

DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL
(2017-2018)

Class : XII
Physical Education

Under the Guidance of

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SUBJECTWISE SUPPORT MATERIAL

PREFACE

It is a matter of great pleasure for me to present the Support Material for various subjects prepared for the students of classes IX to XII by a team of dedicated and sincere teachers and subject experts from the Directorate of Education.

The subject wise Support Material is designed to enhance the academic performance of the students and improve their understanding of the subject. It is hoped that this comprehensive study material will be put to good use by both the students and the teachers in order to achieve academic excellence.

I commend the efforts of the team of respective subject teachers and their group leaders who worked sincerely and tirelessly under the able guidance of the officers of the Directorate of Education to complete this remarkable work in time.

Punya Salila
(Punya S. Srivastava)

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Date : 30/08/2017

प्रिय विद्यार्थियों,

इस पुस्तक के माध्यम से आपके साथ सीधे संवाद का अवसर मिल रहा है। और अपने विद्यार्थियों के साथ जुड़ने के इस अवसर का मैं पूरा लाभ उठाना चाहती हूँ।

दिल्ली में आपके विद्यालय जैसे कोई १०३० राजकीय विद्यालय हैं, जिनका संचालन 'शिक्षा निदेशालय' करता है। शिक्षा निदेशालय का मुख्यालय पुराना सचिवालय (ओल्ड सेक्रेटेरिएट), दिल्ली-५४ में स्थित है।

इस निदेशालय में सभी अधिकारी दिन रात कार्य करते हैं ताकि हमारे स्कूल और अच्छे बन सकें; हमारे शिक्षक आपको नए-नए व बेहतर तरीकों से पढ़ा सकें; परीक्षा में हमारे सभी विद्यार्थी और अच्छे अंक ला सकें तथा उनका भविष्य सुनिश्चित हो।

इसी क्रम में पिछले कुछ वर्षों से शिक्षा निदेशालय ने कक्षा नववीं से बारहवीं तक के अपने विद्यार्थियों के लिए विभिन्न विषयों में 'सहायक सामग्री' उपलब्ध करवाना प्रारंभ किया है।

प्यारे बच्चों, आपके हाथ में यह जो पुस्तक है, इसे कई उत्कृष्ट अध्यापकों ने मिलकर विशेष रूप से आप ही के लिए तैयार किया है। इसे तैयार करवाने में काफी मेहनत और धन खर्च हुआ है। इसलिए अपनी मुख्य पाठ्यपुस्तक के साथ-साथ यदि आप इस सहायक सामग्री का भी अच्छे से अभ्यास करेंगे तो परीक्षा में आपकी सफलता तो सुनिश्चित होगी ही, आपको बाजार में बिकने वाली महंगी सहायक पुस्तकें भी खरीदने की जरूरत नहीं पड़ेगी। और हाँ, इस पुस्तक को हर साल हम CBSE के पाठ्यक्रम के अनुसार संवादित और परिमार्जित भी करते हैं ताकि छात्र छात्रों की परीक्षा-तैयारी अध्ययन रहे।

अंततः, एक बात और। अपने विद्यार्थी काल के जिस पड़ाव से आप आज गुजर रहे हैं, यह आपके शेष जीवन की नींव के निर्माण का समय है। मुझे आप पर पूरा विश्वास है कि आप इस समय का सदुपयोग करेंगे, खूब अध्ययन करेंगे तथा अपने एवं अपने देश के लिए एक सार्थक भविष्य की नींव डालेंगे।

मेरी ढ़ेरी शुभकामनाएं।

सौम्या गुप्ता

आपकी
सौम्या गुप्ता

Dr. Sunita S. Kaushik
Addl. Director of Edn. (School)/Exam



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Directorate of Education
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D. O. No. FD/ADDL DE/Sch/38

Dated. 14/09/2017

SUBJECTWISE SUPPORT MATERIAL

FOREWORD

I take pride in presenting latest Support Material for the students of classes IX to XII developed and prepared by a team of subject experts and dedicated teachers from different schools of the Directorate of Education.

The Support Material, over the years, has proved to be a blessing for the students of our schools who are unable to purchase quality subject material from the market unlike their public school counter parts. It gives them a fair chance to do well in the public exams . The comprehensive support material presents the material contained in the prescribed texts in a lucid and comprehensible manner.

While the teachers are expected to give ample practice to the students to enhance their academic performance, the students are also expected to utilize the material to the maximum so that they have a better understanding of the concepts of each subject.

I express my sincere appreciation to all team leaders and their respective teams for their valuable contribution to this commendable task.


Dr. Sunita S. Kaushik
Addl D.E. (School & Exam)

DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL
(2017-2018)

Physical Education
Class : XII

NOT FOR SALE

PUBLISHED BY : DELHI BUREAU OF TEXTBOOKS

Support Material

CLASS - XII

Physical Education (048)

Under the Guidance of
Mrs. Harjeet Kaur DDE (PE & NI)

Team Leader : Nutan Duggal

SPE Zone - 8

- | | | |
|----|---------------------------|--|
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Syllabus of 2017-18 Physical Education

Theory No. of Periods 180

Max. Marks 70

Unit-I : Planning in Sports

- Meaning & Objectives of Planning
- Various Committees & its Responsibilities (pre; during & post)
- Tournament- Knock-Out, League Or Round Robin & Combination
- Procedure To Draw Fixtures- Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)
- Intramural & Extramural - Meaning, Objectives & Its Significance
- Specific Sports Programme (Sports Day, Health Run, Run For Fun, Run For Specific Cause & Run For Unity)

Unit-II : Sports & Nutrition

- Balanced Diet & Nutrition : Macro & Micro Nutrients
- Nutritive & Non-Nutritive Components Of Diet
- Eating For Weight Control- A Healthy Weight, The Pitfalls Of Dieting, Food Intolerance & Food Myths
- Sports nutrition & its effect on performance (fluid & meal intake, pre, during & post competition)
- Food supplement for children

Unit-III : Yoga & Lifestyle

- Asanas as preventive measures
- Obesity : Procedure, Benefits & contraindications for Vajrasana, Hastasana, Trikonasana, Ardha Matsyendrasana
- Diabetes : Procedure, Benefits & contraindications for Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottasana, Matsyasana

-
- Hypertension : Tadeasana, Vajrasana, Pavan Muktasana, Ardha Chakrasana, Bhujangasana, Sharasana
 - Back Pain : Tadasana, Ardh Matsyendrasana, Vakrasana, Shalabhasana, Bhujangasana

Unit-IV : Physical Education & Sports for Differently-Abled

- Concept of Disability & Disorder
- Types of Disability, its causes & nature (cognitive disability, intellectual disability, physical disability)
- Types of Disorder, its cause & nature (ADHD, SPD, ASD, ODD, OCD)
- Disability Etiquettes
- Advantage of Physical Activities for children with special needs
- Strategies to make Physical Activities assessable for children with special need.

Unit-V : Children & Sports

- Motor development & factors affecting it
- Exercise Guidelines at different stages of growth & Development
- Advantages & disadvantages of weight training
- Concept & advantages of Correct Posture
- Causes of Bad Posture
- Common Postural Deformities - Knock Knee; Flat Foot; Round Shoulders; Lordosis, Kyphosis, Bow Legs and Scolioses
- Corrective Measures for Postural Deformities

Unit-VI : Women & Sports

- Sports participation of women in India
- Special consideration (Menarch & Menstrual Dysfunction)
- Female Athletes Triad (Oestoperosis, Amenoria, Eating Disorders)
- Psychological aspects of women athlete
- Sociological aspects of sports participation.

Unit-VII : Test & Measurement in Sports

- Computation of Fat Percentage
Slaughter- Lohman Children Skinfold Formula :
Triceps & Calf skinfold (Male 6 to 17 yrs - % body fat = $(0.735 \times \text{sum of skinfold}) + 1.0$
(Female 6 to 17 yrs - % body fat = $(0.610 \times \text{sum of skinfold}) + 5.0$
- Measurement of Muscular Strength - Kraus Weber Test
- Motor Fitness Test- AAPHER
- General Motor Fitness - Barrow three item general motor ability (Standing Broad Jump, Zig Zag Run, Medicine Ball Put- For Boys : 03 kg & For Girls : 01 kg)
- Measurement of Cardio Vascular Fitness - Harvard Step Test/Rockport Test
- Computation of Fitness Index :
$$\frac{\text{Duration of exercise in second} \times 100}{5.5 \times \text{pulse count of 1 - 1.5 minute after exercise}}$$
- Rikil & Jones - Senior Citizen Fitness Test
 1. Chair Stand Test for lower body strength
 2. Arm Curl Test for upper body strength
 3. Chair Sit & Reach Test for lower body flexibility
 4. Back Scratch Test for upper body flexibility
 5. Eight Foot Up & Go Test for agility
 6. Six Minute Walk Test for Aerobic Endurance

Unit-VIII : Physiology & Sports

- Gender differences in physical & physiological parameters.
- Physiological factor determining component of Physical Fitness
- Effect of exercise on Cardia vascular System
- Effect of exercise on Respiratory System
- Effect of exercise on Muscular System
- Physiological changes due to ageing
- Role of physical activity maintaining functional fitness in aged population

Unit-IX : Sport Medicine

- Concept, Aims & Scope of Sports Medicine
- Sports injuries : Classification, Causes & Prevention
- First Aid - Aims & Objectives
- Management of Injuries :

Soft Tissue Injuries :

(Abrasion, Contusion, Laceration, Incision, Sprain & Strain)

Bone & Joint Injuries :

(Dislocation, Fractures : Stress Fracture, Green Stick, Communated, Transverse Oblique & Impacted)

Unit-X : Kinesiology, Biomechanics & Sports

- Projectile & factors affecting Projectile Trajectory
- Newton's Law of Motion & its application in sports
- Aerodynamics Principles
- Friction & Sports
- Introduction to Axes & Planes
- Types of movements (Flexion, Extension, Adbuction & Adduction)
- Major Muscles involved in running, jumping & throwing

Unit-XI : Psychology & Sports

- Understanding Stress & Coping Strategies (Problem Focussed & Emotional Focussed)
- Personality; its definition & type - Trait & Type (Sheldon & Jung Classification) & Big Five Theory
- Motivation, its type & techniques
- Self-esteem & Body Image
- Psychological benefits of exercise
- Meaning, Concept & Types of Aggressions in Sports

Unit-XII : Training in Sports

- Strength - Definition, types & methods of improving Strength - Isometric, Isotonic & Isokinetic

-
- Endurance - Definition, types & methods to develop Endurance - Continuous Training, Interval Training & Fartlek Training
 - Speed Definition, types & methods to develop Speed - Acceleration Run & Pace Run
 - Flexibility - Definition, types & methods to improve flexibility
 - Coordinative Abilities - Definition & types
 - Circuit Training & High Altitude Training ; Introduction & its impact

Practical

Max. Marks 30

- | | |
|---|----------|
| 01. Physical Fitness -AAHPER- | 10 Marks |
| 02. Skills of any one Team Game of choice from the given list* | 10 Marks |
| 03. Viva | 05 Marks |
| 04. Record File** | 05 Marks |
| * Athletics, Basketball, Football, Handball, Hockey, Kho Kho, Rifle Shooting, Unified Basketball (Differently- Abled Children) & Volleyball | |

** Record File shall include :

Practical-1 : Modified AAHPER administration for all items.

Practical-2 : Conduct Barrow 3 Item Test on 10 students.

Practical-3 : Procedure for Asanas, Benefits & Contraindication for any two Asanas each lifestyle disease.

Practical-4 : Procedure for administering Senior Citizen Fitness Test for 5 elderly family members.

Practical-5 : Any one game of your choice out of the list above. Labelled diagram of field & equipment Rules, Terminologies & Skills).

Note :

1. It is suggested that Unit No. III & VII may be taught by following the Principle of Learning by Doing.
2. Content is designed to complete the syllabus between 120-140 period.

UNIT - 1

Planning in Sports

Key Points :-

- 1.1 Meaning and Objectives of Planning
- 1.2 Various Committees and their Responsibilities
- 1.3 Tournament - Knock-Out, League or Round Robin and Combination.
- 1.4 Procedure to Draw Fixture - Knock-Out (Bye and Seeding) and League (Staircase and Cyclic)
- 1.5 Intramural and Extramural-Meaning, Objectives & its Significance.
- 1.6 Specific Sports Programme (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity).

1.1 Meaning of Planning :

“Planning is a way to systematize, direct and organise the events or competitions and extract the advantage and benefit of the available resources.

“Planning is the process of making a sequence of work for a future line of action”.

The success of Physical education programmes depends upon efficient staffing, food, direction, proper control, well supervision, good co-ordination and minimize the chances of lapses.

Objectives :

- * To reduce undue pressure
- * To provide proper co-ordination among the committees.

-
- * To have good control over all the activities.
 - * To improve efficiency.
 - * To reduce the chances of mistakes.
 - * To increase the creativity.
 - * To enhance the sports performance.
 - * To protect existing facilities.
 - * Provide new facilities to meet demand.
 - * Helps in decision making.

1.2 Formation of committees and their Responsibilities

ADMINISTRATIVE DIRECTOR



Executive Committee

Responsibilities pre	Responsibilities during	Responsibilities post
Organizing committee		Publicity committee
Publicity committee	Organizing committee	Marking committee
Marking committee	Marketing committee	Fiance committee
Fiance committee	Transport committee	Food and accommodation
Transport committee	Food and accommodation committee	committee
Food and accomm-	committee	Committee for officials
Odation committee	Grand and equipment	Ground and
Committee for officials	committee	Equipment committee
Ground and equipment	Programme committee	Programme committee
committee	First Aid committee	First Aid committee

Programme committee	Decoration ceremony	Prize distribution
First Aid committee	committee	committee
	Announcement committee	Organizing committee

1.3. Tournament : A series of sports competitions, in which, a team finally wins and rest of the participating lose the matches. It depends on various factors i.e. - No. of participating teams, availability of grounds and equipments, No. of days and funds.

Importance of tournament

- The sportsman learns the discipline by playing tournaments.
- The sportsman meets other sportsman at a single platform.
- He learns ethical values such as honesty, fair play, respect for others.
- Tournaments provides recreation to all, i.e. organizers, spectators, students.

Types of Tournament

A. Knock out : In this type of tournament, the team once defeated, gets eliminated from the tournament. Only the winning teams contest in the next rounds. Opportunities are given to the winning players/ teams.

B. League : In single league tournament all participating teams compete once, with each other, where as in double league, each team plays with every as in double league, each team plays with every other team twice, without any consideration of victory or defeat.

1.4 Procedure to Draw Fixture Knockout

- Step 1.** Divide the total no teams in to two half if total no teams are more than 16 divided than also in quarter.
- Step 2.** Check if total no of team are in power of two i.e. (2,4,8,16,32,64.....) or not.
- Step 3.** If total no of teams are not in power of two then byes will be given.
- Step 4.** Calculate the byes & place them according to the formula.
- Step 5.** Arrange the match. It should be remembered that match can be arranged between the teams in the same round.
- Step 6.** It should be remembered that if the total no teams are more than 16 the byes of upper half will be placed separately my lower half will be separately.
- Step 7.** In case of seeding or special seeding we calculate the byes of the deducting total no seeding from the total no. of teams.

Formula No. 1. Total no matches = total no of team 1

Formula No. 2. To calculate total no of rounds multiply 2 with 2 continuously ($2 \times 2 \times 2 \dots$) unit the multiplication value reaches equal to or more than the total no. of teams than calculate the repetition of digit 2 multiplication which will be equal to total no rounds.

Formula No. 3 total no byes = next power of total no of team

Formula No. 4 If total no teams are even. 2,4,6,8 team in upper

$$\text{half} = \frac{\text{total no team}}{2}$$

$$\text{Team of lower half} = \frac{\text{Total no team}}{2}$$

Total no teams are odd (1,3,5,7,9....) then

$$\text{Team in upper half} = \frac{\text{Total no teams}+1}{2}$$

$$\text{Teams in Lower half} = \frac{\text{Total no teams}-1}{2}$$

Formula No. 5

If total no byes are even (2,4,6,8)

$$\text{Then byes in upper half} = \frac{\text{Total no Byes}}{2}$$

$$\text{Bye in lower half} = \frac{\text{Total no Byes}}{2}$$

If total no bye are odd (1,3,5,7)

Then

$$\text{Bye in upper half} = \frac{\text{Total no Bye}-1}{2}$$

$$\text{Byes in lower half} = \frac{\text{Total no Byes}-1}{2}$$

Formula no. 6. When divide the total no of team in quarter then divide the total no. of team my 4 & follow the given table.

$$\frac{4 \left\lfloor \frac{\text{Total no of team}}{R} \right\rfloor Q}{R}$$

Qsr	Quarter-1	Quarter-2	Quarter-3	Quarter-4
If R=0	Q	Q	Q	Q
If R=1	Q+1	Q	Q	Q
If R=2	Q+1	Q	Q+1	Q
If R=3	Q+1	Q+1	Q+1	Q

Formula no - 7 placement of bye :-

1st bye will be given to last team of lower half

2nd bye will be given no. 1st team of upper half

3rd bye will be given to 1st team of lower half

4th bye will be given to last team of upper half

5th bye comes besides bye no. 1

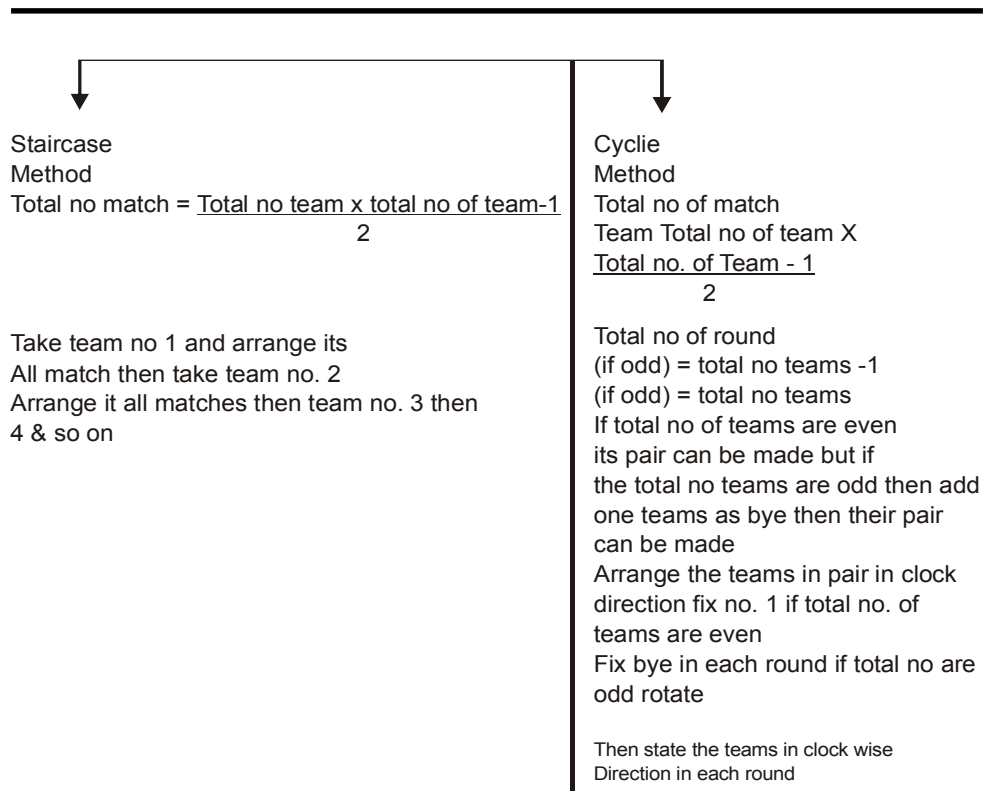
6th bye besides bye no. 2

7th besides bye no. 3

8th bye near to bye no. 4 then 9 the bye near to bye no. 5 soon

Seeding placement will follow the same sequence of bye

Procedure to draw the picture (league tournament)



C. Combination Tournaments: Combination tournaments are organized in group or zonal matches. Whenever there is a large number of teams, combination tournaments facilitate the Physical Education Teachers, job. It gives them elbow room to try out new experiments.

There are mainly four types of combination tournaments.

- (a) Knock out cum knock out
- (b) League cum league
- (c) Knock out Cum league
- (d) League cum knock out

1-5 Intramurals and Extramurals : Meaning, Objectives and its significance

Meaning of Intramurals :-

Intramural is derived from the latin word” Intra” means “within” and “murals” means “wall, So we can say that the activities, which are performed within the walls or within the campus of an institution are called ‘Intramurals’

Objectives of Intramurals :-

1. To provide opportunity to every student to participate in Games and sports.
2. To develop leadership Qualities among students.
3. To develop Feeling of Cooperation.
4. To provide Recreation.
5. To develop the Feeling of Sports-manship.
6. To provide opportunity to learn a variety of games and skills.
7. To provide opportunity of get Experience of Organisation of Competitions.
8. To find out talented Sportpersons.
9. To provide opportunity ot Develop personality.

B. Extramurals :-

Extramural is derived from the latin words “Extra” and “Murals”. Here extra means “outside” and murals means “wall”. So, We can say that the activities which are performed outside the walls of an institution or school, are known as “extramurals”.

Objectives of Extramurals :-

1. To provide Experience to Students.
2. To improve the Standard of Sports.

-
3. To broaden the Base of Sports.
 4. To develop Sportsmanship and Fraternity
 5. To provide knowledge of New Rules and Advanced Techniques.

1.6 Specific Sports Programme

Sports and games programmes are arranged in the world as well as in our country to promote the games and sports for a specific cause. Every country in the world has some or other cause for promoting specific sports programmes. The programmes motivate and create the feeling to take part in these sports programmes. People become health-conscious and try to remain fit and stay healthy for as long as possible. These specific sports programmes are usually organized by the federations, state government, NGO etc. to create health consciousness among the people and take part in health related sports programmes.

More and more people of all age groups should take part in such sports programmes. The various important specific programmes are :-

1. Sports Day -
 - A. School - Annual Sports Day
 - B. National Sports Day
2. Health Run
3. Run For Fun
4. Run for Specific Cause
5. Run for Unity.

Very Short Questions Answer (1 Marks)

- Q.1 What do you mean by planning or explain the meaning of planning.

Ans. It is a predicate process which explain the organization of work administration of work delegation OF work & supervision of work in detail

Q.2 What do you understand the term bye or what is bye.

