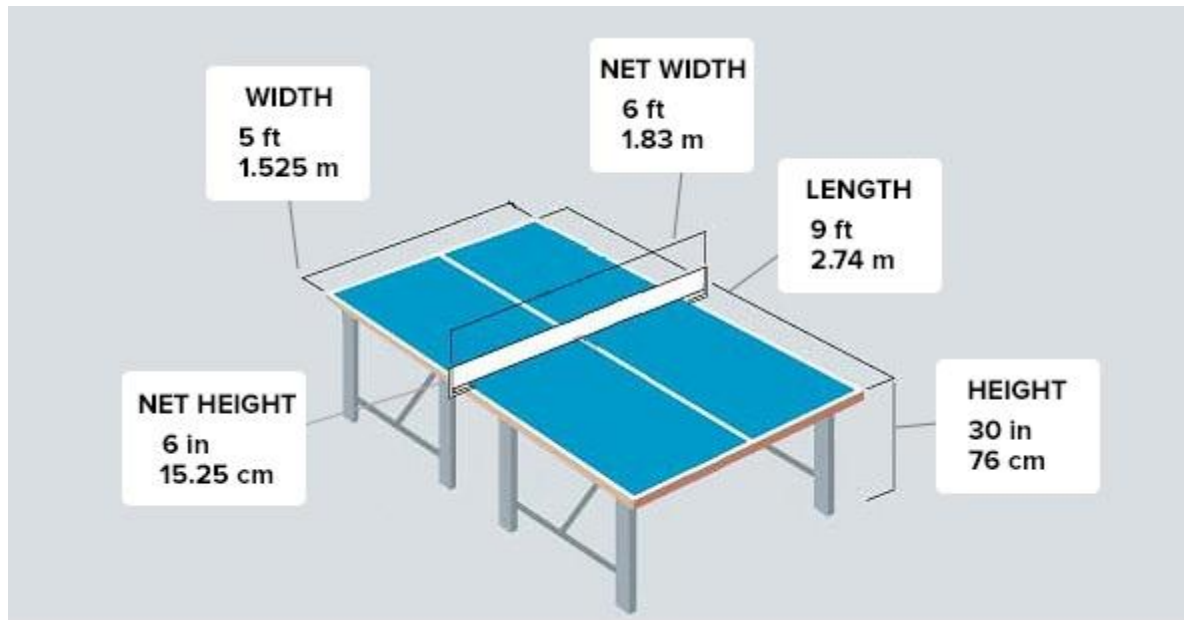
Answer 1 b) 13 m x 10 m

Answer 2 b) 1 m

Answer 3 b) Lona

TABLE TENNIS

TT TABLE AND EQUIPMENTS



Size of Table	= 2.74 m (9 feet) x 1.52 m (5feet) plane surface
Free Space	= 3 m to sides and 5 m to back
Height of Table	= 76 cm (2 ½ feet) above floor surface
Net Size	= 1.83 m (6feet) length and 15.2 cm (high from table)
Weight of Ball	= 2.5 gm with 40 mm diameter
Colour of Ball	= White or orange (made of Celluloid)
Colour of Table	= Blue or green (made from Wood/Cardboard)
Bat (Paddle)	= Circular shape of 20 cm diameter

Official	maximum = Match Umpire, Assistant Umpire, Tournament Referee
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LATES RULES OF THE GAME