Ans. When the total no of teams are not in power of two (i.e. 2,4,8,16,32,64) then byes are given to some team. Those teams get the bye they do not play in 1st round they directly play in the 2nd round.

Q.3. What is seeding or what do you understand by seeding or special seeding.

Ans. Seeding is a special advantage given to last year winner & runner up team or to the good teams of the Tournament with the help of seeding teams can be directly entered in to any round except the final round seeding always given in form of power of two i.e. (2,4,8,16,32).

Q.4. What are the knock out tournament or what do you understand by knock out tournaments.

Ans. In these types of tournaments after losing 1st match the team gets eliminated from the tournament in the knock out tournament a team will be continue in the tournament until it does not lose any match.

Q.5 What are the league tournament or what are the round robin tournament.

Ans. In these type of tournament all the teams of the tournament will play with each other on the basis of result of all matches the winner & runners up are decided they are of two type
a) Single league b) double league.

Q.6 What are the combination tournament or what do you understand by combination tournament.

Ans. In these types of tournament initial rounds are played on the

basis of specific types i.e. knock out or league and rest of the rounds these tournaments are following types.

1. Knock out cum knock out
2. League cum league
3. Knock out cum league
4. League cum knock out

Q.7. What is the aim of intramural tournament.

Ans. Over all development of child is the aim of the intramural tournament.

Q.8 What is tournament.

Ans. Tournament is a series of matches organized to find out the best team in a particular sports.

Q.9. Enlist various types of tournament.

Ans. There are four types of tournament.

1. Knock out tournament.
2. League tournament.
3. Combination tournament

Q.10. Define intramurals

Ans. Intramurals :- Games played inside the school are called intramural most of the students of the school participate in it example :- House competition school athletic meet.

Q.11. Define Extramural

Ans. Games played outside the school in any other institution only selected students from school participate in it.

Q.12. Define Fixture

Ans. The organized method in which team participate in a fixed order and one team is declared winner at the end.

Short Question Answer (3 Marks)

Q.1 What are the objectives of the planning or explain the objectives of the plainning.

Ans. Objectives of planning are following

1. To create good coordination.
2. To keep good control
3. To reduce unnecessary pressure of immediacy
4. To minimize the chances of mistake
5. To avoid wastage of money, time & resources
6. To utilize the resources effectively economically
7. To improve the effectiveness of the organization.

Q.2. What are the advantages and disadvantages of the knock out tournament.

Ans. Advantages

Results comes early

Requirement of funds are less

Requirment of equipment & officials are less

Competition will be intense due to the fear of elimination.

Disadvantages

- * It may be possible that stronger team being matched together in early round & get eliminated in the early round that can lose the charm of the tournament.
- * It may be possible that weak team got the position in the tournament.
- * Due to the fear of elimination players play with the fear which is not good for his health & sports performance.
- * Talented players some time are not selected due to elimination of their team in early round.

Q.3 What are the advantage & disadvantages of league or round robin tournament.

OR

Write down the merits demerits of the league tournament.

Ans. Merits

-
1. Only real player/ team that has best potential will be the winner of the tournament.
 2. Charm of the tournament still maintained through out the tournament.
 3. Good team/ player will continues through out the tournament so the chance of selection of good players is still alive.

Demerits

1. Funds are required more
 2. Time is required more
 3. Result come late
 4. Officials & ground needed more
 5. Equipments are needed more.
- Q.4 What are the objective of intramural tournaments of explains the need of intramural.

Ans. **Objectives**

1. Physical development
 2. Mental development
 3. Social development
 4. To develop good leadership quality
 5. To recreate the child
 6. To control agression
 7. To provide platform to show himself
 8. To increase the sources of competitions
 9. To develop the qualities of a good leader
 10. To give the knowledge of the rules of various game
 11. To find out the talented sport man
 12. To develop good personality.
- Q.5. What are the objectives of the intramural tournament or need of intramural tournament.

Ans. **Objective**

1. Physical development

-
2. Mental development
 3. Social development
 4. To provide knowledge of latest rules regulation of the game
 5. To develop good personality.
 6. To realize the actual level of the personality (sports man)
 7. To development leadership quality
 8. To find talented sports persons.
 9. To provide recreation.
 10. To develop opportunities for mass - participation.

Q.6 Write down the activities for the intramural tournament.

Ans. Major games :- hockey, football, Kho-Kho, Kabaddi etc.

Minor games :- Shuttle run, sag race, triple leg race,
Lemon race etc.

Rhythmic Games :- P.T. Lazium, dumbal, dance etc.

Creative games :- drawing, painting.

Combat games :- Judo, Wrestling, boxing etc.

Q.7 Write down the importance of the extramural tournament.

OR

Write down the importance of the extramural tournament

- Ans.
1. Help in the physical development.
 2. Help in the mental development.
 3. Help in the social development.
 4. Help in the personality development.
 5. Reduce the level stress anxiety.
 6. Develop in leadership qualities.
 7. Understand the Rules and Regulations of various games.
 8. Help to control the level of aggression in an individual.
 9. Help for recreation of children.
 10. Help for develop the sense of competitiveness.

Q.8. Write down the role of the various committees after a tournament. The following are the roles of the various committees after a tournament

Publicity Committee: Give reports to media provide information of expenditure to organizing committee.

Finance Committee: Maintain areport of the total expenditure and budget for the tournament.

Transport Committee: Provide information after the end of the tournament.

Food and accommodation Committee: Repair work for any damage at accommodation site and providing information of expenditure to organzing committee.

Committee for officials: Giving payment and thanks letter to all officials.

Ground and Equipment Committee: Repair work for any damage to ground and submitting all equipment to organizing committee.

Programme Committee: Providing information about all participating team to organizing committee and distributing certificates to all participants.

First Aid Committee: Submitting all first aid equipment and information to organizing committee.

Prize Distribution Committee: Co-ordinating with decoration ceremony committe to submit all information and equipment

to organizing Committee.

Organizing Committee: Collecting reports from all committees, taking note of all the important information and submitting it to the administrative director.

Q.9 Explain the staircase method of league tournament and draw the fixture of 12 teams in staircase methods.

Ans. Stair case method :- in stair case method the fixture are made just like a ladder or a stair case in this method no bye is given to any team and there is no problem of even or odd number of teams.

Fixture

1-2												
1-3	2-3											
1-4	2-4	3-4										
1-5	2-5	3-5	4-5									
1-6	2-6	3-6	4-6	5-6								
1-7	2-7	3-7	4-7	5-7	6-7							
1-8	2-8	3-8	4-8	5-8	6-8	7-8						
1-9	2-9	3-9	4-9	5-9	6-9	7-9	8-9					
1-10	2-10	3-10	4-10	5-10	6-10	7-10	8-10	9-10				
1-11	2-11	3-11	4-11	5-11	6-11	7-11	8-11	9-11	10-11			
1-12	2-12	3-12	4-12	5-12	6-12	7-12	8-12	9-12	10-12	11-12		

Q10. Write specifying calculation prepare cyclic fixture for 9 teams.

Ans. Total Number of team = 9

Total Number of Match

$$= \frac{N(n-1)}{2} = \frac{9(9-1)}{2} = \frac{9 \times 8}{2} = \frac{72}{2} = 36$$

Total number round n = 9 round

Fixture

1 round	II round	III round	IV round	V round	VI round
9 B	8 B	7 B	6 B	5 B	4 B
8 1	7 9	6 8	5 7	4 6	3 5
7 2	6 1	5 9	4 8	3 7	2 6
6 3	5 2	4 1	3 9	2 8	1 7
5 4	4 3	3 2	2 1	1 9	9 8

VII round	VIII round	IX round
3 B	2 B	1 B
2 4	1 3	9 2
1 5	9 4	8 3
9 6	8 5	7 4
8 7	7 6	6 5

Q.11. What is the difference between Bye and Seeding.

Seeding	Bye
* Given to only winner, runner-up and good teams of the Tournament	Can be given to any term
* Directly entered in to any round Round except final	Can be entered only in second round
* Always given to 2,4,8,16 teams	Can be given to any no of team it can Be calculate by next power of 2-total no. of teams.

Q.12. In a hand ball knockout tournament 12 teams took part out of which strong team like SKV No.1 Seemapur and SKV GT Road lost out in the first round. Due to the exit of these teams the player of the teams became dejected and the spectators excitement also decreased, seeing this the tournament organizers announced that they will organize a consolation tournament.

a. Why did strong teams like SKV No.1 Seelampur and SKV GT

Road exit in the first round of the tournament.

- b. Why did the players of the two teams became sad.
- c. What values are depicted by the decision of the organizers to organize a consolation tournament.

Ans. (A) The hand ball tournament was based on knock out in which losing team goes out of tournament that is why because of losing in the first round the teams of Skv no.1 Seelampur and Skv GT Road went out of the tournament.

(B) Both teams were considered strong contenders of the tournament but because they lost in the first round the players of the teams become dejected.

(C) The organizers have the ability to understand the feeling of the player and the spectators though their a announcement this announcement would motivate player to improve their game and promote the interest of spectators.

Q.13. What is different between Intramural and Extramural.

Ans. Intramural : Game played inside the school are called intramural most of the student of the school participate in it.
Example : House competition, school athlete meet etc.

Extramural :- Games played out side the school in any other institution only chosen students from school participate in it.

Q.14. Explain the procedure (method) to fix byes.

Ans. When the total number of the teams in the tournament are not in the power of 2 then bye is given.

The method of bye is

First find the next power 2 after the number of teams.

Example :- Total team = 11
Next power of 2 = 16
Number of bye = $16 - 11 = 05$ bye

-
1. First bye is given to lower half bottom team
 2. Second bye is given to top most team of upper half
 3. Third bye is given to most team of lower half
 4. Fourth bye is given to bottom team of upper half
 5. Other byes are determined using this order.

Long Answer Type Question 5 Marks

Q.1. Write down the role of the various committees before a tournament.

Ans. The following are the roles of the various committees before a tournament.

Organizing Committee :-

Responsible for organizing and smooth running of the tournament. It instructs other committee one month prior to the tournament and assigns tasks and responsibilities to them.

Publicity Committee :-

Spread information about the tournament 3 or 4 weeks prior to the tournament.

Marketing Committee :-

Purchasing all equipment and other items required for the tournament and ensuring their quality.

Finance Committee :-

Prepares budget and estimates possible expenditure during the tournament.

Transport Committee :-

Ensures proper transport facilities for the tournament.

Food and Accommodation Committee:-

Prepares accommodation and food for athletes, VIPs and officials.

Committee for Officials :-

Hires officials required to preside over the matches in the tournament.

Ground and Equipment Committee :-

Prepares the ground for the tournament few days prior to it.

Programme Committee :-

Keeps the records of the participating teams and prepares fixture.

First Aid Committee :-

Maintaining proper first aid kit for all possible situations during the tournament.

Q.2 Explain the meaning of specific sport programs? Explain any four.

Ans. Specific sports programs are those programs of sports which are often not related to the competition these programs are designed with multiple objectives with their focus on the well being of an individual the aim of the programme is to create awareness among the common people regarding unity & integrity prevention & protection against various diseases etc.

Specific sports programmes

Sports Day :-

Sports day is organized in the school once in the year so that the all round development of children could be done various physical and recreation activities are conducted on sports day it is organized by almost each and every school on sports day every child gets ample opportunities to take part in activity of there choice. Due to these days most of students get experience as organizer as well as administrator sports day also provide opportunity to select talent for future.

Health Run :-

These programmers are organized by health and sports department to raise the standards of health and also to raise funds for charity registration of participantss is done in advanced and day and time is fixed there is no age bar. People of any age can take part. There is no competition. These provide significant health benefits. But precautionary measures must be taken before participating i.e. proper sports kit health status of individual.

Run for Fun :-

This is to create awareness among people to keep fit and healthy there is fun and frolic while on the run there is no competition it is commonly organized for arranging funds for charity it can be perform it in different customs different age group children like adults teenage etc.

Run for Unity :-

This is to inculcate peace and harmony among the people of different religion of faith. Its purpose may be either national

or international brotherhood many people from corporate world film stars and marathon racers from abroad take part, first three position holders get cash prize it can either be a long distance race or a relay. In relay race every participant runs a specific distance and given opportunity to the teammate to participate. So these runs bring sense of togetherness among people.

Run for Specific Cause :-

For specific cause run is a run related to good and generous cause the purpose of this is to earn the funds for a specific cause but the reason should, be good it is after organized by the social organization in order to make the run attractive player, artists and actors are asked to participate in it.

Q.3 Write down the role of the various committees during a tournament.

Ans. The following is the role of various committees during a tournament.

Organizing Committee :-

Managing all committees and ensuring all committees are doing their work properly.

Marking Committee :-

Quick provision of any equipment required during the tournament.

Transport Committee :-

Ensuring proper transportation of athletes between accommodation sites and stadium.

Food and Accommodation Committee :-

Providing food to all officials and athletes during the tournament and also managing the accommodation site.

Committee for officials :-

Looking after the needs of the officials during a tournament.

Ground and Equipment Committee :-

Ensuring the proper condition of the grounds and all equipment through out the tournament.

Programme Committee :-

Resolving the problems of the participating teams and athletes.

First Aid Committee :-

Treating the injuries sustained by athletes and taking the injured players to hospital if injury is serious.

Decoration Ceremony Committee :-

Ensuring the decoration is proper during the tournament.

Announcement Committee :-

Announce important information like the participants of the next match etc. from the stage.

Q.4 What do you mean by intramurals? Mention the significance of intramurals for school children.

Ans. The word intramural (Intra+murals) within+wall, It means that the activities which are performed within the walls or within the campus of an institution are called intramurals. These activities are organized only for the students of a school or institution. No students of other school can participate in these activities intramural competition is one of the best means to motivate.

All the students of an institution for taking part in the games and sports "A games for each and each for a game" may be considered the motto of intramurals. These activities are the

most pleasurable as well as enjoyable for the students they get maximum educational benefits from such competition so a large number of students must be involved in a wide range of intramurals activities.

Significance of Intramural :-

- * Intramurals are very significant for physical mental emotional and social development of students.
- * These programmes also lay stress on moral and ethical values of students.
- * Intramurals are necessary for the development of health of children.
- * These programmes are also important to calm down the fighting instinct of children.
- * These programmes refresh the children and make them agile.
- * Intramurals provide maximum recreation to the students.
- * Intramurals provide ample opportunities to the students to participate in game and sports.
- * Intramurals are also essential for development the leadership qualities among the students.

Q.5 Make the fixture for 13 teams on the basis of knock out.

Ans. Total no. of matches :-

Total no teams -1 13-1=12 matches

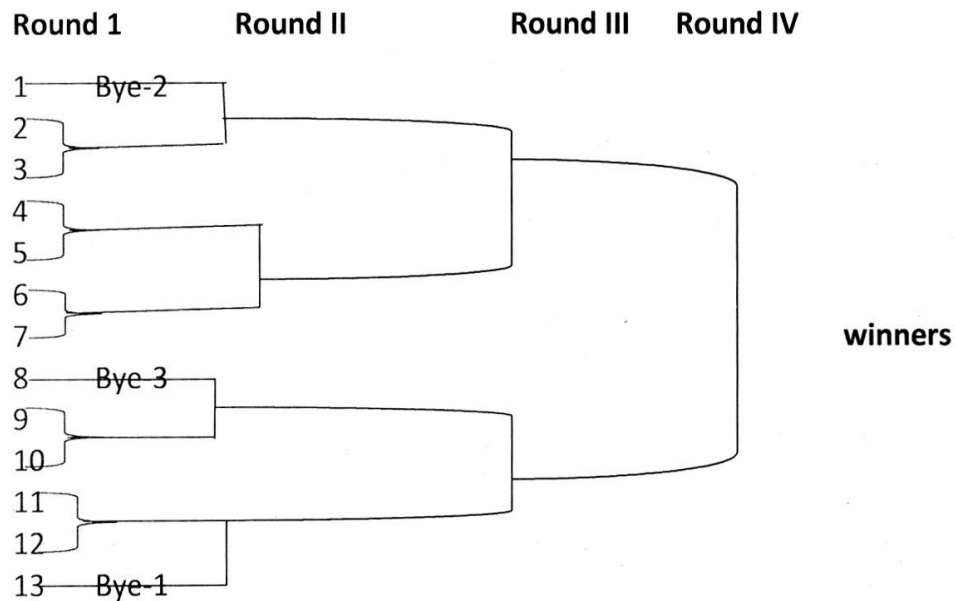
Total no of round = 2*2*2*2

Digit 2 repeats four time so no of round = 4 rounds

Total no bye :- next power of 2- total no. of team 16-13 =03

No of team is upper half= $\frac{\text{Total no of team}+1}{2} = \frac{13+1}{2} = 07 \text{ team}$

No. of teams in lower half = $\frac{\text{Total no of team}+1}{2} = \frac{13-1}{2} = 06 \text{ team}$



Q.6 Draw the fixture for 24 team on the basis knockout tournament

Ans. Total no matches = Total no of team -1 = 24-1 = 23.

$$\text{Total no. round} = 2 \times 2 \times 2 \times 2 \times 2$$

$$\text{i.e. Digit 2 report 5 times} = 5 \text{ rounds}$$

$$\text{So total no round} = 5 \text{ round}$$

$$\text{Total team in upper half} = \text{Total no of teams} = \frac{24}{2} = 12 \text{ teams}$$

$$\text{Total team in lower half} = \text{Total no of teams} = \frac{24}{2} = 12 \text{ teams}$$

As the total no of teams are more then 16 so we have to divide teams also in quarter.

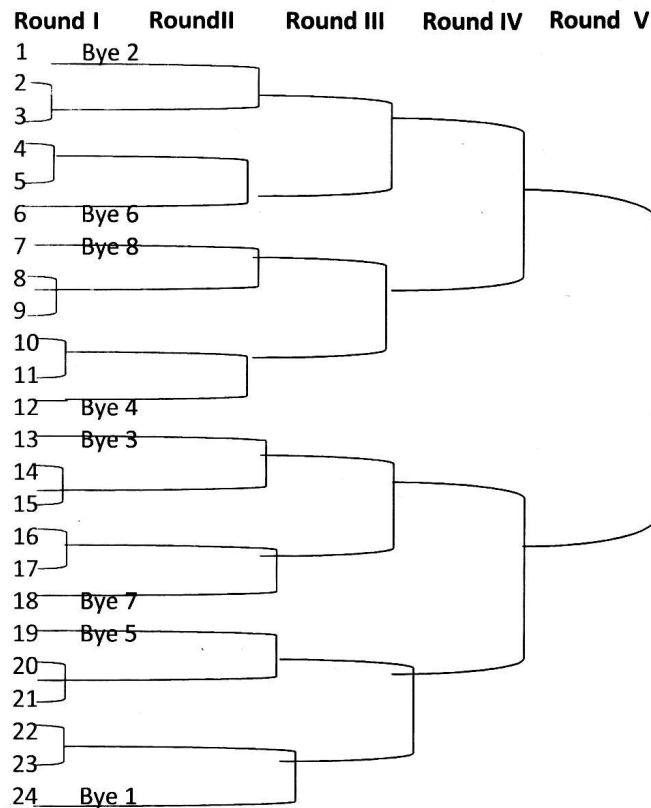
$$\begin{aligned} \text{Teams in each quarter : } & 4 \mid 24 \mid 6 \text{ (Q=6)} \\ & 24 \\ & R=0 \end{aligned}$$

Total No bye= next power of two-total no of team

$$= 32-24 = 08 \text{ byes}$$

$$\text{Bye in upper half} = 8/2 = 4$$

$$\text{Bye in lower half} = 8/2 = 4$$



Q.7 Draw a fixture of knock out basic for 11 teams by giving seeding of 2 teams.

Ans. Total no matches = Total no of team -1 = 11-1 = 10

Total no round = $2 \times 2 \times 2 \times 2$

Repatriation of digit 2 is 4 time so total no round = 4 rounds

When seeding is given in fixture, one round is added

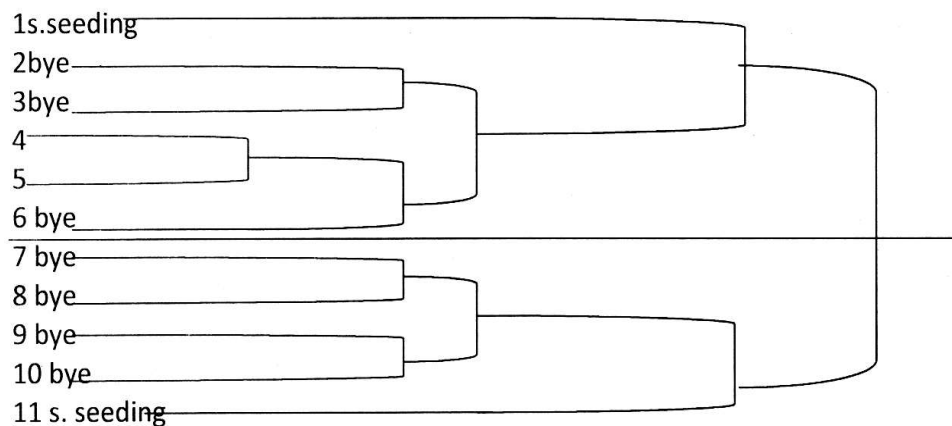
Total no bye :- next power of two -

$$\left[\begin{array}{l} \text{(total no team - no seeding teams)} \\ = 16 - (11-2) = 16-9 = 7 \text{ byes} \end{array} \right]$$

$$\text{Team in upper half} = \frac{\text{Total no of team}+1}{2} = \frac{11+1}{2} = 6 \text{ teams}$$

$$\text{Team in lower half} = \frac{\text{Total no of team}-1}{2} = \frac{11-1}{2} = 5 \text{ teams}$$

I Round II Round III Round IV Round V Round



Q.8 What are the combination tournament Draw the fixture for 20 team on the basis of combination tournament.

Ans. Combination tournament are those tournament in which initial rounds of a tournament played on a particular basis (knock out league) and rest or the other particular basis knock out/ league.