- Choice of side or Service: The choice of side or service is done by tossing the coin or spin of the paddle. The winner of toss has the first option whereas loser of toss has the other option.
- Service Rules: Service is performed to begin the rally where ball has to be returned after two bounce across the net (on bounce to own side of table and other bounce on opponent side of the table across the net). During service ball has to be tossed up (with open palm) without food fault. 'Let' service is re-delivered if; ball touches the top edge of the net and lands correctly. Two consecutive services are done in a row by player (for two points). For wrong service opponent gains a point.
- Change of Service: A player has to deliver two successive services on two points, afterward the opponent gets the right to serve from other side of table. After the end of each game the sides are changed.
- Rally or Return of Service: A rally is exchange of strokes after service. A player has to return the ball across the net legally after one bounce on his side of table. Player pressurize opponent to commit mistake or unable to return legally. Player who wins the rally gains a point.
- Game and Match: A 'game' consists of 11 points. The player who reaches 11 points first, wins the game (with difference of two points). In most of tournaments, a match is played for 'best of five games' for men and 'best of three games' for women.
- Tie Rule: If there is tie of score on last point, i.e. '10-all points' then service changes at each point until difference of two points. This is also termed as 'Deuce'.
- Doubles Rules: The objective is same in doubles game. During service, the player performs the service diagonally across the net (over the center line) to both the players alternately by changing sides. In doubles, service rotates so

that each player serves and receives them in turn. In rally, the team must hit the ball alternately, no matter where it lands on the table.

Self- Check Exercise – 34

Q 1 What are the dimensions of the table surface in Table Tennis?

- a) 2.44 m x 1.22 m
- b) 2.74 m x 1.52 m
- c) 3 m x 2 m
- d) 2 m x 1 m

Q 2 What is the height of the Table Tennis table above the floor surface?

- a) 60 cm
- b) 70 cm
- c) 76 cm
- d) 80 cm

Q 3 What is the weight of the Table Tennis ball?

- a) 2.0 gm
- b) 2.5 gm
- c) 3.0 gm
- d) 3.5 gm

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 34

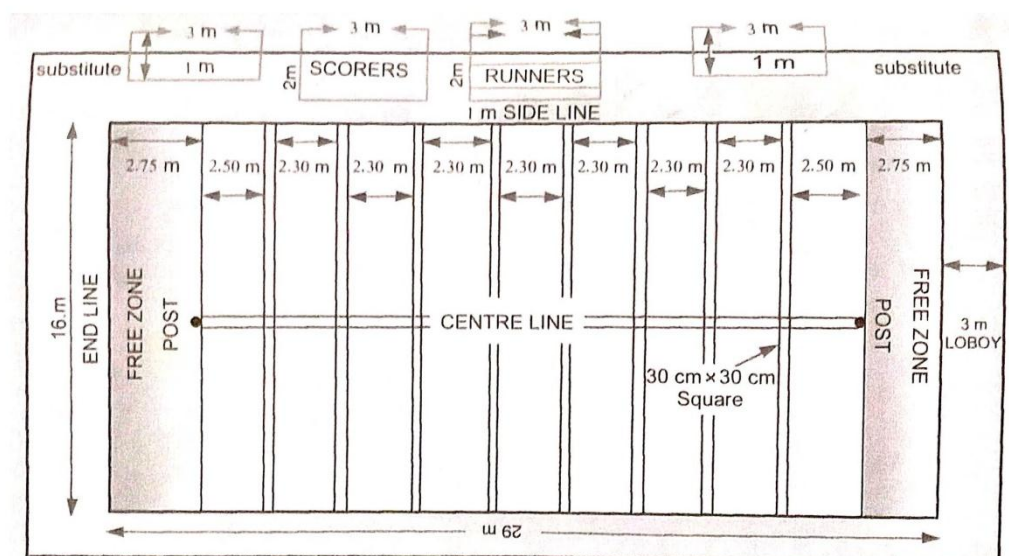
Answer 1 b) 2.74 m x 1.52 m

Answer 2 c) 76 cm

Answer 3 b) 2.5 gm

KHO – KHO

Kho-Kho Court



Dimension of Playfield	= 29 m x 16 m
Pole Specification	= Two poles of 1.20 m high, 10 cm thick and 23.5 m away
Free Zone Area	= 2.75 m x 16 m (beyond Pole Line) on both sides
Lobby	= 1.5 m on all sides to playfield
Sitting Block Area	= 30 cm x 30 cm (Square) cutting of cross lane and center lane
Cross Lane	= 30 cm x 16 cm
Distance between Cross Lane	= 2.50 m near Pole and 2.30 m in others.
Match Duration	= (9+5+9) min in I and II inning with 10 min break in half
Officials	= 1 Referee, 2 Umpire, 1 Scorer, 1 Timekeeper
No. of players	= 12 (9 playing + 3 Substitute)
No. of Square	= 8 Square of 30 cm
Tie Rule	= Time noted and compared for 1 player in additional Inning