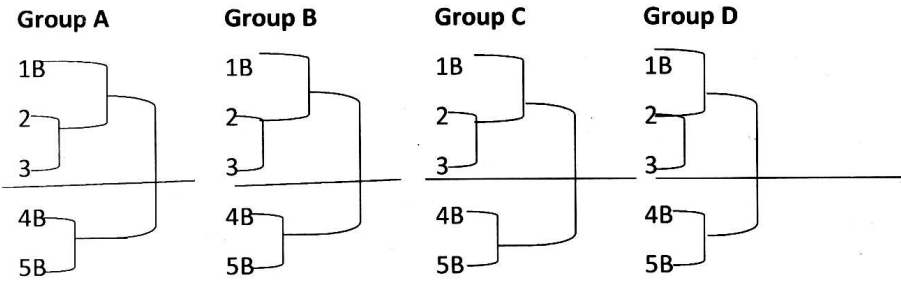
Fixture :- make the groups of equal teams i.e. $\frac{20}{4} * 5$

Hear we makes 4 group each group has equal 5 teams.

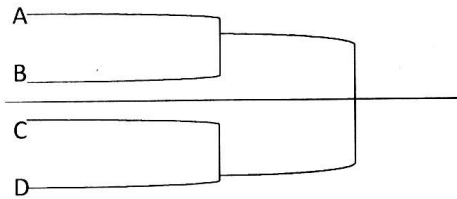
Group - A1, 2,3,4,5 Group (B) - 1,2,3,4,5

Group - (C) 1,2,3,4,5 Group (D) 1,2,3,4,5

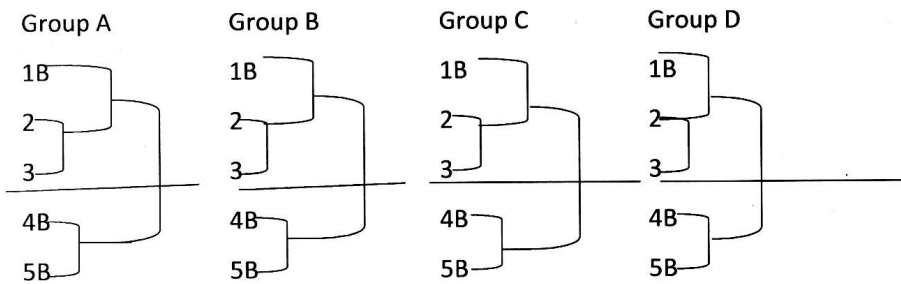
knock out cum knock out



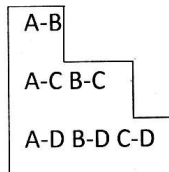
Group winner (a,b,c,d)



Knock out cum league



Group winner group A= (A,B,C,D)



League cum league

Group A	GroupB	Group C	Group D
1-2	1-2	1-2	1-2
1-3 2-3	1-3 3-4	1-3 2-3	1-3 2-3
1-4 2-4 3-4	1-4 3-5 4-5	1-4 2-4 3-4	1-4 2-4 3-4
1-5 2-5 3-5 4-5	1-5 3-6 4-6 5-6	1-5 2-5 3-5 4-5	1-5 2-5 3-5 4-5

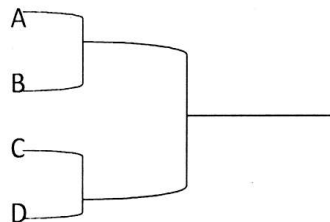
Group winner =a,b,c,d

A B
A C B-C
A D B-D C-D

League cum knock out

Group A	Group B	Group C	Group D
1-2	1-2	1-2	1-2
1-3 2-3	1-3 2-3	1-3 2-3	1-3 2-3
1-4 2-4 3-4	1-4 2-4 3-4	1-4 2-4 3-4	1-4 2-4 3-4
1-5 2-5 3-5 4-5	1-5 2-5 3-5 4-5	1-5 2-5 3-5 4-5	1-5 2-5 3-5 4-5

Group winner just like A= A,B,C,D



Very Short Question

- Q.1 What are special sports programme.
- Q.2 Why is planning necessary in sports.
- Q.3 What all method are used in league tournament.
- Q.4 What is the single league tournament.
- Q.5 What is the double league tournament.
- Q.6 If 14 teams are participating in knock out tournament then now many byes are given when drawing the fixture.
- Q.7 What is the method of seeding.
- Q.8 What is the Run for unity.
- Q.9 What are the type of tournament.
- Q.10 What is the sprots Day.
- Q.11 What are the Intramural activities.
- Q.12 What is the importance of intramurals activities in school.
- Q.13 What is the main task of organizing committee post any tournament.

Short Questions

- Q.1 Draw the fixture of 19 teams in a knock out format.
- Q.2 What are the rolls of organizing committee, publicity committee and finance committee before tournament.
- Q.3 What are the rolls of transports committee, first Aid committee and announcement committee during a tournament.
- Q.4 Mention the difference between intramural and eqtramural

programmes.

- Q.5 Explain the cycle method used to draw a fixture for league tournament.
- Q.6 Explain the seeding system and special seeding system in the knock out tournament.

Long Questions

- Q.1 Explain the various objectives for the planning in sports.
- Q.2 Write down the role of the various committee during a tournament or sports.
- Q.3 Why fixtures are necessary for successfully organizing tournament? Define and classify fixtures.
- Q.4 Are special sports programme beneficial? if yes, then explain in detail why?

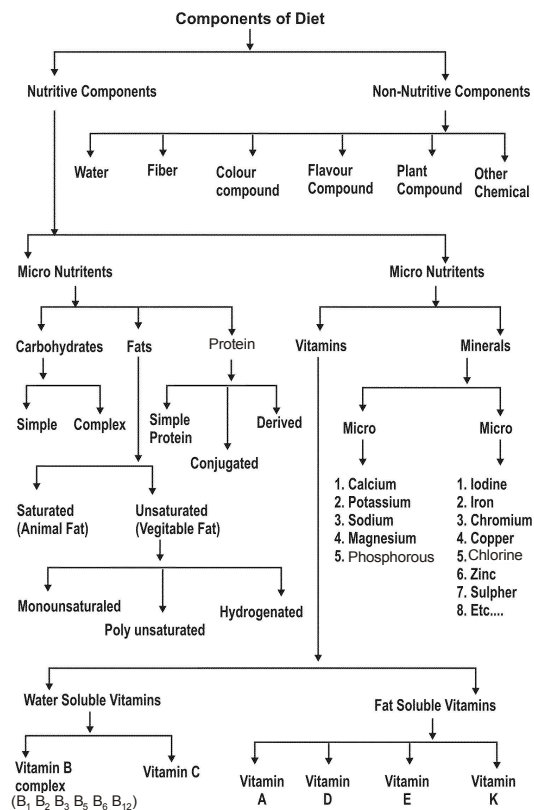
UNIT - 2

Sports and Nutrition

Key Points :-

- 2.1 Balanced Diet and Nutrition : Macro and Micro Nutrients.
- 2.2 Nutritive and Non-nutritive components of diet.
- 2.3 Eating for weight control - A healthy weight, the Pitfalls of dieting, Food Intolerance and Food myths.
- 2.4 Sports Nutrition and its effect on performance (Fluid & Meal in take, pre, during and post competition).
- 2.5 Food Supplement for Children.

2.1

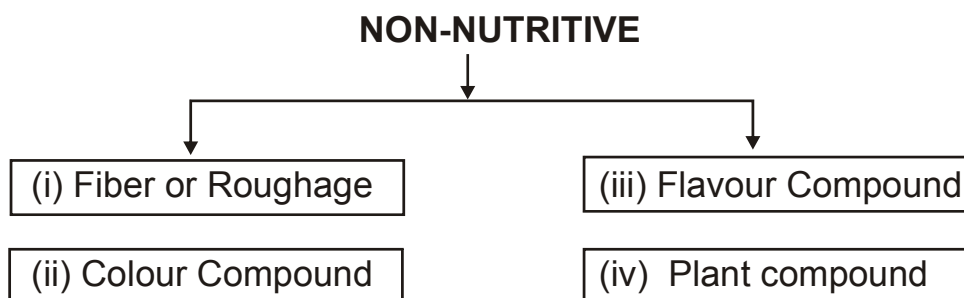


2.1 A. Balanced Diet :- A complete food, a diet contains adequate amounts of all the necessary nutrients required for proper growth & maintenance of body.

B. Nutrition :- It is the process of obtaining & consuming food or breaking down food & substances taken in by the mouth to use for energy in the body.

C. Nutrients :- The energetic food in our diet consists of various types of essential chemicals for our body termed as nutrients :- e.g. Protein, fat, carbohydrates, vitamins & minerals.

2.2 Non-Nutritive Components of Diet.



2.3 Eating for weight Control

(i) A healthy weight is a weight that lowers your risk for health problems, generally body mass index (BMI) and waist size are good ways to achieve healthy weight. Methods to calculate BMI = Weight in Kg/ (Height in m)².

Eating for weight control :- Factors to control body weight

- * Balanced diet
- * Drinks lots of water
- * Eating lot of fibrous food
- * Regular Medical Checkup
- * Avoid Fats

-
- * Medicine only by doctors advice
 - * Physical Activity
 - * Avoid Drinking
 - * Avoid Junk food
 - * Meals in small shifts
 - * Follow Hygienic Habits
 - * Do not Dieting
 - * Never Try slimming pills
 - * Avoid over eating
 - * Balancing the intakes of calories and expenditure of calories.

B. Pitfall of Dieting

- * Disturbed digestive system
- * Acidity problem
- * Gastric problem
- * Muscular weakens
- * Quick Tiredness
- * Loose the shining of face
- * Disturbed the metabolic rate
- * Muscle cramp
- * Chances of heart problems
- * Pain in stomach
- * Palpitations
- * Burning sensation in urine
- * After dieting when person comes on normal diet his. Body wt overshoots the initial body wt from where he started the dieting

C. Food Intolerance

Food intolerance is that when a person has difficulty in digesting a particular food.

Symptoms : Nausea, Vomiting, Pain in joints, headache and rashes on skin, Diarrhoea, sweating, palpitations,

Causes :

Absence of activity of enzymes responsible for breaking down the food elements. These are usually innate sometimes diet related or due to illness.

Management :

Change in diet causing reaction some therapies like fructose intolerance therapy, lactose intolerance therapy, lislamine intolerance therapy can be applied.

D. Food Myth/ Dieting Myths.**(i) Myth :- Low fat or no fat diet are good.**

Fact :- Body needs fats for energy, tissue repair and to transport vitamin A.D, E.K. Just cut down on salivated fat eating un saturated fats.

(ii) Myth Crash :- Dieting or Fasting may loose weight.

Fact :- it may be true in short term but ultimately it hinder weight loss. Loosing over the long term burns off fat whereas crash dieting or fasting not only removes fat but who leans muscles.

(iii) Myth :- Food eaten late night is more fattening.

Fact :- it doesn't make much change.

(iv) Myth :- Low fat milk has less calcium that full fat milk.

Fact :- Skimmed and semi skimmed actually have more calcium because it is in watery part and not in creamy part of milk.

(v) Myth :- Vegetarian cannot build muscles.

Fact :- Vegetarian can built muscles as meat eaters by getting their proteins from vegetables such as cheese nuts pulses. etc.

(vi) Myth :- Healthy food is expensive.

Fact :- Tinned, stored, packed food is expensive, whereas local & seasonal food is inexpensive.

2.4 Effects of Diet on sports Performance :-

Good diet and nutrition can improve sports performance. Any diet which has all constituents of food, necessary for the maintenance and growth of body in sufficient amount is important for all people busy in simple work or in highly competitive sports.

Sports Nutrition (Fluid & meal in take, pre, during and post competition)

Eating Diet before exercise :

1. The meal should be taken atleast three to four hours and snacks atleast one to two hours before exercise, to give us time for digestion.
2. The diet should include starches such as cereal, bread and fruit, to give us a slow, steady release of energy.
3. We should avoid simple sugars because they increase insulin level, which in turn reduces our blood glucose and make us feel tired.
4. To avoid dehydration, include plenty of fluids in the diet.
5. As fat and protein take a longer time to digest, avoid such diets before exercise.

Eating Diet during exercise :

1. Take small sips of water and other fluids even if you do not feel thirsty.
2. Drinking liquid glucose to save your own limited stores of glycogen.

Eating Diet after exercise:

-
1. Drink lots of water and other fluids to replace any loss or fluid.
 2. The food should be rich in carbohydrate within an hour of exercising even if we do not feel hungry, to restore glycogen stores quickly.

2.5 Food Supplement for Children

A substance designed to make up for a deficiency in one's diet."

"A food supplement is a preparation that is intended to supply a nutrients that is missing from a diet."

" Food supplements or dietary supplement are those things which are added in our natural diet to full fill the directory needs our body which are not fulfilled by natural diet."

" Food supplements are the addition of dietary things with natural diet of the person to fulfill the dietary needs of the body which are not full filled by the natural diet".

Why Children Needs of Food Supplement :-

Some children has some feeding problem, eating disorders, food Allergies, poor selection of foods due to that routine food is not able full fill the dietary requirement of the person. In such a condition in order to fullfil the dietary requirement the person some sort of food supplement is given to the person.

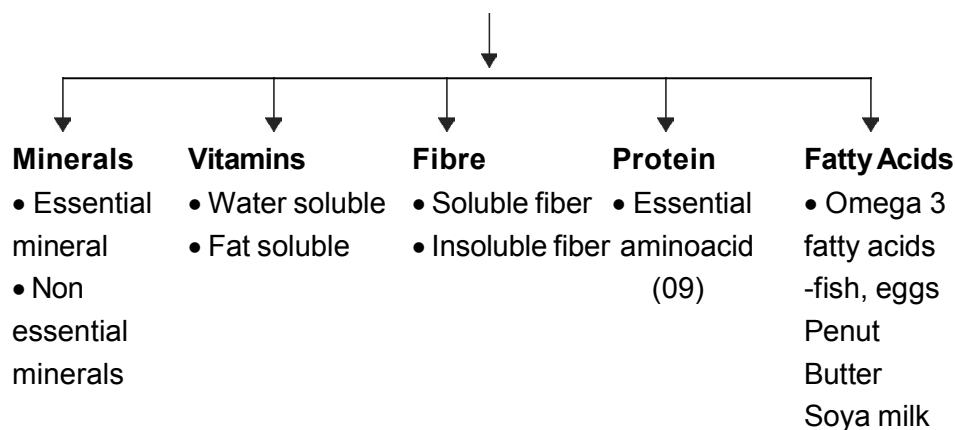
Does all the Children require the Food Supplement :-

No all the Children is not required the food supplement. If the Children get all the nutrients from the Natural Diet then Children is not required any kind of food Supplement. We should more emphasize on the natural Diet rather than food supplement.

Types of Food Supplement :-

1. Natural food supplements:- extracted from plants, animal tissue or Inorganic material.
2. Semi Synthetic, food supplement :- extracted from natural sources and then chemically changed.
3. Synthetic food supplements:- are completely artificially produced.

Components of Diet Supplement for Children



Precautions or Things to be Remember While using Food Supplement :-

- Too much eat can be harmful.
- Store it from out of child reach.
- The dose of the supplement should be as prescribed by the dietitian.

Very short Answer type Question (1 Mark Each)

Q.1 Mention the types of carbohydrate?

Ans. Two types simple & complex.

Q.2. List down simple types of carbohydrates?

Ans. Glucose, Galactose, Fructose, Maltose, Sucrose lactose.

Q.3 State complex carbohydrates types ?

Ans. Starch, Glycogen, Dextine, Cellulose are the types of complex carbohydrates.

Q.4 How many amino acids are found in proteins?

Ans. 23 amino acids and 9 are essential for us.

Q.5 State two Non Nutritive components of Diet?

Ans. Fibers or Roughage, coloured compound, flavoured compound, Plant compound.

Q.6 Which type of vitamin B are found in diet?

Ans Vit. B₁, B₂, B₃, B₅, B₆, B₁₂, = 6 Vit. B.

Q.7 Mention two diseases which come from deficiency of protein?

Ans. Kwashiorkor & Marasmus.

Q.8 Name the macro minerals which should be part of our diet?

Ans. Calcium, Iron, Sodium, Phosphorus, Iodine, Potassium.

Q.9 List down four myths about dieting?

Ans. (i) Healthy food is expensive.

(ii) Dieting makes you lose weight.

(iii) No fat diet is good.

(iv) Don't take milk immediately after eating fish?

Q.10 What do you understand by food supplement.

Ans. Food supplement or dietary supplement are those things which we add in our Natural diet to fulfill the dietary needs of our body which are not fulfilled by natural diet.

Q.11 What are the Natural food supplement?

Ans. These are those eatable things, extracted from plant and animal tissue.

Q.12 What are the semi synthetic food supplement:

Ans. These are those eatable things extracted from Natural sources and then chemically changed.

Q.13 What are the synthetic food supplement.

Ans. These are those eatable things those are completely artificially produced such as vitamins tablet those are made chemically.

Short Answer Type Question (80 to 90 words) (3 marks each)

Q.1 Explain Balanced diet and its function in our body?

Ans. Balanced diet :- Balanced diet is that which is consisted of various constituents of food in accurate and appropriate quantity and quality according to the requirement of individual.

Functions of Balanced diet :-

- (i) Sufficient energy is given by balanced diet.
- (ii) it helps individual to grow and develop to optimum level.
- (iii) Proper functioning of organs is done by balanced diet.
- (iv) It helps to repair or replace the worn out tissue.
- (v) Balanced diet improves the defence of body.
- (vi) It helps to improve the overall health status.
- (vii) Balanced diet improves metabolism.
- (viii) it prevents deficiency diseases and maintain body weight thus overall efficiency of individual improves.

Q.2 Mention micronutrients which are important for body?

Ans. Vitamins and minerals are micro nutrients which are needed for our body in small amount but they have their importance for body.

Vitamin A - This vitamin is also known as Retinol, needed for Normal growth & development.

Vitamin D- This is needed for formation of strong bones & teeth.

Vitamin E - It protects the cell membrane.

Vitamin K - It helps in blood clotting.

Water soluble Vitamin :- Vit. B. - Known as Thiamin. It helps in growth & development.

Vitamin C - It known as Ascorbic Acid. It helps to maintenance of ligaments.

Minerals

IRon :- It needs for formation of haemoglobin.

Calcium :- It resources for bone and teeth formation.

Phosphorus :- It makes strong teeth & bones.

Sodium :- It helps nervous system for better neuromuscular responses.

Iodine :- Deficiency causes Goitre.

Fluoride :- It helps teeth & nails.

Chloride :- It helps body to fight against infection.

Q.3 Write importance of protein for our body?

Ans. Proteins are basic structure of all living cells. Proteins are main components of muscles, tendons, ligaments, organs, glands, and all living body fluids like enzymes hormones and blood.

Proteins are needed for growth & development of body. It helps to repair or replace the worn out tissues. It does not provide energy in normal routine whereas it acts as energy source only under extreme starvation. Proteins are required for making blood, muscle, Nails, skin, hair and body parts and repair them and are important in some situation like early development maturation, Pregnancy etc.

Q.4 Write difference between types of carbohydrate simple and complex carbohydrate?

Ans. (i) Simple carbohydrate give quick energy on the other

-
- hand complex carbohydrates release slow energy.
- (ii) The types of simple carbohydrates are Glucose, Galactose, Fructose, Maltose, Sucrose, Lactose. Complex are starch, Glycogen, Dextrin and Cellulose.
 - (iii) Simple carbohydrates are more sweeter in taste than complex carbohydrates.
 - (iv) Simple Carbohydrate can be absorbed quickly on other side complex carbohydrates takes time.
 - (v) Simple carbohydrates can be dissolved in water but complex carbohydrate not.

Q.5. Mention five pitfalls of dieting

Ans. Following are pitfalls of dieting -

- (a) Disturbed Digestive System
- (b) Acidity Problems
- (c) Gastric Problems
- (d) Muscular Weakness
- (e) Quick Tiredness
- (f) Loose the Straining of Face
- (g) Disturbed Metabolic Rate
- (h) Peptic ulcer
- (i) Chance of heart problem
- (j) Pain in Stomach
- (k) Palpitations
- (l) After dieting when person comes, normal diet his body weight overshoot to his initial body weight from where he started the dieting.

Q.6. How water is useful for us? Explain Briefly?

Ans. Water is a very useful component of our diet because.

Blood plasma comprises 91% of water, water comprises 75%

of muscular weight & 70% of body weight. It important for secretion of waste producis. It regulators body temperature. Our body loses approximately 2% of our body weight or water per day. We compensate thus loss of water by drinking water and by in take of food substances. It also functions as a lubricant keeps the skin moist and protect the body from shock. 20% of water in take comes from food and remaining intake come from drinking water.

Q.7 How food intolerance is treated? What are Symptoms Explain in brief?

Ans. Food intolerance is treated by medical help where we know the food which causes problem. Food intolerance is more common than food allergy. Food intolerance is a term used widely for varied physiological response associated with a particular food. The individual elements of certain foods that cannot be properly purposed and absorbed by our digestive system.

Symptoms of Food Intolerance :

Food intolerance can cause nausea, stomach pain, Diarrhoea, Vomitting, Flatulence Gas, Cramps, heart burn, headache, irritability, nervousness etc.

Q.8 Is fat useful or not useful for us explain?

Ans. (i) Fats are store in body and are used as emergency sources of energy.

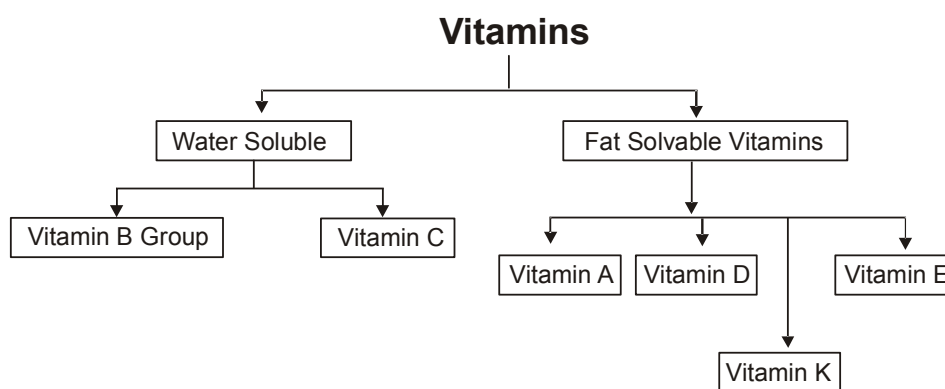
(ii) Fats are important sources of energy for long duration activities and important for proper function of glands and other internal organs.

(iii) It helps in transpotation of fat soluble Vitamins A,D.E.K.

-
- (iv) it help in blood clotting maintenance of skin & hair.
Our diet should consist of 20%–25% of fat higher in take of fat high risk of obesity and many heart diseases.
 - (v) Fats maintain body temperature and protect it from effect of external temperature.
 - (vi) They make body soft & oily.

Q.9 Explain fat soluble vitamins and their sources and water soluble vitamins and their sources.

Ans.



Fat Soluble Vitamin

- | | |
|-----------|--|
| Vitamin A | Vitamin A is found in Cord liver Oils/animal Liver, york, Milk, & Milk products, carrot. |
| Vitamin D | Vitamin is found in milk, fish, and Liver oils |
| Vitamin E | Vitamin E is found in Green leafy Vegetables, Pulses, eggs, cereals. |
| Vitamin K | In tomatoes, Potatoes, Spinach, cabbage, soyabean, fish, cauliflower, wheat, eggs, meat. |

Water Soluble Vitamins

Vitamin B	Vitamin B - Sources include peas, pork Liver, Legumes
B2	-- We can find in eggs, dark green vegetables, legumes, whole and enriched grain produced milk.
B3	-- Fish, meat, peanuts, whole & enriched grain produced milk.
B5	-- Pork, meats whole grains, cereals legumes, green leafy vegetables.
B6	-- Cereals, grains, legumes, vegetables, milk, cheese, eggs, fish liver, meat, flour.
B12	-- Fish, red meat, milk, cheese, eggs.
Vitamin C	Citrus fruits like grapefruits, lemon, oranges, and kiwis, other good sources mango, papaya, pineapple.

Q.10 Some children need of food supplement” why?

Ans. Some children need food supplement due to following reasons.

1. **Poor selection of food** :- Due to poor selection of food all the nutrients. Which are required for the development proper working of human being are not available, so to fulfill the requirement we need food supplement.
2. **Due to eating Disorder & food Allergies** :- Due to eating disorders & food allergies the requirement of nutrients are not fulfilled by the food so there is requirement by the food supplement.
3. **Hard Training** :- In case of hard training. There may be requirement of food supplement.

Q.11 What are the types of food supplement.

Ans.

1. **Natural food supplement** :- extracted from the natural

sources and animal tissue e.g sprouts of real, flax seed oil.

2. **Semi synthetic** :- extracted from the natural source of then change chemically. e.g. preserved Real Fruit juice, Milk Powder.
3. **Synthetic** :- are completely artificially produced e.g. B complex tablets, Multivitamin tablets.

Q.12 What things to kept in mind while using food supplement.

- Ans.
1. Do not eat too much it may be harmful due to overdose.
 2. Keep store the food supplement from the reach of the child.
 3. Dose of the supplement should be as prescribed by the dietitian.
 4. Food supplement use only when they are required otherwise more effort are made to fulfill the demand of nutrients by routine food.

Long Answer Type Question (150 to 200 Words)
(5 Marks Each)

Q.1 What is Balanced Diet? How it is important for individual body?

Ans. Balanced diet in that diet which consisted of various constituents of food in accurate and appropriate in quantity and quality according to the requirement of an individual and helps in growth and development of our body.

Importance :

- (i) **Energy Resource** :- It gives sufficient energy to body for various activities.

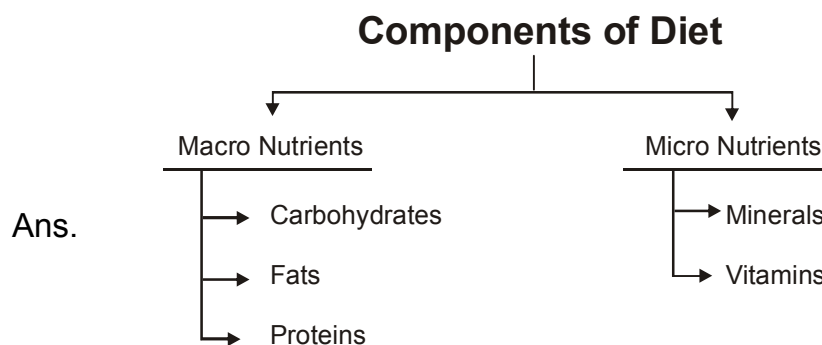
-
- (ii) **For optimum growth & Development :-** It helps individual to grow and to achieve the aim of all round development.
 - (iii) **Proper function of Organs :-** By help of balanced diet every organ functions well and properly.
 - (iv) **Faster Recovery :-** It helps to repair and replace the worn out tissues thus faster recovery.
 - (v) **Strong immune system :-** It make better resistance power to body to make good immune system.
 - (vi) **Improves fitness level :-** It improves over all health states and resulting in fitness of body by preventing diseases.
 - (vii) **Improves Metabolism :-** Quality of metabolizing and thus efficient release of energy.
 - (viii) **Prevents Deficiency Diseases :-** It gives all necessary nutrients to body so deficiency diseases cannot takes place.
 - (ix) **Maintaining body weight :-** It helps individual to maintain proper body weight.
 - (x) **Overall efficiency improves :-** It improves all physiological systems of body then more of efficiency level of individual. In this way balanced diet is useful for as.

Q.2 What factors can be considered for making balanced diet?

Ans.

- (i) **Age :-** Age plays great role in making diet for like in growing age a child need more protein but old aged people should avoid more proteins and fats but should take more minerals & vitamins
- (ii) **Gender :-** Sex difference causes variation in diet more caloric requirement to male & less for female.
- (iii) **Profession :-** Heavy physical activities work out needs more calories demand & less physical activities work out less calories demand.

-
- (iv) **Body weight** :- Obese person need fibrous food more, while slim or lean needs more protein.
- (v) **Specific Sports Diet** :- Various sports need specific diet like long distance runner need more fat and carbohydrates, contact body games player need more protein, exploding strength player needs more carbohydrates.
- (vi) **Pregnancy or feeding mother** :- Pregnant mother needs extra diet - carbohydrates, protein, fat, vitamins, minerals specially high protein diet is recommended for a pregnant woman.
- (vii) **Diet During Health Problems** :- Injured person should take more protein and minerals. Patients should take diet full of mineral & vitamins.
- (viii) **Climatic Condition** :- The effects the diet like in cold places food should be has oily fried, while in coaster region the food should be more liquid.
- (ix) **Doctor's Recommendation** :- Diseased or sick person should take according to doctor recommendation example patient avoid fried food in jaundice.
- (x) **Eating habits & social Customs** :- They also effect the diet of individual. In some family on the day of festival selected fried food is compulsory for whole family.
- Q.3 Why macro nutrients should be essential part of our diet?



Macro Nutrients :-

Carbohydrates : They are main source of energy for almost all activates. They give quickly energy and less amount of carbohydrate in diet causes under nutrition and weight loss. Excess amount stored in livers and tissues from there they release the energy when in need.

Proteins :- Proteins are needed for growth & development of body. It helps and replace the worn out tissues. It does not provide energy under normal routine but give energy under extrme starvation, High intake of proteins creates overload over kidney and livers. Deficiency diseases are kwashioskar or marasmus.

Fats : Fats are emergency sources of energy and stored in body. Fats carry Vitamine, A,D,E,K. They are sources for energy for large activities. In proper functionary of glands and internal organs against the blood clotting, maintains the skin and important of proper functionary of glands and internals organs and it helps on blood clotting, maintains the skin and hair. Our diet should consiist of 20%-25% of fat more intake more risk of obesity and many heart diseases so this Nutrients and in highly proporation of diet and should be taken in proper amount according to need.

Q.4. Mention the types and effects of micro nutrients on our body?

Ans. Minerals & Vitamins are the micro nutrients of diet.

Function of Micro nutrients.

- (i) **Calcium** :- It is required for bone and teeth formation, deficiently causes osteoporosis, Rickets and retorted growth.
- (ii) **Iron** :- it in required for formation of haemoglobin, deficiency

-
- leads to anemia.
- (iii) **Phosphorus** :- It helps in making strong bones and teeth.
 - (iv) **Sodium** :- It helps nervous system for better response, deficiency causes cramps and tiredness.
 - (v) **Iodine** :- It helps in proper growth & development of body, deficiency leads to goitre.
 - (vi) **Fluoride** :- It helps teeth and nails.
 - (vii) **Chloride** : - It helps body to fight against infection, proper functions of nervous system.

Vitamins :

- Vitamin A - helps in normal growth & development of eyes and skin.
- Vitamin D - Important for formation of strong bones & teeth.
- Vitamin E - It protects the cell membrane and acts as antioxidant.
- Vitamin K - helps in Blood clotting and heals wounds.
- Vitamin B - for growth & development.
- Vitamin B₂ - helps in growth of RBC.
- Vitamin B₃ - Play important role in energy transfer, reactions in the metabolism of glucose, fat & alcohol.
- Vitamin B₅ - In involved in oxidation of fatty acids & carbohydrates.
- Vitamin B₆ - It helps in metabolism of amino acids.
- Vitamin B7 - it play key role in metabolism of lipids, proteins and carbohydrates.
- Vitamin B9 - Folic Acids Needed for normal cell division especially during pregnancy and infancy.
- Vitamin B12 - It involved in cellular metabolism of carbohydrates proteins and lipids an helps in production RBC in bone

marrow.

Vitamin C - helps in healing wounds it helps formation of growth & repair of bones, skin & connective tissues. It makes healthy teeth & gums.

Q.5. What is the effect of Diet on performance of sports persons?

Ans. Diet plays important role in sports performance. The following table will be followed for various activities.

Sports Activities	Diet before Competition	Diet During Competition	Diet After Competition
Endurance Activities - Like Players of marathon, Basketball, Football, Hockey, Cyclist	More amount of complex carbohydrate	Simple carbohydrate with more water	more complex Carbohydrates more vitamins & minerals, low fats more water
Skill Activities - Speed Activities, middle distance races, Kho-Kho, water polo, Skating swimming	More carbohydrates simple and complex	Simple Carbohydrates in Liquid	more complex Carbohydrates more Vitamins & minerals more proteins
Explosive Activities - Body contact Activities, Wrestling, Kabaddi, Judo, Jump, Throw	more carbohydrates both - simple and complex	more Carbohydrates in Liquid	more Carbohydrates complex more proteins more vitamins & minerals

Q.6. State four Myths of Dieting ?

Ans. Myth : Low fat or no fat diet are good for you.

Fact : This is not true cutting down saturated fat and eating unsaturated fat is good body needs fat for energy, tissue repair and transport Vitamins A,D,E,K.

(ii) Myth : Fasting Makes you loose weight.

Fact : True for short period by hinder weight loss. In long

-
- term it leans muscular tissues so exercise is recommended for weight loss.
- (iii) Don't drink water while taking food. It digest food it don't hamper metabolism so it is not true.
- (iv) Myth milk should not be taken immediately after fish.
Fact : it is not true it will not give any allergy or irritation scienctist don't think so.
- (v) Myth - Eat less nuts they are too fattening
Fact : It is true that nuts contain a lot of fat but it is mostly the food kind. Recent research suggested that eating nuts as part of a healthy diet may even help you loose weight.
- Q.7 In the market many kinds of food supplement are available for various kinds of nutrient. So explain the various components of food supplement which are available in the market.

- Ans. 1. **Minerals :-**
Essential minerals :- Calcium, chloride, chromium cooper, Iodine, Iron, Magnesium, Magnese, phosphorus sodium, potassium, zinc.
Non Essential Minerals :- Fluoride Germanium, Lithium Nickel, silicon, sulfur food supplement of mineral full fill the requirement of essential mineral.
2. **Vitamins :-**
Water soluble vitamin :- Vitamin B1, B2, B3, B5, B6, B7, B9, B12 and vitamin C ascorbic acid
Fat soluble vitamin :- Vitamin A, Vitamin D, Vitamin E or Vitamin K are fat boluble vitamin. Food supplement of vitamin fullfil the need by water soluble as well as fat soluble vitamin.
3. **Fibre :-**

Soluble Fiber :- Barley, oats.

Insoluble :- Whole grains, ready to eat cereal, wheat bran, legumes, nuts seeds, fruits, non starchy vegetable.

Food supplement of fibers full fill the need of both types of fibre.

4. **Protein :-** Amino acids can form protien in human body 21 Amino are used to made protein in human body out of them 9 are esscutial which should we get from our foods so food supplement of protein recover all the deficency of these essential protein.
5. **Fatty acid :-** Omega 3 fathy acid is good for cerdiovarcular working of an individual. It lower down triglyceride level in blood. Some supplement are available to fulfill the requirement of omega 3 fattcy acid.

Very Short Question Answer

- Q.1. When we can say the diet is Balance?
- Q.2. What are the Nutritive components of Balance Dirt?
- Q.3. Some components of diets are required in the large quantity such components of diet are known as?
- Q.4. What do you understand by then iterative components of diet.
- Q.5. What do understand by healthy weight.
- Q.6. In society there are misconception about some dietary components/diet explain any two.
- Q.7. During the competition what type of food should be provided.
- Q.8. Explain the Term food Intolerance with the help of examples.
- Q.9. What do you understand by the food supplement.

-
- Q.10. What do you mean by Natural food supplement give two example.
- Q.11. What do you understand by semi synthetic food supplement? Give two examples.
- Q.12. Does the need of food supplements for every child? Explain with reason.

Short Question Answer

- Q.1. Differentiate between Macro and Micro Nutrients.
- Q.2. Differentiate between nutritive and non nutritive components of diet.
- Q.3. How food myths & food intolerance are differ from each other.
- Q.4. Food supplements are differ from the normal diet how?
- Q.5. When we should need of food supplement.
- Q.6. Write down the components and their quantity for Balance diet.

Value Based Questions

- Q.1. Pawan is a student of XIth class His height is 168 cm & weight is 75 kg. But last year his weight was 98 kg. Due to over weight, his school mates teased him. School's physical education teacher Mr. Manoj motivated & inspired him to do regular physical exercises and to take a balanced diet. Regular physical exercise helped Pawan not only to reduce his weight but also to become a good middle distance runner & thrower. Now he is school's sports captain & participate in different competitions and no one teases him.

Answer the following question

- Q.1. During the training session what values are shown by pawan?
- Q.2. Write down the problems related to over weight?
- Q.3. Elucidate the qualities of Mr. Manoj was shown.

Long Question Answers

- Q.1. How in take of food pre completion and post competition can effect the performance of an Athlete.
- Q.2. Write down the various components of the food supplement.
- Q.3. How we can control the healthy weight through the eating also mention the pitfall of dieting.

UNIT - 3

Yoga & Life Style

Key Points :-

- 3.1 Asanas preventive measures.
- 3.2 **Obeisty:** Procedure, Benefits & Contraindications for vajrasana, Hastasana, frikonasana, Ardh matsyendrasana.
- 3.3 **Diabets:** Procedure, Benefits & coutraindications for Bhejan gasana, paschimottasan, Pavan mukltasana, Ardhmatsyendrasana.
- 3.4 **Asthma:** Procedure, Benefits & contriaindications for sukhhasana, chakrasana, aomubhana, parvatasana Bhujangasana, paschimottasana, matsyasana.
- 3.5 **Hypertension:** Tadasana, vajrasana, pavan muktasana, Ardachakrasana, Bhujangasana,sharasana.
- 3.6 **Back pain:** Tadasana, Ardh matsyendrasana vakrasana, shalabhjasana, Bhujangasana.

Introduction

- 1. Brings firmness and flexibility in the body.
- 2. Have a good effect on 24 hours working organs like Nerves, glands, muscles.
- 3. Overall development of body.
- 4. Develop tolerance & self confidence.
- 5. Positive thoughts will come in mind instead of negative ones.

-
6. Body becomes smooth and disease free.
 7. Relief from anxiety.
 8. Increase resistance power.
 9. Increase Hunger & good digestion
 10. Bring spiritual comfort.
 11. Work efficiency increases.
 12. Reduce obesity
 13. Enhances moral values
 14. Keep the body posture right.
 15. Increases physical beauty.
 16. Internal cleanliness of the body.

3.1 Life Style Diseases Control by the Yogasana

Appovement in Cardiovascular Efficiency :- Various types of yoga such as kapabhati vjjanyi are beneficial in increasing agility of cardiovascular functions.

Improvement in Respiratory System :- By yoga we increase the strength of our lungs the air increase the power to spread and shrink lungs yoga can fill more oxygenated air in the lungs and purify the blood.

Prevention from Sports Injuries :- Injuries like hamstring pulls, wrist problems, neck strain, back pain etc are very common among atheles. Adopting we practice of asanas in their training routine help to strength the muscles, tendons and ligaments. It increase the range of motion, there by improving flexibility.

Improve Concentration :- Yoga improve concentration also.

Improvement in Skeletal System :- By doing yoga in a regular form the development of flexion in our joints which increases the flexibility in back bone and avoids back pain.

Prevention of Diseases :- Immunity disease resistance power increases by yoga obesity, diabetes, heart disease hypertension asthma etc. can be treated by point yoga daily.

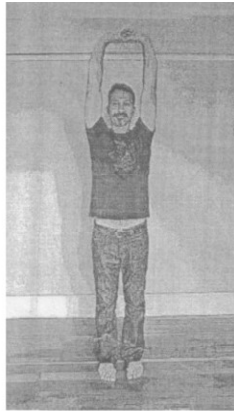
Keep body Posture Perfect :- All type of sedentary defect can be improved by yoga.

3.2 Obesity

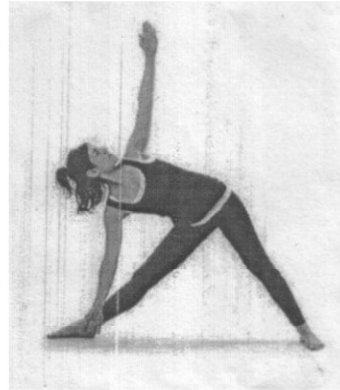
Now A days obesity has become a problem for the whole world obesity is a condition in which the amount of fat in the body increase to a very large extent. In other words, we can say obesity is when a person's weight is 20% or more than the ideal weight. There are two main reasons for obesity the bad habits of eating and deterioration of the digestive system. In such a persons life, there is no physical activity at all.

Due to many health risks of obesity it has been given the status of a disease,. Due to obesity, diseases like diabetes, high blood pressure cancer, arthritis etc. are caused. There are many causes of obesity such as excessive food. Lack of physical exercise, thyroid, hereditary.

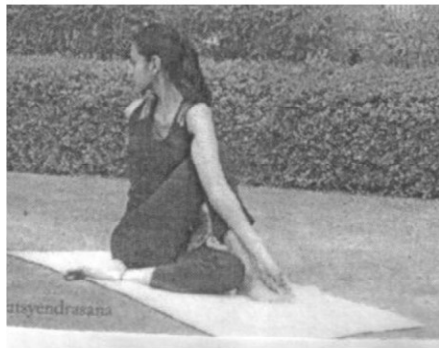
To remove obesity, these postures should be done.



Hastasana



Trikonasana



Ardhamatsyendrasana



Vajrasana

3.3 Diabetes

Diabetes is a dangerous disease, if diabetes is not controlled it is afraid to have kidney failure, reduce the viscosity of the eyes and fear of cardiovascular disease. Diabetes is a disease that increase the level of sugar in our blood. To control the level of sugar in the blood a hormone called insulin is used. Due to diabetes the man has fatigues. Feeling the need to urinate frequently having numbness of hands and feet, blurred vision, emissive weight of the body and no filling of wounds. The main reason for diabetes is that people relinquish exercise

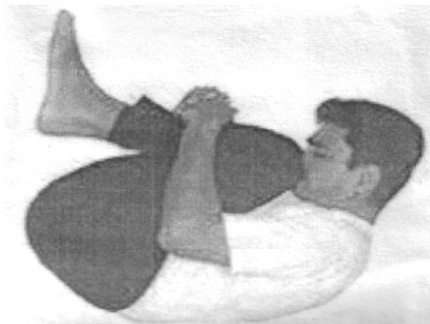
and walk form their lifestyle. By doing bhajangasan, paschimottanasana, powanmutkt asana and ardh matsyandrasana yoga one can get rid of this disease.



Bhujangasana



Paschimottasana



Pawanmuktasana



Ardhmatsyendrasana

3.4 Asthma

Asthma a disease associated with the respiratory tracts swelling occurs, which makes the tracts very sensitive and makes this process pungent with the touch of any effective thing. These reactions cause contraction in the tubes this reduces the amount of air in the lungs. Due to which it become difficult to breathe.

Common symptoms of astma are coughing, heavy breathing. chest tightness, fatigue, pain in hands feet, shoulders and back. Reasons are dust, smoke, air pollution, genetecisum,

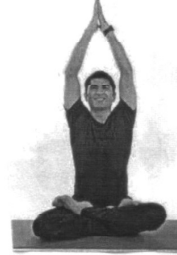
pallengrains, animals skin, hair or feather etc. are the main reasons. Asthma controlled by sukhasana, chakrasana, Gomukhasana, Bhrjangasana, paschimottasana, matsyasana.



Sukhasana
The Easy Sitting Pose



Chakrasana



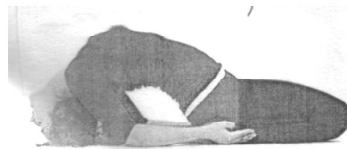
Parvatasana



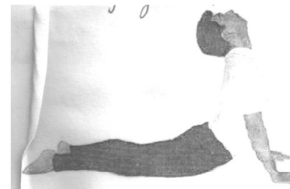
Gomukhasana



Paschimottasana



Matsyasana



Bhujangasana

3.5 Hypertension

High blood pressure. A condition in which the strength of blood against the walls of the artery is very high. Reasons for high blood pressure increased with age, Genetic, obesity, lack of physical activity, smoking, alcohol, more intake of salt in food, tension or mental stress, diabetes, pregnant women are more prone to high B.P. All these factors can lead to high blood pressure.

The main function of the heart is to supply pure blood to the

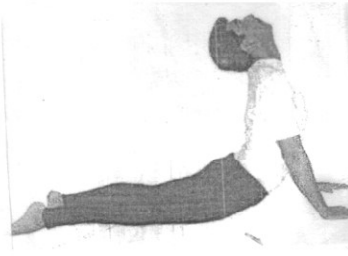
various parts of the body through different arteries when the heart contract it pushes the blood through blood vessels and consequently the blood pressure increase in arteries this pressure is known as systolic blood pressure it is represented by the first number the pressure between two heartbeats is called diastolic blood pressure it is represented by bottom or second number these two number of blood pressure are measured in mm/Hg. Unit means millimeter of mercury. The normal blood pressure of an adult is considered 120.80mm/Hg. The person whose blood pressure readings are beyond 140/90 mm/Hg are said to be having hypertension. High blood pressure can be controlled by doing the following yoga asanas Tadasana, vajrasana, pavan muktasana, ardha chakrasana, bhujangasana, sharasana.