LATEST RULES OF THE GAME

- A team consists of 12 players in which two teams of 9 playing members play against each other alternately in four turns or quarters of 9 min each. When two turns or quarters are over this is also known as inning.
- 'Chaser' team takes sitting position in the cross lanes (squares) with opposites back in 9 squares and one player stand near the pole. They should not cut the lines while sitting.
- Runner team sends players (in groups of 3 players) for running. While other runners will wait for their turn in entry zone area.
- Chaser team attempts to catch the running players while on 'Kho' from one player to another.
- Chaser players can only move in one direction without crossing the center lane. Change of direction can only be done by active chaser or by the touch of pole or at the free zone area. They can pass on 'kho' by touching the back of the player and speaking 'kho' simultaneously.
- Running players defend themselves from the chasers. They generally move in a zig-zag, dodging and running (behind the sitting chaser). They are permitted to cross the centre lane and may change their direction within the playfield.
- As soon as the first group of three runners gets out the new group of three runners enters the playfield before two 'kho'. Afterwards they are chased.
- The points are awarded by the legal touch of the chaser player to the running players.
- Fouls are: Early kho, without touch kho, changing directions, line-cut early get up, not spoken kho, turning of shoulder, and late Kho. A player has to give minus kho (negative kho) to continue further.
- In case of tie an additional inning shall be played where time is compared to make 1 player out. The team with less timing will be declared winner.

Self- Check Exercise – 35

Q 1 How many players are there in each team, including substitutes?

a) 8

- b) 10
- c) 12
- d) 14

Q 2 What is the duration of each inning in the game?

- A) 10 minutes
- B) 15 minutes
- C) 20 minutes
- D) 25 minutes

Q 3 How many squares are there in the playfield, and what are their dimensions?

- a) 4 squares, 25 cm x 20 cm
- b) 6 squares, 20 cm x 15 cm
- c) 8 squares, 30 cm x 30 cm
- d) 10 squares, 35 cm x 25 cm