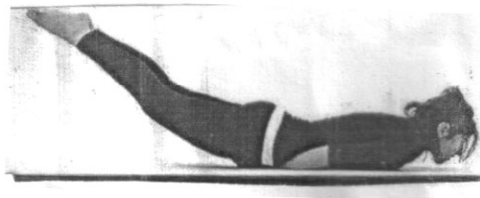
Tadasana



Ardhamatsyendrasana



Bhujangasana



Shalabhasana



Ardhamatsyendrasana

3.6 Back Pain

Back pain is a wide spread problem people around the world are suffering from various problems due to changing habitat and changing lifestyle. Back pain is one of them about 95% of the people who sit in one place and 60% of the rest of the people are upset with back pain and number of women are more in them.

The main reasons for this are long sittings, the habit of modern equipment, being more fashionable, lack of knowledge of the right way of exercising, weight lifting, wrong way of sleeping, due to an accident problem can arise. A person suffering from this problem can not do any work correctly this is not a very serious problem.

Back pain can be prevented by doing yoga if someone is suffering from back pain, even after doing yoga, there will be enough relief in back pain. Tadasana, vakrasana, bhujangasana, shalabhasana and ardh matsyendrasana can be done in back pain.

Very Short Answer type Questions (1 Mark each)

Q.1. What are the benefits of Yoga?

Ans. The biggest advantage of yoga is that they are instinctive and are within reach of everyone. Yoga is a method of exercise in which there is no more expense nor does it require more furnishings.

Q.2. Write down the names of four yoga postures that help in weight loss?

Ans. Hasttotoasan, ardh matseyemdrasan, triokaasan & vajrasan.

Q.3. Name two yogasanas that give the body flexible?

Ans. Tadasan & bhujangasan.

Q.4. Write the names of body parts that require more elasticity.

Ans. Spine, elbows & wrist, knees & ankle.

Q.5. What is obesity?

Ans. Obesity is a condition in which the amount of fat in the body increases to a very large extent.

Q.6. What yogasanas prevent and control asthma?

Ans. Sukhasan, chakrasan, gomukhasan, parvatasan, bhujangasan & paschimottasan.

Q.7. What is diabetes?

Ans. Diabetes mellitus is a nutritional disorder. The symptoms of which are abnormal progression of glucose in the blood and excretion of extra glucose by the urine.

Q.8. Write down the Reasons for Back Pain.

Ans. This pain results from living in a passive way, such as staying in front of hours of computer, bad habits related to healthy, lack of physical activity or lack of exercise.

Q.9. Write down the two names of yoga asanas that helps in diabetes and back pain.

Ans. Ardhamatsyendrasana Bhujangasana.

Q.10. What are the causes of hypertension?

Ans. The main cause of hypertension is wrong lifestyle, smoking tea, coffee, overeating obesity etc.

Q.11 What is yoga?

Ans. Yoga is defined from a word of the sanskrit language. which means adding yoga is a sadhana.

Short Question (Question 3 marks)

Q.1. Explain physiological benefits of yogasana.

Ans. Yoga have physiological benefits yoga keeps the inner and outer organs of the body healthy.

1. Yoga makes the body flexible it give energy to the body.
2. Yoga can be used to purify blood quickly.
3. Yoga increases the ability of shrinking and spreading of the lungs.
4. The spinal cord can be flexible by yoga.
5. Yoga strengthens the heart and increase its efficiency.

Q.2. Vakrasana and shalabhasan helps in reducing back pain Explain the method of vakrasana and shalabhasan.

Ans. Varkrasana is dong while sitting in this asana back bone is twisted that's why it named as vakrasana. This asana increaes the flexibility activeness of back bone.

Pre Stage :- Keep both feet in front and sit straight.

Method :- Sit down stretching your legs forward on the ground.

- Bend your left leg and place it around the right knee.
- Keep spine straight, while exhanling bend towards left.
- Now place the rightarm by the outer side of left knee and pull the left knee towards the body.
- Pull the knee so that it pressures on the stomach.
- While exhaling, return to the initial position.

-
- Repeat it from the other side its one complete cycle do it 3 to 5 times.

Benefits :- It brings flexibility in back bone and make it healthy. Relieves stiffness from the back. Help in relieving back pain.

Shalabhasana :- Shalb means Locust in Sanskrit in the end stage of the asana body shapes like a locust that's why it is named as Locust.

Pre Stage :- Lie down on your stomach.

Method :-

- Lie on your stomach.
- Place your palms under your thighs keep ankles close to one another.
- Breathe in and lift your legs upwards, while doing so your chin should rest on the ground.
- Hold this position for some time after that exhale and take down your legs in initial position.
- Repeat this for 3 to 5 times.

Benefits :-

- This asana is very helpful in back pain. Increase flexibility reducing fat, helps in curing sciatica.

Q.3. Explain any three asanas which are helpful in curing asthma.

Ans. **Gomukhasana :-** This asana gets its name because while doing this asana body resembles a cow face pose. In English it is called the cow face pose.

Pre stage :- Sit in sukhasana or dandasana pose.

Method :-

- Sit in sukhasana or dandasana pose.
- Place the ankle of left leg near right butt.
- Place the right leg over the left thigh so that knees should place over each other.
- Sweep your left hand behind your back, facing palms upwards.
- Sweep your right hand over the right shoulder, bend your elbow and place it behind your back.
- Now inter lock fingers of both hands behind your back.
- Now stretch both hands in their respective directions. Look straight.
- Repeat with changing leg position.

Benefits :- Helps in curing Asthma, reduce weight makes body flexibility and attractive.

Parvatasana :- While performing this asana body resembles like a mountain that's why it's named as parvatasana. It is a very easy asana.

Pre Stage :- Sit in padmasana pose on ground.

Method :- Sit in padmasana pose on ground.

- Fingers will have to be locked firmly inhale deeply and stretch your arms and bring the fingers look over head.
- Keep it vertically above your head.
- Turn up your palms over head.

Benefits :- Helpful in curing Asthma diseases chest is extended

lungs also expands its capacity.

Matsyasana :- If this asana is performed in water body can float easily that why it is called matsyasan.

Pre Stage :- Sit in padmasana pose.

Methods :- Sit in padmasana pose.

Take support of your elbow and lie on your back bend your neck with support of your hands, and try to touch your head to the ground.

- Hold toes of the feet firmly with both hands and touch the ground with the elbows.
- Stretch the stomach as up as possible.

Benefits :- This asana is very useful for asthma patients provide relief from indigestion and other digestive problems keep the blood clean. Helps in curing diabetes. Helps in cough and respiratory problems make body and face attractive.

Q.4. What is the role of yoga in preventing life style disease.

Ans. Yoga plays an important role in preventing life style illnesses. Yoga is definitely the means of providing freedom from all forms of bondage, medical research has told about many physical and mental benefits of yoga.

1. Yoga makes nervous system and skeletal system function smoothly.
2. Yoga is beneficial in preventing the various type of diseases like diabetes, respiratory diseases, asthma back pain, hypertension, obesity.

-
3. Yoga helps in reducing depression stress etc.
 4. Yoga is also helpful in menstruation women athlete triad.
In simple words, yoga is a activity to correlate body with mind that makes human life happy and tension free.
 - Q.5. Ram is a successful business man. He works very hard to flourish in his business that is why he comes late at night from his office. He gets up late in the morning and without doing any physical activities he leaves for the office. He is becoming weaker due to tension.

Q. A What types of health problem he can face in his present life style?

Ans. Diabetes, hypertension, and back pain etc.

Q. B What type life style you will suggest to Ram?

Ans. Active and healthy life style which includes physical activities and yoga.

Q. C What type of yogic exercise you will suggest to Ram?

Ans. Vajrasana, Sharasana, Tadasana, sukhasana etc.

Long Question Question (5 marks)

Q.1. What do you think of asthma? While Explaining symptoms & reasons of asthma describe two asanas which helps in curing it.

Ans. Asthma is a disease associated with the respiratory tract. In the inner wall of respiratory tracts, swelling occurs, which makes the tracts very sensitive and makes this process pungent with the touch of any effective thing.

These reactions cause contraction in the tubes. This reduces

the amount of air in the lungs. Due to which it become difficult to breathe.

Symptoms :- Common symptoms of asthma are coughing, heavy breathing, chest tightness, fatigue, pain in hands, feet, shoulders and back.

Reasons :- Dust, smoke air pollution, geneticism, pollen grains, animals skin, hair or feather etc. are the main reasons.

Sukhasana :-

Pre Stage :- Keep both feet in frnt and sit straight.

Method :- Sukhasana is simply sitting in the normal form. Keep the left foot folded under the right leg's thigh. Fold right and placed it under the shin. Keep head, neck and waist straight. Keep both hands in the meditation or in the anjali (palms stacked up in lap) posture. You can use it for longer periods of meditation. One Can change feet for sitting.

Benefits :-

1. This posture can be used for a long time during mediation and study, etc.
2. Straightening the waist gives strength in the legs. Pain is removed and person can perform oter postures like Ardh Padmasan and Padmasana.

Precautions :- If there is any injury in the spinal cord, then do not sit for long If there is a problem with knee joints then do not do this asana.

Chakrasana :-

Pre Stage :- Lie down on the waist and make both legs straight.

Method :-

1. Bend your knees so that the soles of your feet are on the floor.
2. Your hands must be placed behind your shoulders and fingers pointed towards your shoulders.
3. Then, press your feet and palms, and lift your entire body off the mat.
4. Hands and feet are half feet apart. Head hang gently between hands.
5. Make the body stretch towards the top so that it becomes circle shape.

Benefits :- It affects the whole body, which gives flexibility in muscles and bones & increases blood circulation, Relieve waist pain. Increases the supply of oxygen in the lungs. The overall functioning of the body increases.

Precautions :- Effort repeatedly before attaining perfection.

Q.2. Is Back Pain a Problem? If so, how can it be prevented by doing yoga asanas.

Ans. Back pain is a widespread problem. People around the world are suffering from various problems due to changing habitat and changing lifestyle. Back pain is one of them. About 95% of the people who sit in one place and 60% of the rest of the

people are upset with back ache. And number of women are more in them.

The main reasons for this are long sittings, the habit of modern equipment, being more fashionable, lack of knowledge of the right way of exercising, weight lifting, wrong way of sleeping, due to an accident and mental stress backache problem can arises. A person suffering from this problem can not do any work correctly. This is not a very serious problem but it is a very painful problem.

Back pain can be prevented by doing yoga. If someone is suffering from back pain, even after doing yoga, there will be enough relief in back pain.

Tadasana, vakrasana, bhujangasana, shalabhasana & ardh matsyendrasana can be done in back pain.

Vakrasana :- This yoga is a ram arrow for Back bone. It helps in making the spinal cord flexible and healthy.

Tadasana :- This posture is very beneficial for back pain. If it is practiced in the right way, then back pain can be relieved completely In it, you drag yourself towards the top and feel the strain where there is pain.

Shalabhasana :- Shalbhasan strengthens the waist and back. It enhances the flexibility of the back. Thereby reducing the back pain.

Bhujangasana :- Bhujansan is also called cobra pose. Because in this, the next part of the body is raised like a cobra. Doing this asana gives relief in back pain. If it is practiced continuously then back pain can be relieved

completely.

Ardh Marsyendrasana :- This Asana named after yogi matsyendra nath. It helps in strengthening the back bone muscles and make them flexible. This posture is very beneficial for back pain.

Q.3. Explain the causes of high blood pressure. Describe three yoga asana which can be used to control high blood pressure.

Ans. **Meaning of high blood pressure :-** A condition in which the strength of blood against the walls of the artery is very high.

Reasons for high blood pressure :-

1. Increased with age.
2. Genetic, Obesity, lack of physical activity, smoking, alcohol, more intake of salt in food, eating high cholesterol diet or fatty foods, tension or mental stress, diabetes, pregnant women are more prone to high B.P.

All these factors can lead to high blood pressure.

High blood pressure can be controlled by doing the following yoga asanas :-

1. Tadasana

Pre Stage :- Stand straight and hand should be hanging alongside your body.

2. Now, take a deep breath, raise both the arms upwards and interlock the fingers.
3. Raise your heels and stand on your toes.
4. Hold this position and while exhaling release your pose to come to the starting position.
5. Repeat it 1 to 5 times.

Benefits :- Increase height.

Regulate the menstrual cycle in women. Helps in high blood pressure.

Precautions :- Should not practice during pregnancy.
Those who have suffering from low blood pressure should not practice.

Ardh Chakarasana :-

Pre Stage :- Stand straight and keep your hand close to your body.

Method :- Place your hands on your buttocks.
Breathing in gently, bend backwards while keeping the knees straight.
Stay for sometime in this position.
Come back to starting position.

Benefits :- Waist become flexible.
Strengthen back bone.
High BP comes to normal.
Tones the arms and shoulder muscles.

Precautions :- Keep knees straight while bend backwards.

Shavasana :-

Pre Stage :- Lie flat on your back.

Method :- Keep your arms at your side and your palms facing up.
Legs should be separated and just relax.

Start concentrating from your head to your feet and relaxed each part of your body and feels that you are just like a dead body.

Benefits :- Relax whole body.

Release stress, fatigue, depression & tension.

Calms the mind and improves mental health.

Precautions :- Place where Shavasana is performed should be peaceful with no noise at all.

Q.4. What do you think of obesity? Which yogaasana preventing the obesity explain.

Ans. Now a days obesity has become a problem for the whole world. Obesity is a condition in which the amount of fat in the body increass to a very large extent. In other words, we can say obesity is when a person's weight is 20% or more than the ideal weight. There are two main reasons for obesity - the bad habits of eating and deterioration of the digestive system. In such a person's life, there is no physical activity at all. Due to many health risks of obesity it has been given the status of disease. Due to obesity, diseases like diabetes, high blood pressure, cancer, arthritis, etc. are caused. There are many causes of obesity such as excessive food, hard work, thyroid, hereditary. To remove obesity, these postures should be done.

Vajarasana :-

Pre Stage :- Sit and keep both leg straight.

Method :- Fold right leg and place it under tight butt.
Fold left leg and place it under left butt.
Keep your spine, neck and head straight, interlock your toes,
open your ankle.
Knees should be touching the ground.
Keep both hands on your thighs and look straight.

Benefits :-

This asana is for meditation.
It can be practiced after having food. It enhances digestion
process.
It cures indigestion and improves metabolism.
It gives strength to the thigh muscles.

Hastottanasana :-

Pre Stage :- Standing erect and keep the legs together.

Method :- Locks the fingers together, keeping the palms facing
up.
Raise the arms straight up, keep them close to ears.
While releasing the breath bend the waist to the right, take
breath and come to the central position.
Repeat it to left side also. Be in bent position for 5 to 10
seconds.

Benefits :- Gives rest to whole body.
In children, helps in increasing the height.
Increases flexibility in waist.
Reduces belly fat.
Also helps in reducing constipation.

Trikonasana :-

Pre Stage :- Standing erect and keeps the legs together.

Method :- Maintain 3 or 4 feet distance between both legs.
As inhaling, keep left hand straight & upwards, while touching the ear.
With an exhalation, bend towards right and touches the toe of right leg with right hand.
Do another inhaling, come back to straight position.
Change hand positions and turn to other side.

Benefits :- It improves the flexibility of waist and spine.
Reduces fat.
Give strength to the thighs, calves and buttocks.

Ardhmatsyendrasana :-

Pre Stage :- Sit and keep both legs straight.

Method :- Bending the knee of right feet and put right heel below the left hip. Bend left leg and placed the left foot to the right side of the right knee.
Keep right knee closed to the chest.
Exhale from the right nostril and turns towards the left, and touches the toe of left leg from the right hand.
Body and head moves towards the left.
Repeat while changing the position of legs.

Benefits :- Helps nervous system and strengthen the back bone.
Controls menstrual cycle in women and brings shine on face.
Also controls secretion from pancreas gland.
Useful for respiratory system.

Reduces fat and helps in controlling obesity.

Q.5. What is the meaning of diabetes? To control diabetes, write any three posture method in detail.

Ans. Diabetes is dangerous disease, if diabetes is not controlled, it is afraid to have kidney failure, reduce the viscosity of the eyes and fear of cardiovascular diseases. Diabetes is a disease that increases the level of sugar in our blood. To control the level of sugar in the blood, a hormone called insulin is used.

Due to diabetes, the man has fatigue, feeling the need to urinate frequently, having numbness of hands and feet, blurred vision, excessive weight of the body, and no filling of wounds. The main reason for diabetes is that people relinquish exercise and walk from their lifestyle.

By doing Bhujangasana, paschimottanasana, pawanmuktasana and ardhmatsyandrasana. Yoga, one can get rid of this disease.

Bhujangasana :-

Pre Stage :- Lie down on your stomach.

Method :- Joint the legs and stretch as much as possible.

Place the palm near the chest facing the ground.

Take a deep breath and lift your upper body upwards. Elbow should be straight.

Move your head and neck backwards as much as possible.

Exhale and slowly bring the body in starting position.

Paschimottanasana :-

Pre Stage :- Sit down with your legs stretching straight in front of you.

Method :- Keep your head, neck and spine erect and stretch hands upwards with a deep breadth. Now, exhale and bend your head and trunk slowly forward to catch the toes with the thumb. Try to touch head, chest and stomach to the legs and elbows to the floor.

Pawanmuktasana :-

Pre Stage :- Lie flat on your back and keep the legs straight.

Method :- Inhale slowly and lift the legs and bend the knees. Bring upwards to the chest till your thigh touches the stomach. Hug your knees and lock your fingers.
Keep back, neck and head straight.

Very Short Questions

- Q.1. What is asana.
- Q.2. What is the other name of Ardha matryendra asana.
- Q.3. What is asthma.
- Q.4. What is Back pain.
- Q.5. Mention two benefit of tadasana.
- Q.6. What is the psychological benefit of asana.
- Q.7. What are the contraindications of Gomukhasana.
- Q.8. What is Savasana.
- Q.9. Define hypertensions.

Short Questions

- Q.1. Write down the benefits of vakrasana and shalabhasana.

UNIT - 4

Physical Education and Sports for Differently Abled

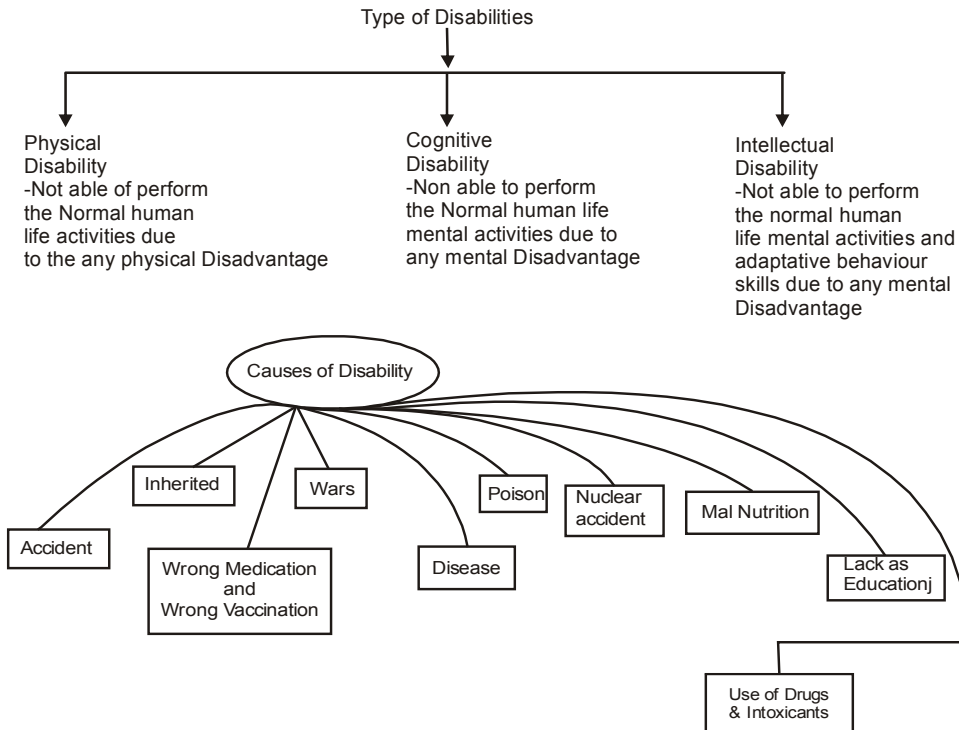
Key Points :-

- 4.1 Concept of disability & disorder
- 4.2 Types of disability (Cognitive disability intellectual disability, physical disability)
causes and nature of Disabilities
- 4.3 Type of disorder ADHD, SPD, ASD, ODD, OCD cause & Nature of Disorder
- 4.4 Disability Etiquettes
- 4.5 Advantages of physical Activities for children with special needs
- 4.6 Strategies to make physical activities assessable for children with special needs.

4.1. Disability & Disorder

Disability :- Any disadvantage due to which an individual is not able to perform the activities of normal human life is known as disability.

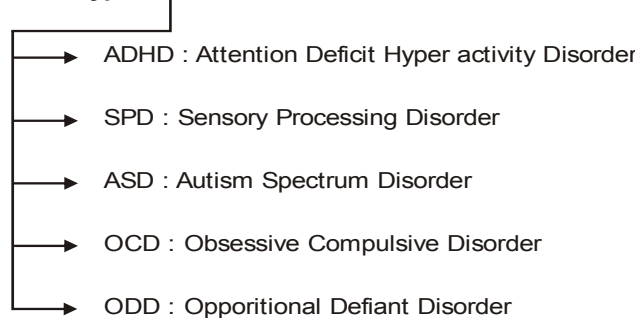
Disorder : Any disruption due to which an individual is not able to perform his daily human activities is known as disorder.



Nature of Disability

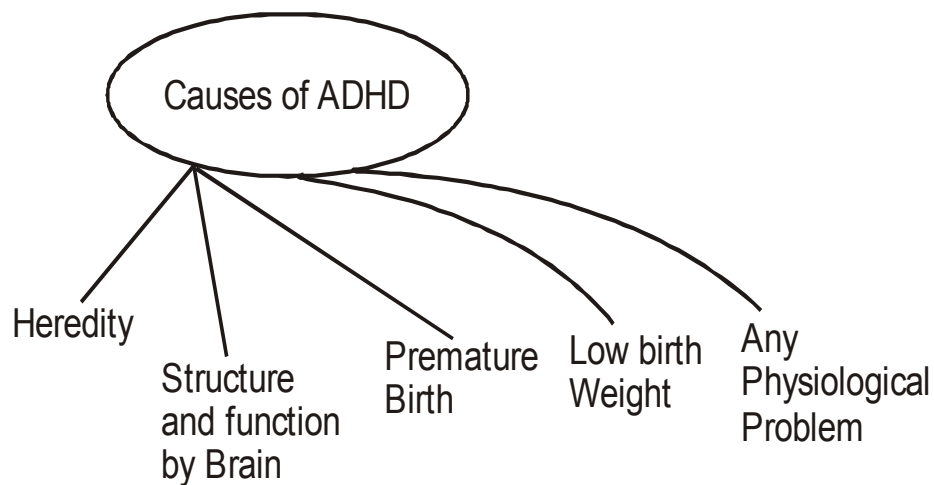
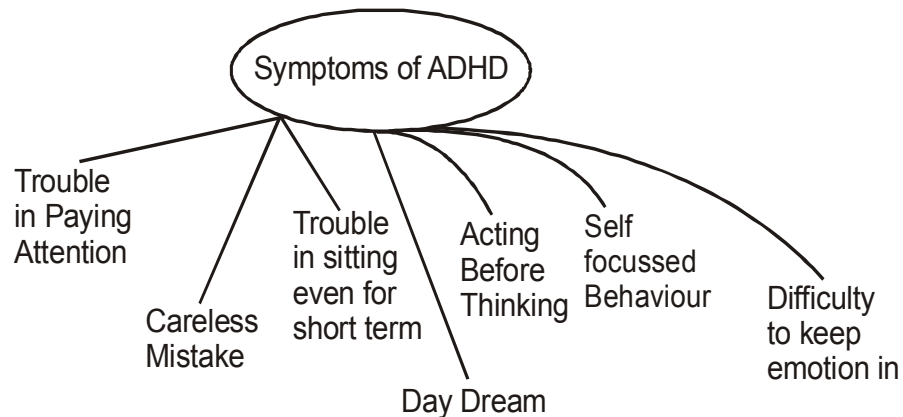
- Loss of power or ability due to any disadvantage
- May be by Birth or gained in the life
- It is permanent or likely to be parmanent.
- It may concerned with physical disadvantages or combination of all these.
- It limits activity performance

Type of Disorder



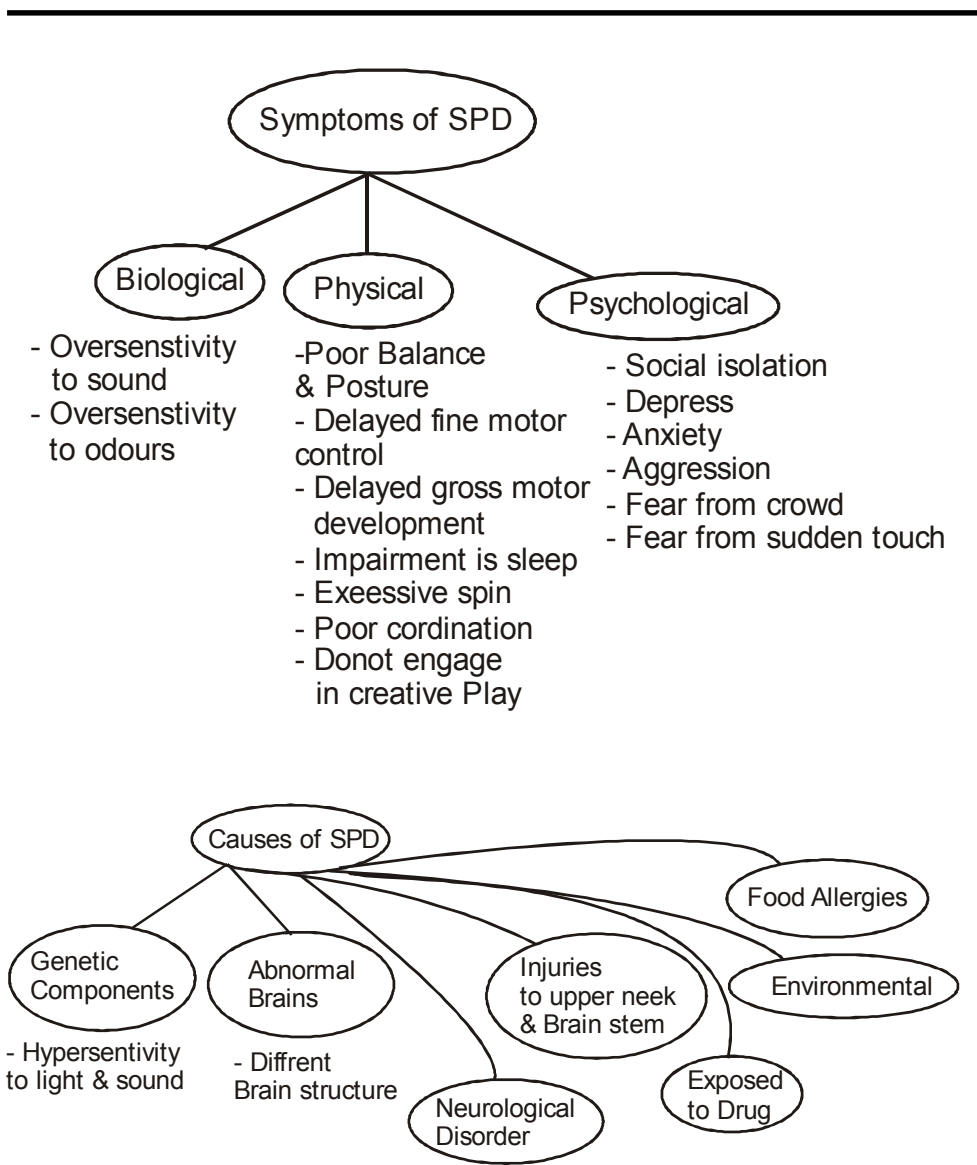
1. **ADHD (Attention Deficit Hyper activity Disorder)**

Effectuated person will be hyper active and unable to control their impulse.



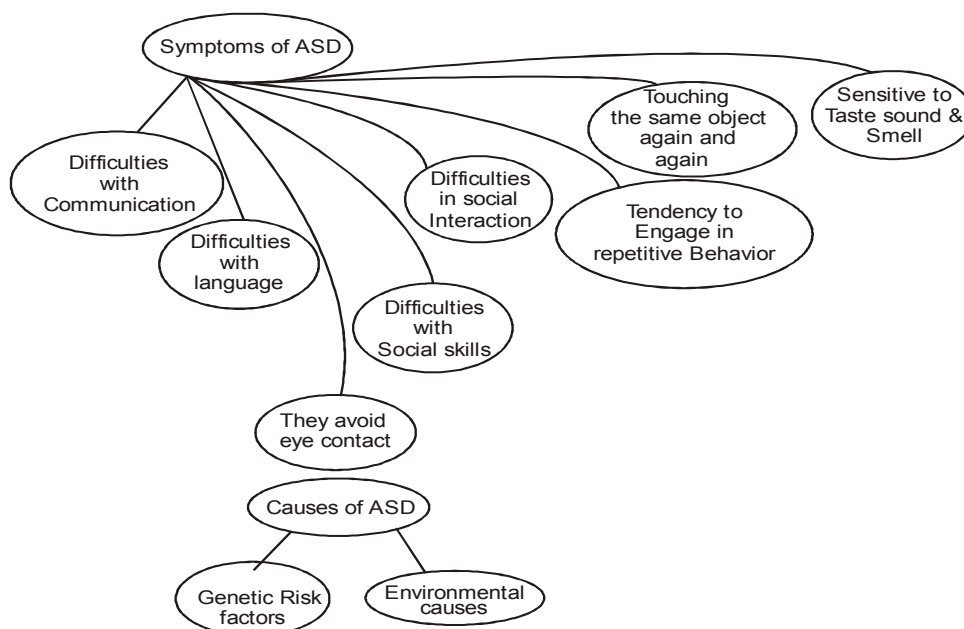
2. **SPD (Sensory Processing Disorder)**

In this disorder effectuated person has problem in his nervous system to receive the information that comes through the sensory organs.



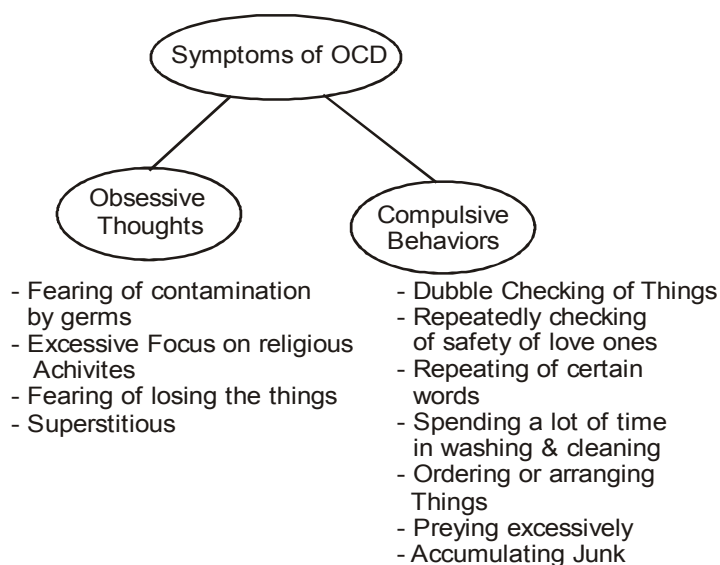
3. **ASD (Autism Spectrum Disorder)**

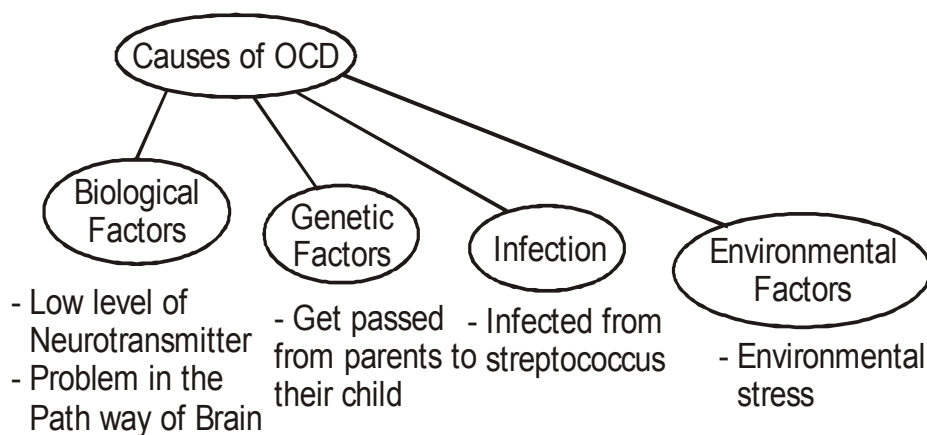
It is a neurological and developmental disorder in this disorder affected person repeat the sentence again & again.



4. OCD (Obsessive Compulsive Disorder)

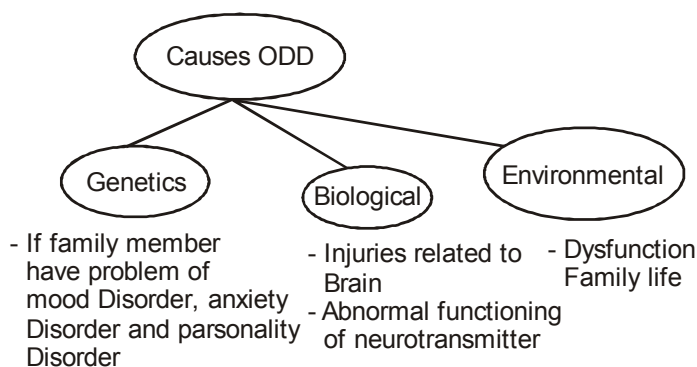
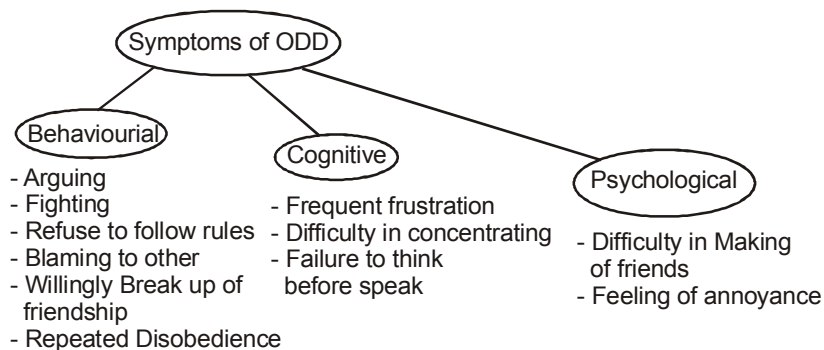
In this disorder effected person feel to check the things again & again & perform certain routine activity repeadtly such as cleaning & washing hand





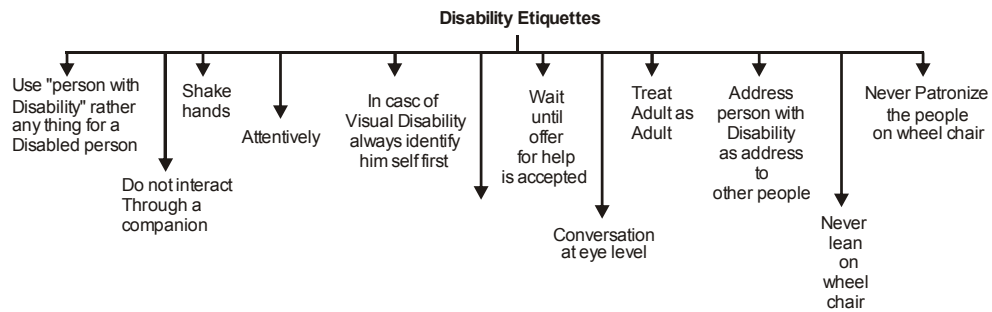
5. ODD (Oppositional Defiant Disorder)

It is a group of behavioural disorders called disruptive behaviour disorder. In this disorder effected person always try to disrupt those are around him.

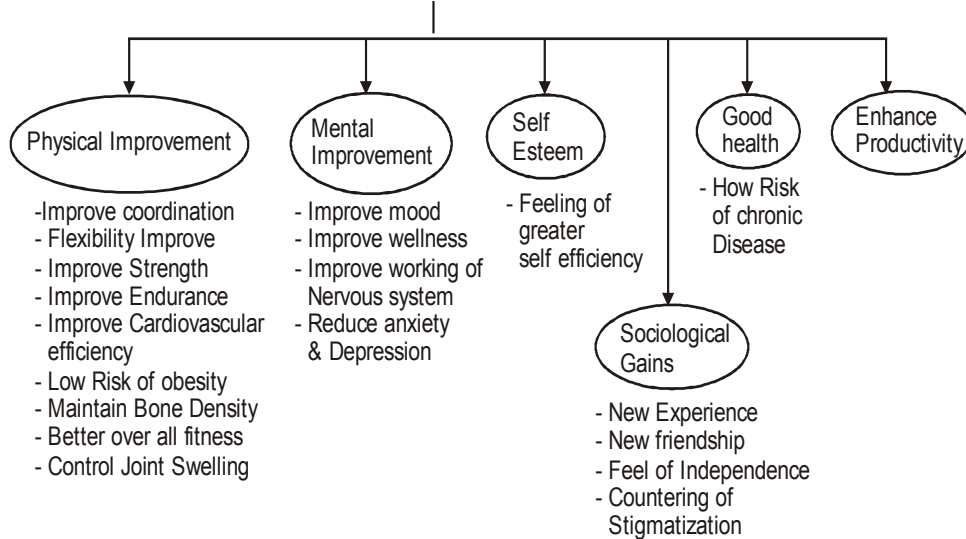


4.4. Disability Etiquettes

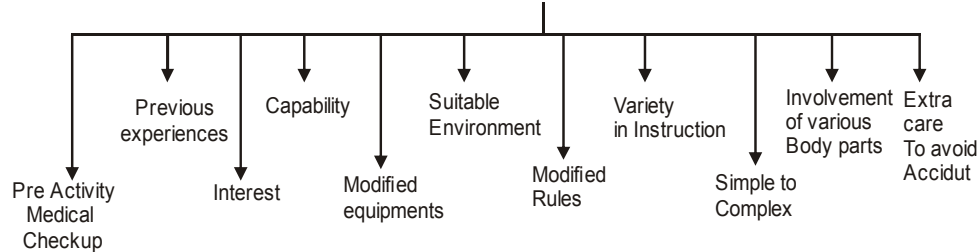
These are guidelines which are to be followed when deals with any disabled person.



Advantage of physical Activities for children with special needs



Strategies to make physical Activities Accessible for children with special needs



Very Short Type Questions Answer 1 Mark

Q.1. What do you understand by Disability?

Ans. Disability is the condition in which an individual is not able to perform normal human life activities due to any disadvantage.

Q.2. What are the common types of disabilities.

Ans. * Physical disability
* Intellectual disability
* Cognitive Disability

Q.3. What do you understand by physical disability.

Ans. In physical disability an individual is not able to perform his daily life activities due to any physical disadvantage.

Q.4. What do you mean by cognitive disability.

Ans. In cognitive disability an individual is not able to perform his daily life mental activities due to any mental disadvantage.

Q.5. What do you understand by intellectual disability.

Ans. In intellectual disability an individual is not able to perform the normal human life mental activities and adaptive behavior skills due to any mental disadvantage.

Q.6. Explain the meaning of Disorder

Ans. Any disruption due to which an individual is not able to perform his daily life human activities effectively is known as disorder.

Q.7. Write down the different types of disorder.

Ans. ADHD (Attention Deficit hyper activity disorder).
* SPD (Sensory processing disorder)
* ASD (Autism spectrum disorder)
* OCD (Obsessive compulsive disorder)
* ODD (Oppositional defiant disorder)

Q.8. What do you understand by ADHD (Attention Deficit Hyperactivity disorder)

Ans. In this disorder affected person becomes hyperactive & is unable to control his impulses.

Q.9. What do you understand by SPD (sensory processing disorder)

Ans. In this disorder effected person has problem in his nervous system to receive the information that comes through the sensory organs.

Q.10. What do you understand by ASD (Autism spectrum disorder)

Ans. In this disorder effected person repeat the sentence again and again. He does not want to interact with other. It is a neurological & Devlopmental disorder.

Q.11. What is you understand by the “OCD” (obsessive compulsive disorder)

Ans. In this disorder effected person check the things again & again and perform certain routines activities repeatedly such as cleaning & washing of hands.

Q.12. What do you understand by ODD (oppositional defiant disorder)

Ans. In this disorder effected person always try to disrupt those are around him. It is disrptive behavioural disorder.

Q.13. What do you understand by the term “Disability etiquettes”

Ans. Disability etiquettes are the guidelines which should be followed when deal with the person with any disability.

Short Type Question Answers (3 Marks)

Q.1. Explain about the different type of disability with examples.

Ans. **(a) Physical disability:** Due to any physical disadvantage an individual is not able to perform his daily life activities examples

- * Blindness: Total absence of sight
- * Partially blind : Very low vision
- * Cerebral palsy: Abnormal motor control
- * Hearing impairment: Loss of hearing

(b) Cognitive disability: Due to any mental disadvantage an individual is not able to perform daily life activities

examples.

- * Difficulty in mental task such as learning counting, understanding of various words etc. due to physiological cause.

(c) **Intellectual Disability:** Due to mental disadvantage individuals are not able to perform various mental tasks & adaptive behaviour skills. Example.

- * Mental task: Learning problems, reasoning problems
- * Adaptive behaviour: Collection of social skills & conceptual skills.

Q.2. Differentiate between disability & disorder

Ans. Disability	Disorder
– Disadvantage	disruption
– No Chances to become normal	– High chances to become normal
– often concerned with various parts of body	– often concerned with mental ability
– Physical disability	eg– ADHD, SPD, ASD, OCD,
Cognitive disability, Intellectual disability.	ODD.

Q.3. Write down the symptoms of ADHD

Ans.

- * Trouble in paying attention toward a particular topic
- * Trouble in sitting still for even a short time. They run around they do not enjoy quiet activities such as reading, learning etc.
- * Wait for his turn & sharing is harder for them. This makes it difficult to play with other children.
- * Affected person makes quick decision before thinking.
- * Affected person never keeps their emotion.
- * Affected persons are day dreamers

* Effected person always leads to carless mistakes.

Q.4. What are the symptoms of SPD.

- Ans. (a) **Behavioural symptoms:** Oversensitive towards the sound, oversensitivity towards the odours, effected person do not engage in creative play, difficult to calm after getting upset.
- (b) **Physical symptoms:** Poor Balance, poor posture, fine motor control is always delayed, poor hand writing, motor development takes more time, excessive spin in the body parts, poor cordination impairment in sleep.
- (c) **Psychological Symptoms :** Social isolation depressed, Anxiety, Aggression, feel fear from crowd, feel fear from surprise touch.

Q.5. Write down the symptoms of ASD

Ans. Difficulty in communication, feel difficulty in reading loudly, difficulty in various social skills, difficult in social interaction, Tendancy to engage in repetitive Behaviours, Avoid the eye contract, Touching the same object again & again, Sensitive towards sound, taste & smell. Frequent repetition of set words and phrase, To communicate use single word instead off complete sentence, react negatively when asked to do some thing, not being aware of other personal's space. Prefer to play alone, strong like & dislike to for certain foods on the basis of texture or colour of the food.

Q.5. Write down the Symptoms of OCD.

Ans. (a) **Obsessive Thoughts :** Always feel fear of contaminants by the germs & dirt, excessive focus on religion, feel fear of loosing or not having things superstitious about various things some are felt lucky & some are felt unlucky, always feel fear of harming him self.

-
- (b) **Compulsive behaviour:** Dabble checking of their things, Repeatedly check their love one that they are safe. Repeating of certain words, spending a lot of time in washing & cleaning praying to god excessively. Accumulating junk items in their house.