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 35

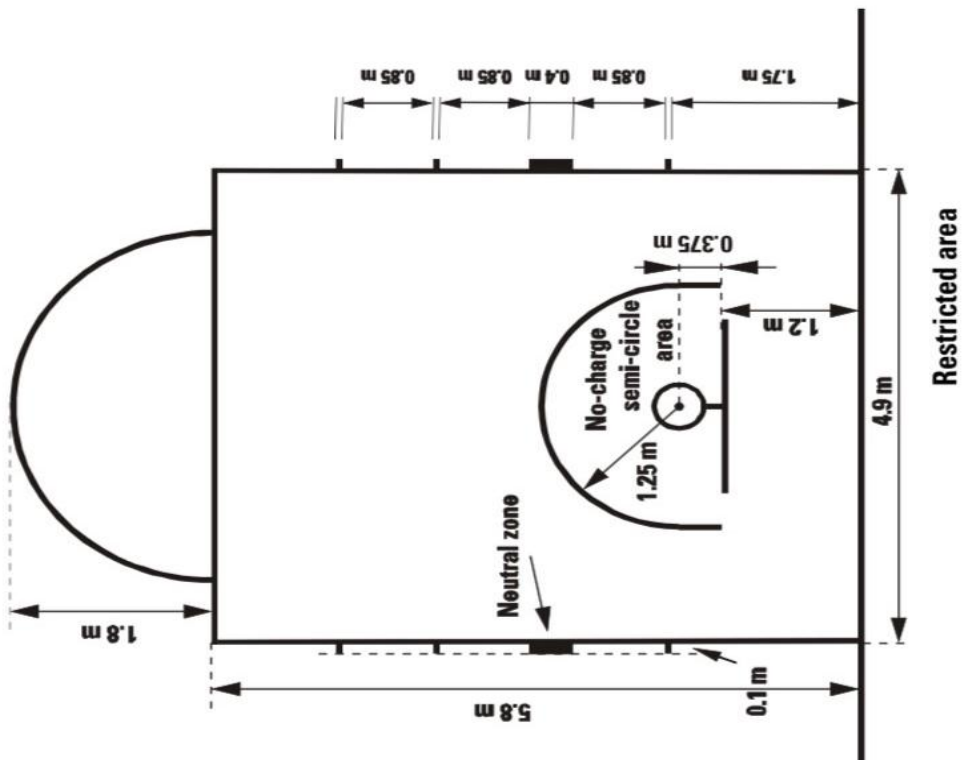
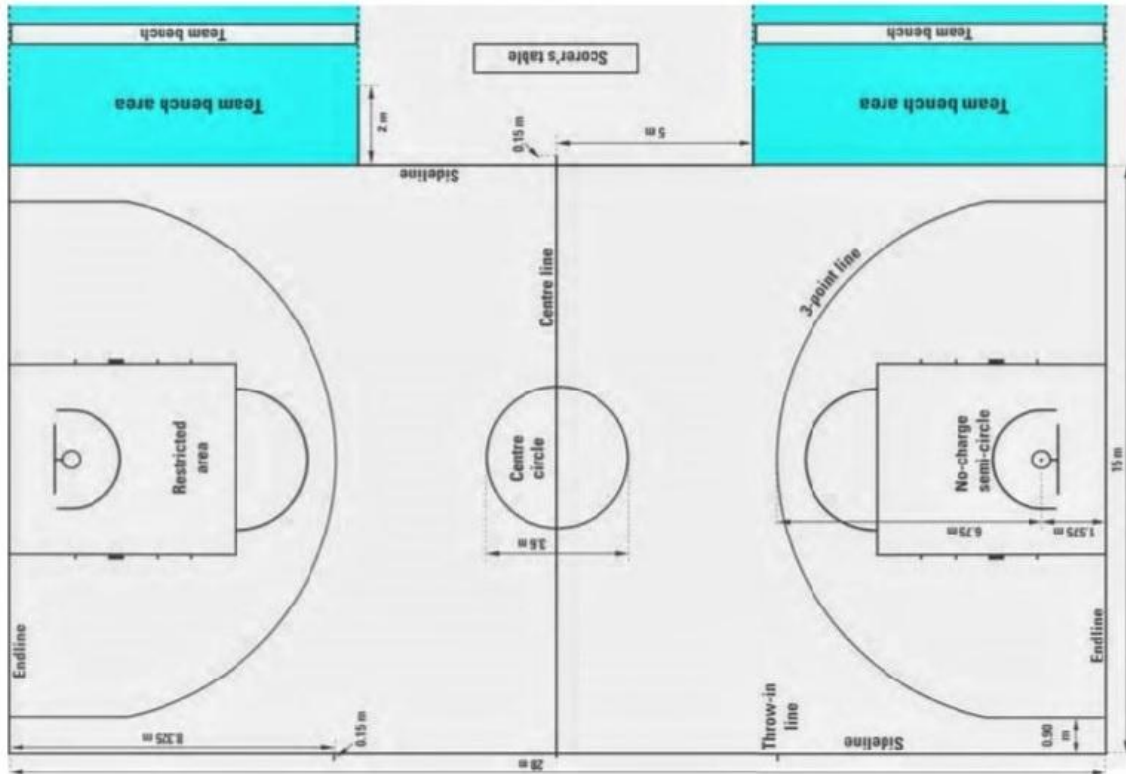
Answer 1 c) 12