Q.6. Write down the Symptoms of ODD.

- Ans. (a) **Behavioural:** Always argue with other, aggressive & Tends to start the fight, refuse to follow the rules imposed on him, always try to blame to other willingly break the friendship, Repeated disobedience can be seen. premature born: May leads towards the ADHD
- (b) **Cognitive :** Frequent frustration, feel difficulty in concentration on a particular topic, failure to think before to speak.
- (c) **Psychological symptoms :** Difficulty in making friends, loss of self esteem, feeling annoying.

Long Question Answers (5 Marks)

Q.1. What are the causes of ADHD.

- Ans. (1) Heredity : If parents or sibling of child is with ADHD then person has 4 to 5 time more prone towards ADHD
- (2) Brain function & structure : Certain area of brain is smaller than the brain area of NON "ADHD", Neuro transmitter imbalance can be seen in case of ADHD.
- (3) Premature Born : may leads towards the ADHD.
- (4) Low Birth wt: May leads towards the AD HD
- (5) Brain damage: In the womb or 1st few years of life leads towards ADHD
- (6) Drinking Alcohol smoking & use of Drugs: has bad effect on the working of nervous system and may leads

towards the ADHD.

- (7) Exposure of high level of toxic: Exposure to toxic in early age below 3 years has bad effect on the working nervous system that may lead towards ADHD (e.g. lead)

Q.2. Write down the causes of SPD

- Ans. (1) Genetic components: Some of genetic components which we get from our parents such as hypersensitivity to light & sound may lead towards SPD.
- (2) Abnormal Brain structure: Due to any cause if the structure of brain is not proper it may lead towards ASD.
- (3) Injuries: at upper neck and Brain stem region may effect the working of nervous system and leads towards SPD.
- (4) Not being exposed to appropriate amount of stimulation during crucial developmental stage.
- (5) Food allergies May lead towards SPD.
- (6) Being exposed to Drugs: While in utero may lead to SPD.

Q.3. Write down the causes of ASD.

- Ans. **Genetic Risk factors:** In case of twins if one is suffered from ASD than 30% to 40% more chances that other will be also suffered from ASD and In case of sibling 10% to 20% more chances to be suffered from ASD. ASD tend to occur more often in people who have certain genetic or chromosomal condition such as Fragile X Syndrome. No single gene is responsible for ASD rather multiple genes are involved in ASD.
- Environmental causes:** When maternal exposure to certain viruses such as measles, mumps, Rubella, herpes, syphilis, cytomegalovirus and chemicals such as thalidomide, valproic acid

during pregnancy. Children born to older parents has greater risk to get suffer from ASD. Cerebral dysgenesis (Abnormal development of brain) is also caused to ASD. Inborn error of metabolism is also is the cause of ASD.

Q.4. Write down and explain the causes of OCD.

- Ans. (1) Biological factor: OCD arises from the problem in the pathways of brain that link the area dealing with judgement and planning with another area that filter message involved in body movement.
- (2) Genetic factors: Get passed from parents to their child such as genetic disorder.
- (3) Infection: That is caused by the STREPTOCOCCUS have linked with OCD. If this infection is untreated it may lead to development of OCD.
- (4) Environmental factors may heads to get suffer from OCD such as change in living situation, Illness, death of loved, one, school related problem and relationship concern.

Q.5. Write down & Explain the causes of ODD.

- Ans. (1) Genetic factors: If parents have the problem of mood disorder, anxiety disorder, personality disorder then there will be a lot of chances that their child may get suffered from ODD.
- (2) Biological factors: Injuries related to Brain can cause to ODD and Abnormal functioning of brain chemical or neuro transmitter can also leads to ODD.
- (3) Environmental factors: Family history, dysfunctional of family life, depression may lead towards ODD.

Q.6. What do you understand by disability Etiquettes. Explain in detail.

Ans. Disability etiquettes are those guidelines which should be

followed when deal with the disabled person. These are following.

- (1) **Term used:** We should not used the term as handicaped, mentally challenged, physically challenged & disabled person for any disable human being rather should called as “person with disability” or “DIVYANG”.
- (2) **Companion:** Never talk to person with disability through a companion.
- (3) **Shake hand:** When deals with person with disability always offer him to shake hand first.
- (4) **Assistance:** If assistance is offered to the person with disability then wait until the offer is accepted.
- (5) **Adult:** Always treat Adult as an adult.
- (6) **Address:** Address the people who have disability by their first name only as address to other.
- (7) **Identify:** Your self and other person who are with you when interact to any person with disability or Divyang.
- (8) **Patronize:** Never patronize the person on the wheel chair by patting him on the shoulder or back.
- (9) **Lean:** Never lean on the wheel char.

Q.7. Explain the advantages of physical a activities for children with special needs.

Ans. (1) **Physical improvement:** Improvement is concentration.

- * Improvement in flexibility
- * Improvement in strength
- * Improvement in endurance
- * Improvement in cardiovascular efficiency
- * Decrease the Risk of obesity
- * Better over all fitness.
- * Improvement in Motor ability
- * Minimize joint swelling.

(2) Mental improvement

- * Improvement in mood
- * Improvement in wellness
- * Improvement the working of nervous system.
- * Brain release endorphins that help to feel good and ease from depression anxiety.

(3) Improved the sense of self esteem

- * feeling of greater self efficiency

(4) Sociological Gains

- * New experiences
- * New friendship
- * feel of independence
- * countering of stigmatization

(5) Good health

- * Low risk of disease

(6) Enhance Productivity

- * Improve the working efficiency

Q.8. Explain the strategies to make physical activities accessible for children with special needs.

- Ans. **(1) Pre Activity medical check up:** To know about the disability, medical aid must be available for that disability at the time of exercise.
- (2) Previous experience :** Previous experience of participation in the physical activities should be considered at the time of selection of sport activities.
- (3) Interest:** Selected physical activities can be accessible if it is according to the interest of the person having disability.
- (4) Capability:** The selected physical activities must be according to the capability of the person with disability.

-
- (5) **Modified equipments:** As per the capability of the person with disability equipment must be modified so they can be used easily.
 - (6) **Suitable Environment :** At the time of play environment must be pleasant. All kinds of facilities must be available such as proper lightening, proper ground, proper marking etc.
 - (7) **Variety of Instruction:** Instruction used during the exercise must be according to the nature of disability for example for the person with hearing impairment visual instructions should be used.
 - (8) **Modified Rules:** Rules of the sports for the exercises must be modified according to the capability of the person with disability.
 - (9) **Simple to complex:** When prepare the activity schedule for person with disability principle of simple to complex must be followed in starting we should take easy exercise then we should progressively increased the degree of load.
 - (10) **Involvement of various body parts:** In activity plan for person with disability the selection of activities should be in such a way that involvement of maximum body parts is done.
 - (11) **Extra care:** Extra care should be taken to avoid any accident during the exercise.

Very Short Questions

- Q.1. What is the full form of ASD.
- Q.2. What is the full form of ADHD.
- Q.3. What is the full form of SPD.
- Q.4. OCD stands for what.
- Q.5. ODD stands for what.
- Q.6. What are the characteristics of the disability.
- Q.7. What are the characteristics of the disorder.
- Q.8. Blindness is form of which type of disability.
- Q.9. A person has a disruption due to which he can not do his daily routine activities properly. Name that condition?
- Q.10. A condition in which a person is not able to perform mental task & adaptive behavioural skills due to any mental disadvantage. Name that condition?
- Q.11. Explain the term "Disability" Etiquette"
- Q.12. Name of the condition in which affected person becomes hyperactive & unable to control impulses.
- Q.13. If a person repeats the sentence again & again he is suffering from which type of disorder.
- Q.14. If a person disrupts those around him he is suffering from which type of disorder.
- Q.15. If a person repeats certain routine task again he may be suffering from which type of disorder.
- Q.16. If a person is unable to receive the information coming from the sensory organ he may be suffering from which disorder.

Short Questions Answer.

- Q.17. If a person is suffering from ADHD what symptoms can be seen in the person.

-
- Q.18. On the Basis of whose characteristics SPD suffered person can be identified.
- Q.19. On the basis of whose symptoms ODD suffered person can be identifies
- Q.20. We can noticed what type of characterstics in the OSD suggered person.
- Q.21. Distinguish between physical disability and intellectual disability.
- Q.22. Distinguish between cognitive & Intellectual disability.
- Q.23. Write down the factors responsible for ADHD.
- Q.24. Write down the factors responsible for SPD.
- Q.25. Write down the factors responsible for ASD.
- Q.26. Write down the factors responsible for OCD.
- Q.27. Write down the factors responsible of ODD.
- Q.28. Write down any three Advantage of physical activity on a person with disability.
- Q.29. Write down any three cause of disatrility & Explain then.
- Q.30. Write down any three Disability etiquettes.

Long Questions Answer

- Q.31. Write down causes & Nature of disability.
- Q.32. What is disorder? Discuss its various types in detail.
- Q.33. What are the causes & symptoms of ADHD.
- Q.34. What are the main causes & symptoms of SPD.
- Q.35. Explain the causes & symptoms of OCD.
- Q.36. We must follow the disability etiquette discuss then in details.
- Q.37. Explain the need of physical activity for person with disability.
- Q.38. What things use kept in our mind when we prepare the activity plan for a person with disability.

Value based Question

Rohit was from a labour class family and could not walk properly. His friend, neighbour Nitish has a very poor vision and could not see properly. Both were suffering from financial problems and disabilities. Though, they had limitations but they decided to go to school for getting education. They made a mutual consent that Rohit would read books for Nitish and Nitish would support and Rohit would support him, while going school. Both the families welcomed their decision school provided special facilities for differently-abled viz. Ramp, Toilet, class room at ground floor. Teachers and class mates also helped them.

In such supportive environment they were able to achieve their goals.

- In view of above passage answer the following questions.
1. What do you understand by disability?
 2. What types of facilities are available in schools for differently abled children?
 3. What values do you learn from the above passage.

UNIT - 5

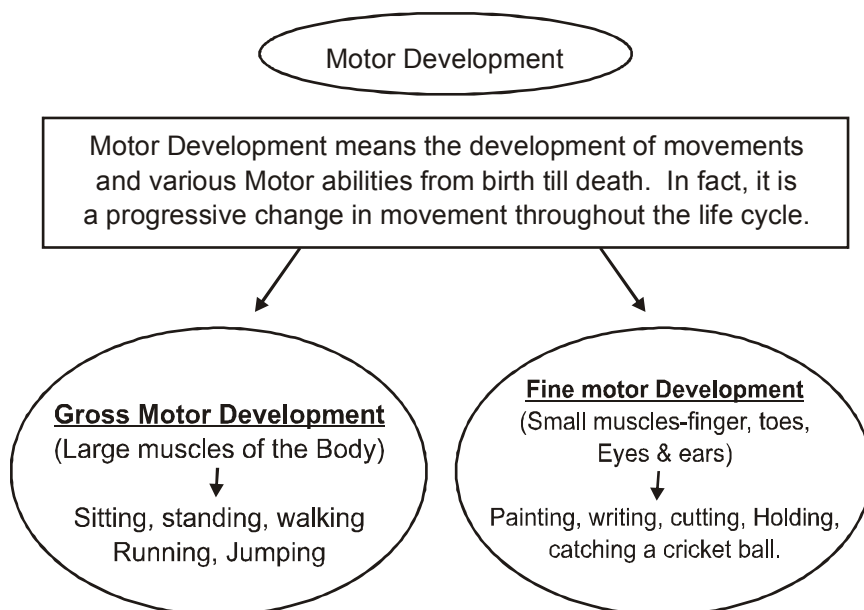
Children and Sports

Key Points :-

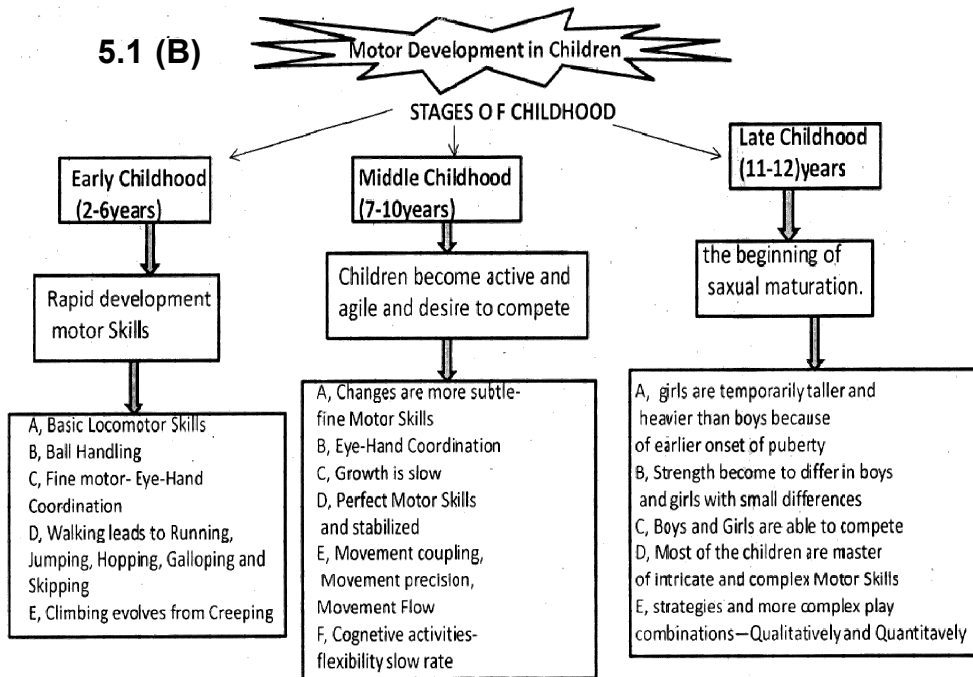
- 5.1. Motor Development and factors affecting it.
- 5.2. Exercise Guidelines at different stage of growth and development.
- 5.3. Advantages and disadvantages of weight training.
- 5.4. Concept and advantages of correct posture.
- 5.5. Causes of Bad posture.
- 5.6. Common postural Deformities knock knee, flat feet, Round shoulders, Lordosis, kyphosis, Bow legs and scoliosis.
- 5.7. Corrective Measures for postural Deformities.

5.1

5.1 (A)

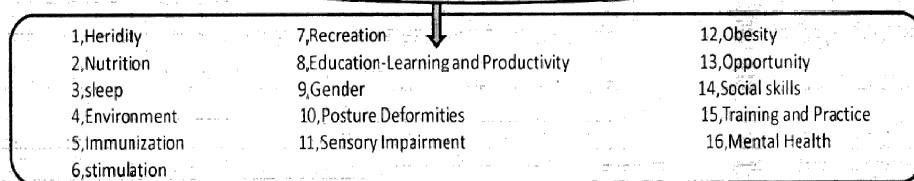


5.1 (B)

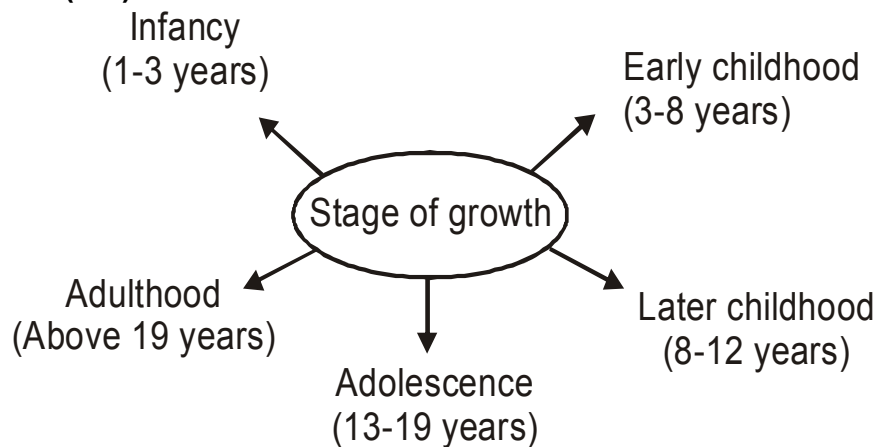


5.1 (C)

Factors affecting Motor Development



(5.2)



5.2. Exercise guidelines of different stages of growth

1. Infancy (1 to 3 years)

- Exercise to develop head control, sitting & crawling.
- Gross motor activities should be promoted.
- Exercise for moving arms, legs reaching to object.
- Exercise like throwing, catching & kicking a ball.

2. Early childhood (3 to 8 years)

- Exercise to develop competence in movement skills.
- Emphasis on participation not on competition.
- Activities related to fine motor skills.
- Minimum one hour regular medium exercise.
- Recreative & enjoyable methods of physical activities.
- Clean & safe environment.

3. Later childhood (8 to 12 years)

- Exercise to develop body control, strength and coordination.
- Activities related to endurance should be avoided.
- Organised or team games to develop social-consciousness.
- Teach basic rules of sports i.e. fair, play, simple strategies.
- Introduction to concept of sports training.

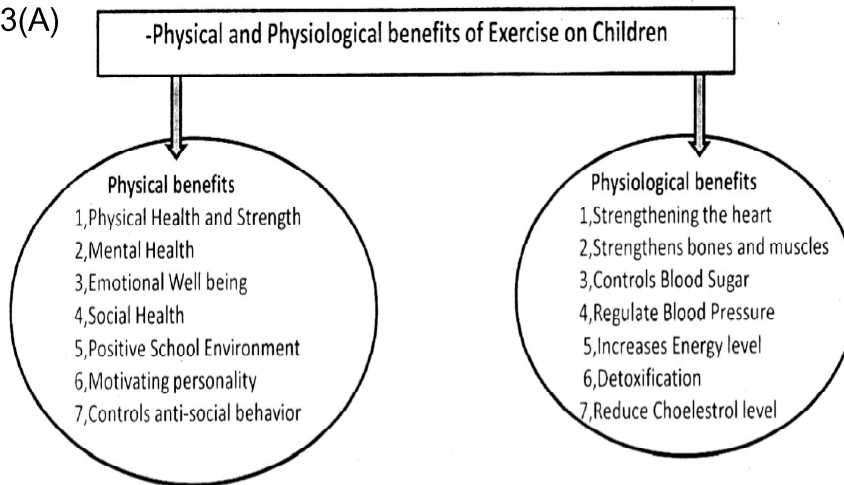
4. Adolescence (13 to 19 years)

- Moderate to vigorous intensity physical activity.
- 60 min to several hrs everyday.
- Muscle strengthening exercise at least 3 times a week.
- Bone strengthening exercise and resistance exercise weight training.
- Running swimming etc. for stamina building.

5. Adult hood (above 19 years)

- Moderate intensity physical activity every day.
- Muscles strengthening exercise at least 2 times a week.
- Bone strengthening exercise and resistance exercise.
- Running, swimming, etc. for stamina building.

5.3(A)



(5.3) Advantages and Disadvantages of Weight training

(A) Weight training:- Weighting training is defined as those exercises, that are designed to strengthen specific muscles by causing them to overcome a fixed resistance, usually in the form of Bar bells or dumb-bells. Actually it refers to exercise phase of the activity, where weight in the form of bar-bells are used to condition and alter the sizes of various segments of the body.

Advantages of Weight Training

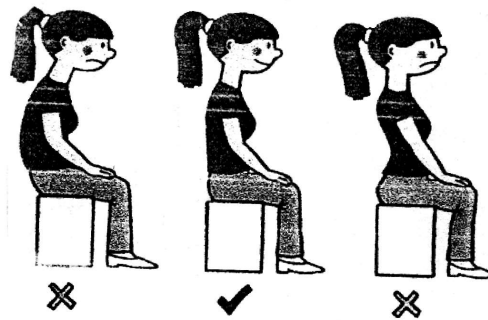
- 1,Improves Posture and range of motion
- 2,Increases muscles strength, bone density and endurance
- 3,Protection against injury
- 4,Improve motor performance
- 5,Promote healthy Blood pressure and Cholesterol levels
- 6,Maintain Healthy Weight
- 7,Develop confidence and self esteem
- 8,Improve immune system functions
- 9,Improve Psycho-socio well being
- 10,Promote and develops exercise habits

Disadvantages of Weight Training

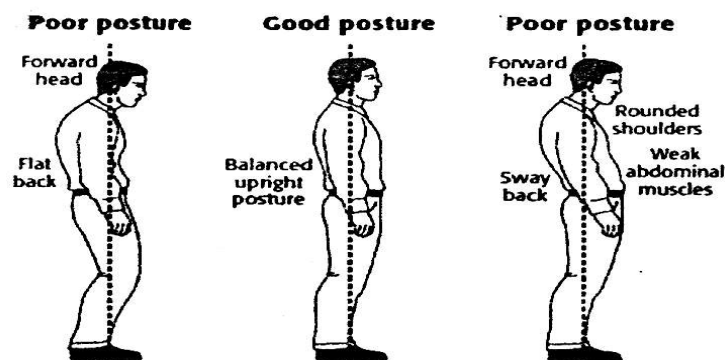
- 1,Maturity
- 2,Introduce Injury
- 3,Safety
- 4,Loss of Flexibility

5.4. (a) Good Posture: Good posture is one, in which the body is so balanced as to produce least fatigue.

A. Correct Sitting Posture : In correct sitting posture the back bone should be so, the natural curve should be straight against back of chair. Head should be in line to hip and shoulder. Arms should be balanced, the waist should touch the back of chair. Thigh should be in straight line resting on seat legs should rest vertically on feet.



B. Correct standing posture : In correct standing posture, feet apart about 8 to 12 inches. Feet should be parallel to each other and balanced evenly on both feet. Hold the head straight. Chin parallel to floor, keep shoulder hips and knees in a straight line. From side view ear, shoulder, hip, knee and ankle should be centred along an imaginary straight line. The centre of Gravity (C.G.) should be with the centre of Gravity.