Answer 2 a) 10 minutes

Answer 3 c) 8 squares, 30 cm x 30 cm

BASKETBALL

PLAYFIELD AND EQUIPMENTS



Area of Court	= 28 x 15 m (excluding lines 5 cm [2 m safety zone on all sides])
Radius of Circles	= 1.80 m
Height of Board	= 2.90 m from surface
Backboard	= 180 cm x 105 cm (120 cm inside the end line)
Diameter of Ring	45 cm
Circumference of Ball	= 75 cm +- 3 cm (Men); 72 cm +- 1.5 cm (Women) (rubber or leather dust covering) Made of Rubber or Leather Dust Covering
Weight of Ball	= 625+- g (Men); 550 -25 g (Women) (bounce should be above 1 m if dropped from 1 ½ m to check are pressure)
Duration of Game	= 40 min in four Quarters (10 minutes each)
Extra Time	= 5 min
Rest Time in Between	= 2 to 5 min (between I to II to IV) 5 to 10 min (in half)
Time Out Duration	= 1 min duration
Total Players in Team	= 12 (Five field players and seven substitutes)
Chest No. of Player	= 4 to 15 (FIBA rule); any two digits (NBA rule)
Officials (Seven)	= 1 Referee, 1 Umpire, 1 Scorer, 1 Assistant Scorer, 1 Timekeeper, one 24-Seconds Operator, 1 Table Commissioner.

LATEST RULES OF THE GAME

- Two teams of 5 players each try to score points by tossing the ball into the opposing team's basket.
- They may use only their hands to control the ball, and are not allowed to run while holding it.
- A field goal counts for 2 points or 3 points (if it is thrown from outside the 3 point line).
- A free-throw is worthy of 1 point. This is indicated by raising one or two or three fingers (as per score) of right hand by Referee.
- The team with possession of the ball must launch at attack within the following time limits. After taking possession of the ball, it has 8 seconds to

move the ball forward across the mid-court line; 24 seconds to take a shot at the basket.

- 'Throw-in' given to opponent team if ball lands out of bound during play or touches the player who is standing out of bounds. Opponents are also awarded with throw-in if foul or violation is committed outside the restricted area.
- In case of common ball, teams are also given throw in from side in alternative ways.
- There are two officials inside the court (Referee and Umpire) who regulate the rules of game. Other assisting officials are scorer, assistant scorer, timekeeper, 24 seconds operator and table commissioner.

Time Rules

- **Playing Time:** The playing time period is of 40 min-duration which is extended into four quarters. The rest period in between I to II and III to IV quarters is 2 min whereas, in half (between II to III quarter) is 5 min to 10 min i.e. 10-2; 10-5/10; 10-2;10. The game clock starts when the ball reaches the highest point on a toss during a jump ball is tapped by the first player.
- **Extra Time;** In case of tie during normal time period of 40 min the game is extended for 5 min play. It can further be extended upto break of tie.
- **'24'-Seconds Rule:** Whenever, team gains possession of ball, they are supposed to attempt the basket within 24 seconds.
- **'8'-Seconds Rule :** After the score or due to foul or any other reason if team gets the possession of ball they are supposed to move the ball in the front of court (from the rear half of court) within '8' seconds. (Earlier it was 10 seconds rule).
- **'5'-Seconds Rule:** A player cannot hold the ball (without bounce) for more than '5' seconds.
- **'3'-Seconds Rule:** Any offensive player cannot stay inside the opponents restricted area consecutively for more than '3' seconds, (apart from attempts, rebounds or tries for making basket.).
- **Charged Time-Out:** Each team can take one time out maximum in I, II, III, quarters and can take two time out in IV quarter. The duration of time out is 1

min. maximum. It is only granted when ball is not in play. Game is continued from side pass (as per possession before the time out).

Fouls

It is an infraction of rules involving personal contact with the opponent or unsportsmanlike behavior. These obstructions are committed to the opponent to get the possession of the ball or overpower the opponent or misconducts or misbehave with the officials in the playfield. Fouls are noted over score sheet by the table-official. In case of fouls the opponents are awarded throw-in or free-throw (as per attempt for scoring).

Personal Foul: It is a player foul which involves illegal contact with the opposing player whether the ball is alive or dead. A player is eliminated from the match if he commits 5 personal fouls. They are further penalized with throw-in or free-throws; if their team has committed more than four fouls in each quarter. These fouls are charging, illegal blocking, guarding from behind, holding or pushing opponent, illegal-screening, etc.

Unsportsmanlike Foul: This foul is also known as intentional foul. It is a personal foul of a player; with or without the ball. It has been deliberately committed against opponent. A player who knowingly hits the opponent player, who is going for scoring basket. This is a serious foul, in which opponent gets two free-throws along with side pass from center-line.

Technical Foul: When a player or coach performs unsportsmanlike act or misconducts or violence act deliberately. In this foul, opponent gets two free-throws along with throw-in from center.

Multiple Foul: When many players are involved in the foul like held-ball. In this, jump-wall is performed from the nearest circle (now side throw or throw-in from side line is taken in alternate manner).

Team Fouls: These are total fouls of a team. If the team fouls exceed more than four fouls in each quarter, then opponent team is awarded with two free-throws on each foul.

Violations

It is an infraction of rules of game i.e., illegal actions for controlling or dribbling the ball during the game (without obstructing opponent). These violations are not noted over the score sheet but opponent gains the possessions of the ball.

Travelling: Illegal movement of the ball like running without bounce or passing while running.

Carrying: A player with ball dribbles the ball, cannot use both hands simultaneously for dribble. He can use both hands only while receiving or while passing the ball.

Out of Bound: Ball hits the boundary line or it bounces out of playfield.

Back Court: If ball is passed from the front court to the rear court to own teammate.

Match Equipment

- Two or three standard specified basketballs.
- One game clock for overall game duration of playing time, one stopwatch for small breaks in between the playing time.
- One 24 Seconds alarm device.
- Alarm or bell or whistles.
- Two team foul indicators, number markers and two free-throw flags.
- One to five number personal foul cards.
- Throw-in indicator (jump-ball replacement).
- Score sheet.
- Scoreboard.

Self- Check Exercise – 36

Q 1 How many players are there in each team, including substitutes, according to the latest rules?

- a) 7
- b) 9
- c) 12
- d) 5

Q 2 How many quarters are played in a standard basketball game according to the latest rules?

- a) 2
- b) 3

c) 4

d) 5

Q 3 What happens if a player commits five personal fouls in a basketball game?

a) They are suspended for one quarter

b) They are eliminated from the match

c) They receive a warning

d) They are fined

Q 4 How long does a team have to attempt a shot at the basket after gaining possession of the ball according to the latest rules?

a) 20 seconds

b) 30 seconds

c) 24 seconds

d) 15 seconds

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 36

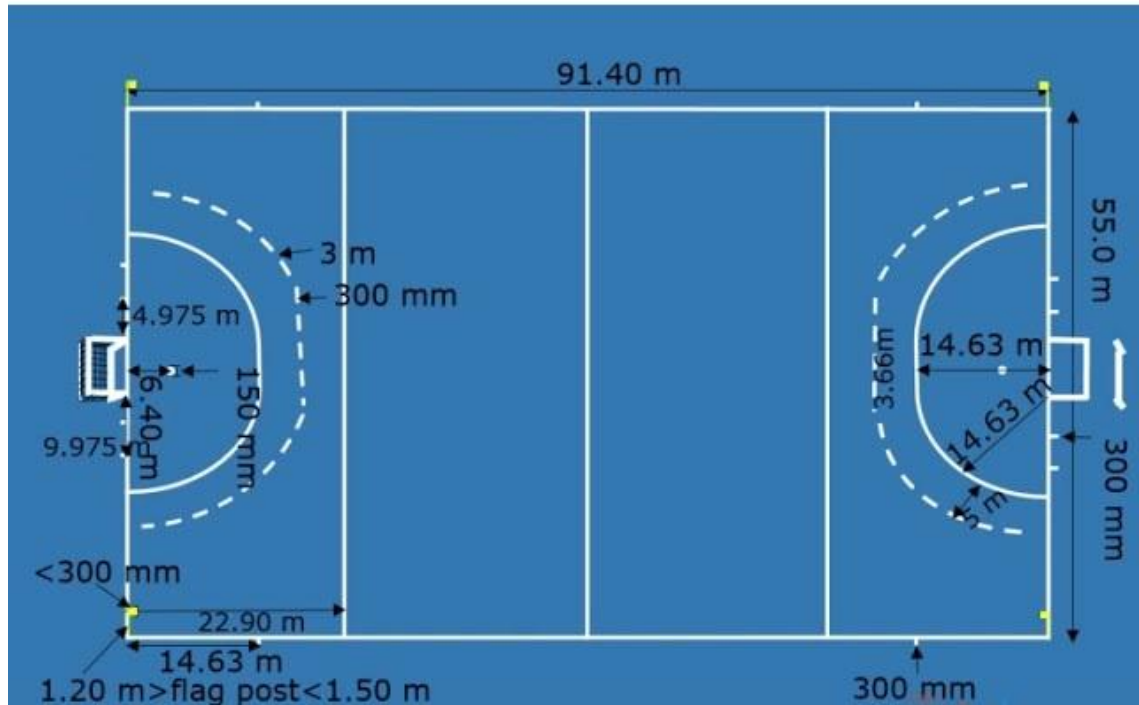
Answer 1 c) 12

Answer 2 c) 4

Answer 3 b) They are eliminated from the match

Answer 4 c) 24 seconds

Playfield and Equipment



Length of Playfield	=	91.40m
Breadth of Playfield	=	55 m
No. of Players in a Team	=	16 (11 Field Players and 5 Substitutes)
Duration of Game	=	60 min (4 quarters of 15 min)
Substitutes Allowed	=	Rolling Substitution, any number of Substitutions
Weight of Ball	=	156 g
Weight of Hockey Stick	=	Not more than 737g
Stick Specification	=	Stick should pass through 2 Inch ring
Penalty Stoke Point	=	6.40 m from Goal Line
Dimension of Goal Post	=	3.66 m x 2.14 m (12 Feet x 7 Feet)
Shooting Circle (D)	=	14.63 m
Type of Surface	=	Astro Turf, Grassy, Clay
Officials	=	1Tournament Director, 1Referee, 2 Umpires, 1Reserve Umpire, 1 Timekeeper, 1 Scorer

LATEST RULES OF THE GAME

- Two teams (11 players each) play four quarters of 15 minutes, with 2 minutes break between 1st & 2nd and 3rd & 4th quarters with 5 minutes rest in half time i.e. between 2nd & 3rd quarters. Using front face of the sticks, they try to get the ball into the opposite team's goal.
- Substitute players can enter at any time (except during penalty corner or penalty stroke).
- The umpire blows his whistle to signal the start of the play, Players touch the ball with the face/front of the stick.
- The ball is put in play with a center pass to any direction of the field, during which all players must be in their own half-field.
- There are two umpires who regulate the rules of the game.
- The goal is only scored from the inside of Shooting Circle (D).
- The Goalkeeper can use hands and legs (protective wear) but cannot hold the ball.
- If foul is committed by a defender in their Shooting Circle, then penalty corner is given to the opposing team. Penalty stroke is awarded when defending team commits serious foul in the Shooting Circle.
- If there is tie during regular time, then match will be decided by giving 5 penalty shootouts of 8 seconds to both teams.

Self- Check Exercise – 37

Q 1 What is the dimension of the hockey playfield?

- a) 91.40 m x 55 m
- b) 90 m x 60 m
- c) 100 m x 50 m
- d) 80 m x 45 m

Q 2 What is the duration of each quarter in a hockey game according to the latest rules?

- a) 10 min
- b) 15 min
- c) 20 min
- d) 25 min

Q 3 How many umpires regulate the rules of the game in hockey?

- a) 1
- b) 2
- c) 3
- d) 4

ANSWER TO SELF-CHECK EXERCISES

Self- Check Exercise – 37

Answer 1 a) 91.40 m x 55 m

Answer 2 a) 15 min

Answer 3 b) 2

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