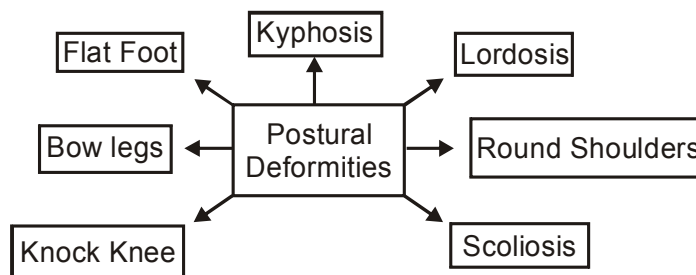
(5.4b) Advantages of Correct posture :

- i Good physical Appearance
- ii Physical Fitness
- iii Lessen the Fatigue
- iv Improves Appetite
- v Good body balance
- vi Grace & Efficiency of movement
- vii Reduce postural Deformities
- viii Prevent Disorders & Diseases
- ix Psychological Balance
- x Improves confidence
- xi Change in mental attitude
- xii Social Value
- xiii Economic Value

5.5 Causes of bad Posture

- (i) Accident
- (ii) Diseases
- (iii) Lack of Nutritional Diet
- (iv) Wrong Postural Habit
- (v) Improper Treatment
- (vi) Psychological Stress
- (vii) Lack of sufficient strength
- (viii) Age factor
- (ix) Poor Eyesight
- (x) Obesity
- (xi) Taking heavy weight on one side.

5.6.Common Postural Deformities



5.7. Corrective measures for postural deformities corrective measures means practice, exercises etc to correct deformities.

Very Short Answer Type Question (1 Mark each)

Q.1 Define Motor Development?

Ans. Motor Development refers to the development of a child's bones, muscles and ability to move around, and react with controlled movements.

Q.2 What do you mean by posture?

Ans. It is the specific position of a person while sitting, standing, walking, lying etc.

Q.3. What is good Posture?

Ans. A good posture is the particular state of body in which our various body parts are properly aligned, they support each other and body can perform more efficiently on the expenditure of less energy.

Q.4 What is kyphosis

or

What is round back or hump back

Ans. The curve of thoracic region of spine is increased posteriorly or in the backward direction is known as kyphosis.

Q.5. What is lordosis or what is hollow back?

Ans. The increment in the curve of lumbar region of spine anteriorly or in forward direction is known as lordosis.

Q.6. What is scoliosis?

Ans. Lateral bending of spine from its mid line is called scoliosis. Scoliosis are of two type **e** curve & **s** curve.

Q.7 What are bow legs?

Ans. Bending of legs in outward direction just like the bow is known as bow legs in other words legs bend in convex shape.

Q.8 What is knock knee?

or

What is Genu valgum?

Ans. Bending of legs in inward direction in concave shape is known as knock knee. In the knock knees the gap is disappeared.

Q.9 What do you understand by flat feet?

Ans. Disappearing the long arch of the feet is known as flat feet. In this condition mid part of the feet touches the ground.

Q.10. What is round shoulder?

Ans. In this deformity our shoulders become round & tilt in the forward direction.

Q.11. Write down correct way of sitting posture.

Ans. Back should be straight, feet should be properly placed on the ground.

Q.12. Write down the correct way of standing posture.

Ans. All body parts aligned in such a way to support each other, back should be straight, body weight is equally distributed on both legs & C.G of all body parts must be near to the imaginary line that pass through the center of the body.

Short Answer Question

3 Marks each

Q.1. Disadvantage of weight training in the children?

Ans.1. **Risk of injury** :- Incorrectly and excessive weight training introduce injury and pain in children.

2. **Less flexibility** :- Weight training reduces the level of flexibility because weight training is mostly practised for development of strength. So flexibility is reduced due to it.

3. **Maturity** :- Children should not begin weight training or any other workouts until they are physically and emotionally mature enough to handle it because it can lead to serious, bony injury or deformities in the children.

4. **Growth of Children** : Excessive weight training may cause negative effects on the normal growth of children.

5. **Needs a supporter** :- children shall not perform any weight

training or workout in case of absence of supporter.

Q.2 What are the characteristics of good posture.

Ans.- Correct alignment of various body part so, as to support each other.

- Body wt. equally distributed on both legs.
- Good coordination among the various body parts.
- Less Fatigue
- Good balance
- C.G. of various body parts lay near to the imaginary line that passes through the center of the body.

5 Marks questions

Q.1. What are the symptoms of ky phosis and how it can be cured?

Ans. Symptoms: Distance between the scapula increase.

- The length of the chest muscles become short.
- Shoulders tilt forward.
- Neck tilt forward
- Upper Body wt. lean forward.

Corrective Measures :- In order to cure kyphosis such types of exercises are suggested, those increase the length of the pectorals and provide strength to the thoracic region such as :

- 1 Back stroke swimming.
- 2 Chakar Asana
- 3 Bhujang Asana
- 4 Dhanur Asana
- 5 Reverse bending on the swiss ball
- 6 Reverse butterfly
- 7 Pillow back extension
- 8 Marjaryasana (cat pose)
- 9 Adhomukha svanasana (Down word dog pose)
- 10 Ustrasana (Camel pose)
- 11 Half wheel pose (Ardha chakaarasana)

Q.2. What are the symptoms & corrective measures of lordosis.

Ans. Symptoms :

- Forward & downward tilt pelvis
- A large gap between the lowerback & the floor when laying in supine line position.
- Pain in lower back
- The length of lower back muscles get shortened.
- Abdomen at lumbar region tilt forward.

Corrective Measures

- In order to cure the lordosis those types of exercises are suggested, which increase the length of lower back muscles & strengthen the abdominal muscles such as.
- Sit ups < Bent knee
- Straight legs
- Leg raises
- Halasana
- Good morning exercises
-
- Nauka Asana
- Paschimotanasana
- Cycling
- Oblique crunches
- Lower back muscle stretch
- Lunges
- Mountain climbing exercises
- High jumps on the spot (knees touch the chest)
- Bending downward
- Alternate toe touch



Q.3 What are the symptoms and corrective measures exercise for scoliosis.

Ans. Symptoms :

- One shoulder up & one down

- Pelvis - One side up & one down.
- Body Weight uneven on both legs.
- Body seems to bend one side.



Corrective measures :

- Breast stroke swimming
- Trikon Asana
- Hanging on Horizontal bar
- Streaching exercises in which down shoulder goes up.
- Perform down ward facing stretches.

Q.4 Write down the symptoms, causes & corrective measures of knock knee.

Ans. Symptoms :

- Knees touch each other in standing position.
- Knees touch each other in walking.
- Knees touch each other in running.

Causes :-

- Obesity
- Defficiency of vit D
- Rickets
- Early age walk or standing
- Malnutrition
- Enlargement of medial ligament of both knees quickly as compare to lateral ligament.
- Heavy load for long time.



cprrrective measures :-

- Horse riding
- Padamasana
- Standing with pillow between the knee
- Use walking calliper

-
- Straight leg lift.
 - Straight leg knee press on the towel placed under the knee
 - Side kicking the football
- Q.5 Write down the symptoms, causes & corrective measures of Bow legs.

Ans. **Symptoms :**

- Gap between the knees are increased
- Knee moves in outward direction in standing, walking & running.
- Shape of legs look like the bow.

Causes :-

- Inlargement of lateral ligment of both knee quickly as compare to medial ligament.
- Weakness of bones and muscle.
- Long time cross leg sitting.
- Faulty style of Walking.
- Obesity
- Rickets
- Early age standing and walking.

Corrective measures :

- Walking (feet twisted inward)
- Use of walking callipers.
- Massage therapy.
- Use those exercise which strengthen the muscles surrounding the knee such as leg extension in laying position.
- Use yoga strap to bind the legs together then make cow face posture & forward bending are recomendend.
- Pilate exercise such as roll up & ballerina arms are effective to tone legs.
- Garud Asana, Ardh-Matsyendrasana

Q.6. Write down the symptoms, causes & corrective measures of



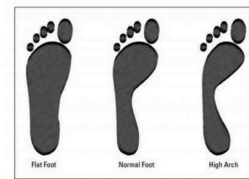
Flat feet.

Ans. **Symptoms :**

- Pain in mid part of feet during standing & walking.
- Disappearing the long arch of the feet
- Complete feet print can be seen on the floor.

Causes

- Weakness of muscles & bones.
- over weight
- Obesity
- Carrying heavy load for long time.
- Injuries
- Malnutrition
- Faulty shoes.



Corrective Measures :-

- Writing with legs
- Walking or running on the sand.
- Jumping on toe
- Wearing proper shoes
- Pick the pebble with help of feet
- Walking on toe
- Tadasana
- Vajra-asana
- Ball Ball under the feet game
- Wear the shoe with hankey inside the mid part of the feet.

Q.7 Explain the symptoms, causes & corrective measures of round shoulder.

Ans. **Symptoms :**

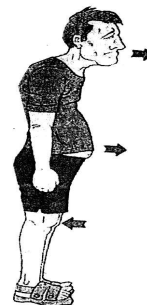
- Shoulder become round & tilt forward
- Neck tilt in forward direction.
- Down shoulders.

Causes

-
- Wrong habits
 - Tight clothing.
 - Faulty furniture
 - Profession

Corrective measures

- Dhanurasana
- Chakrasana
- Bhujang asana
- Reverse bending on the swiss ball
- Reverse butterfly
- Pillow neck extension
- Downward dog pose (adho mukh Svanasana)
- Camel pose (Ustra sana)
- Half wheel pose (Ardh Chakrasana)
- Hanging on rod or rope



Q.8 Write the advantages of weight training?

or

How weight training improves the working quality of children?

- Ans.1. Improves the posture and range of motion :- Weight training helps to develop correct posture and extension, contraction of muscles leading to increase range of movement.
2. Increase muscles strength, bone density and endurance :- Resistance training can improve bone density and muscles mass. Due to more muscles mass, the tolerance Power is increased and improves endurance of the body.
3. Protection against the injury :- Weight training, improves physical activity, system of the body and reduces risk of injury.
4. Promote health blood pressure and cholesterol level :- Physical exercise with the resistance training decreases bad cholesterol level and increases good cholesterol. It also improves blood circulation, which in turn maintains a healthy blood pressure.

-
5. Improves immune system function :- With the proper digestion, release of enzymes, Absorption of nutrients, release of toxic substances and healthy functioning of body organs, the immune system functioning is improved and the body become capable of fighting diseases and infections.
 6. Improves psycho-social well being :- A child with the well shaped healthy body with more potential to work is better accepted by society. A well maintained healthy physique makes a child more confident or raise his self esteem.

Q.9 Explain the motor development during the childhood?

or

Describe the stages of motor development?

or

Ans. Study of motor Development in childhood can be done in three stages :-

1. Early childhood :- The period of early childhood starts from second year and continue till sixth year. The motor development during this periods takes place rapidly. It is known as pre-school years.
 - a) In this period, a child becomes perfect in various fundamental movements such as Running, Jumping, throwing & acquires the ability to unite or combine.
 - b) Children stride length increases and they develop a more mature running pattern.
 - c) Proficiency in climbing on ladder become efficient.
 - d) To hop and gallop skillfully.
 - e) Fine eye-hand coordination.
2. Middle childhood :- The period of middle childhood starts from 7th year and continues up till 10th year. During this period the changes, which takes place are -

-
- a. Children become more agile
 - b. Strong desire to engage in various physical movements and activities.
 - c. Good eye-hand-leg coordination.
 - d. Better in balance and postures.
 - e. Motor skills are perfected and stabilized.
 - f. Coordinative abilities develop at the higher level, while the flexibility develop at the slower level.
3. Late childhood :- The period of late childhood begins from 11th year and continues upto 12th year or till the beginning of sexual maturation process. The no of changes take place during this period are-
- a. Girls are temporarily taller and heavier than boys because of the earlier onset of puberty.
 - b. Strength begins to differ among the boys and girls
 - d. Most of the children are master to most complex motor skills.
 - e. They learn strategies and more complex combination of motor skills.
 - f. Running and jumping movements, qualitatively and quantitatively develop at the faster rate. Coaches and teachers of physical education should continue to encourage skill development with an increasing stress on strategies and tactics.

Practise Questions

1 Marks questions

1. What do you understand by weight training?
2. What do you mean by macro motor development?
3. What do you mean by micromotor development?
4. How many postural defomities are there? Name them.

-
5. What do you mean by spinal curvature?
 6. What are the causes of bow legs?
 7. Write down the causes of scoliosis?

3 Marks questions

1. Write the meaning and types of motor development.
2. Describe the preventive measure of kyphosis.
3. Describe the various stages of motor development.
4. Explain the good posture of standing.
5. Explain the good posture of sitting.
6. Value based Question

Garima was a very intelligent student of our class but she was having a problem of lordosis which is one of the major deformities of spine, most of the students used to laugh at her & passed indecent comments, owing to that she remained under tension & stress one day our sports teacher come to know about her problem. She rebuked the children for their misdeeds & suggested them not to repeat such things in future. She advised garima to take some corrective exercises for correcting the deforming of lordosis. After performing corrective exercises for some months. She has got rid of lordosis.

On the basis of the above passage, answer the following questions.

1. Comment upon the disqualities of most of the students of the class.
2. Discuss the values possessed by her teacher?
3. Mention some corrective exercise for remedy from lordosis.

5 Marks questions

1. Write down the advantages of good posture.
2. Describe the causes of Bad posture.
3. Write physical and physiological benefits of exercise on children.
4. According to exercise guidelines at different stages of growth. What kind of exercise one should do? Explain with the help example at every stage.
5. Describe the factors affecting motor development of children.

UNIT - 6

Women and Sports

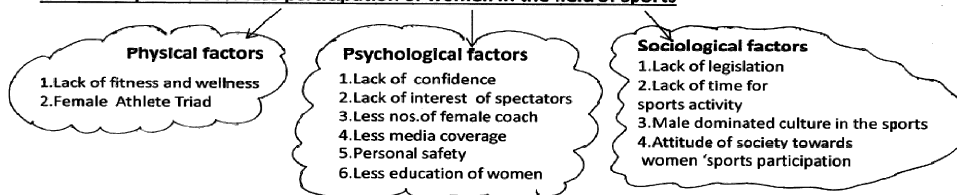
Key Points :

- 6.1. Sports participation of women in India.
- 6.2. Special consideration (menarche, Menstrual Dysfunction,
- 6.3. Female Athletes Triad Osteoporosis, Amenorrhoea and Eating Disorder.
- 6.4. Psychological Aspects of Women Athlete
- 6.5. Sociological Aspects of Sports Participation

6.1. Sports Participation of Women in India

Sports Participation of Women means women Participation in the field of sports any games. In 1952 Olympic games, the first India women took part. In 2000 Olympia games, karnam malleshwari (weight lifting) become the first India women to have won a bronze medal.

Factors responsible for less participation of women in the field of sports



6.2. Special Consideration

Menarche

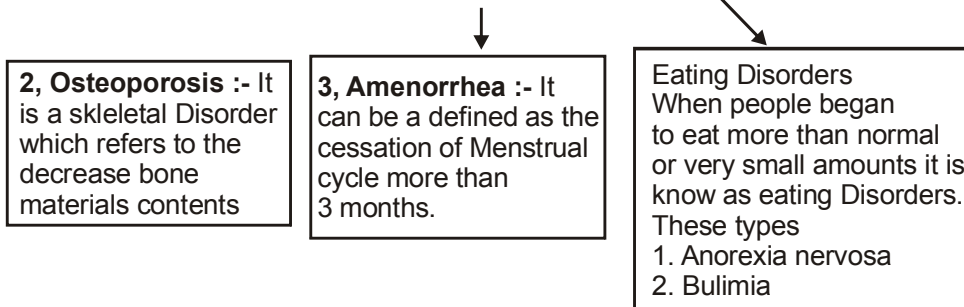
It is the first menstrual bleeding and is a central event of female puberty.

Menstrual Dysfunction

It is a disorder or irregularity of women's menstrual cycle. In other words "abnormal Bleeding" During the menstrual cycle.

6.4 -FEMALE ATHLETES TRIAD

"A sports woman is too little or exercise limit three interrelated illness may develop. These are called "Female Athlete Triad"



Causes of Osteoporosis : Insufficiency of calcium, Amenorrhea, Eating disorders, Addiction.

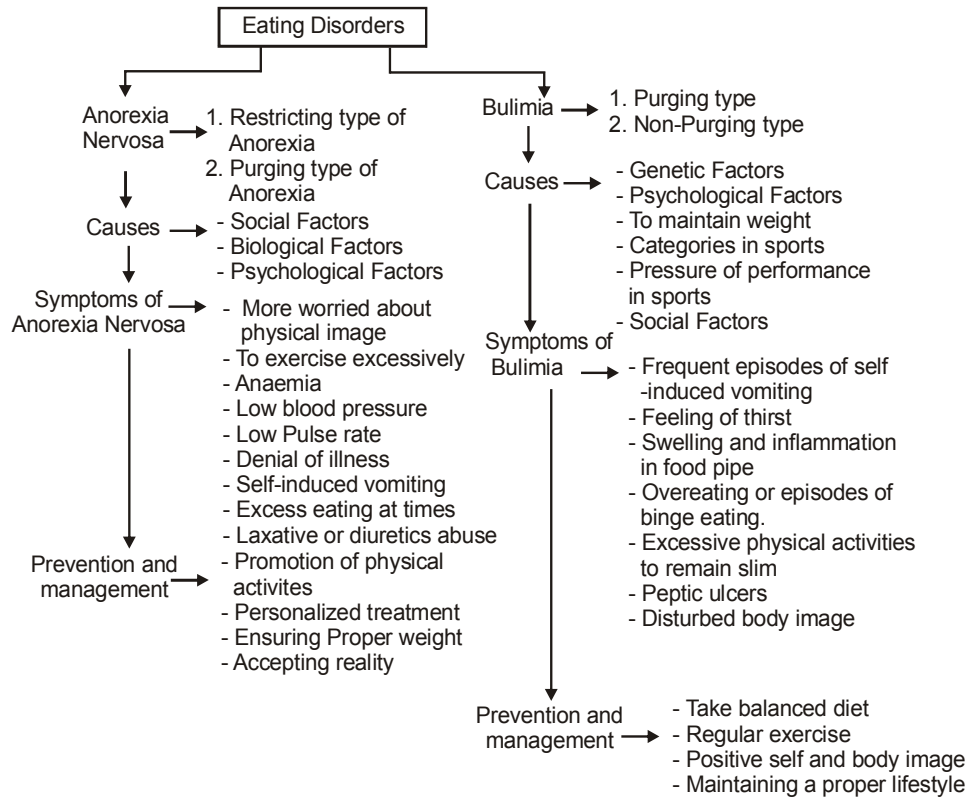
Symptoms of osteoporosis: Fracture or rupture due to weak bones. Unbearable pain in bones and joints.

Suggestion for prevention of osteoporosis : By adopting a healthy lifestyle, exercising and doing physical activities, eating calcium and protein-rich diet, medicines, adequate rest after the competition.

Effect of Amenorrhea on women Athletes: Often tense, sport performance decreases, can not participate in the competition several times.

Helps and suggestion of Athletes: Regular exercise nutritious food should be checked from time to time by the doctor.

6.3 B



6.4 Psychological aspects of women athlete

1. More goal oriented
2. Psychologically stronger
3. Less Aggressive
4. FastAdaptation
5. Image conscious self and body
6. Poise and confidence
7. Gender role orientation
8. Competitive ness

6.5 Sociological Aspects of sports participation

1. Religious faith discourages women participation in sports
2. Illiteracy in society
3. Biological inferiority

-
4. Male dominancy
 5. Lesser concentration to develop to develop women sports equipment & facilities
 6. Less competitive spectators for women sports

Very Short Answer Type Question
(1 Marks Each)

- Q.1. What is menarch?
- Ans. Menarch is the first menstrual bleeding of the young girl (9-16 yrs.)
- Q.2. What do you mean by sports participation of women?
- Ans. Sports participation of women means "Participation of Women in the field of sports and games.
- Q.3. What is menstrual dysfunction?
- Ans. Menstrual dysfunction is a disorder or irregular menstrual cycle in women. It can also be defined as "An abnormal bleeding during the menstrual cycle".
- Q.4. What is Amenorrhoea?
- Ans. Amenorrhoea is a menstrual disorder or illness in females in which female of 18 years and above either never began menstruating or their absence of menstruation for three months or more than that in females with the history of normal menstrual cycle.
- Q.5. Why there is less participation of women in Sports in India? Give any three reasons.
- Ans. There is a less participation of women in India because:-
1. Lack of interest of spectators and no coverage of women sports.
 2. Lack of education among women.
 3. Attitude of society towards women sports participation
- Q.6. What is the Osteoporosis?
- Ans. Osteoporosis is a skeletal disorder in which reduction in bone

mass may cause fracture.

Q.7. What is the female athlete triad?

Ans. Female athlete triad is a syndrome in which osteoporosis, amenorrhoea and eating disorders effect adversely on the body.

Q.8. What is menstrual Cycle?

Ans. The monthly cycle of changes in the ovaries and the lining of the uterus (endometrium), starting with the preparation of an egg for fertilization. When the follicle of the prepared egg in the ovary breaks, it is released for fertilization and ovulation occurs.

Q.9. What do you mean by eating disorders.

Ans. When people began to eat more than normal or very small amounts it is known as eating disorders.

Q.10. What is Anorexia nervosa.

Ans. Anorexia nervosa is a food addiction disorder that is more common in middle adolescence, the person suffering from this disease reduces food for the purpose of reducing the weight of their body.

Q.11. What is Bulimia.

Ans. Bulimia is an affecting adolescent girls or young women it is characterized by a period of excessive eating (binge) alternating with normal eating.

Short Answer Type Questions

(3 Marks each)

Q.1 What are the causes and risk factors of osteoporosis?

Ans. There are various factors, which lead to osteoporosis, these are :

A, **Insufficient calcium in diet :-** The main cause of osteoporosis is intake of insufficient calcium in diet.

B. **Amenorrhea :-** Women suffering from Menstrual dysfunction or Amenorrhoea for more than 6 months are likely to face osteoporosis because the secretion of the hormone called

Oestrogen is decreased in those women. This hormone is necessary for absorption of calcium in our body.

- C. **Eating disorder** :- Eating disorder like anorexia and bulimia etc. may also cause osteoporosis because their can be less amount of calcium intake.
- D. **Bad Eating Habits** :- Intake of Caffeine, Alcohol, tobacco or smoking may lead to osteoporosis. These products have a negative effect on Bone Density.

Q.2. Write the Psychological factors, affecting women participation in Sports?

Ans. The various psychological traits of women athletes are :

1. **Gender Role Orientation**-Many Sports like wrestling, weight lifting, body building etc has been considered inappropriate for women because of the potentially Harmful masculinizing effects of sports.
2. **competitiveness** - Males are found to be competitive in comparison to female. In fact Female are more goal oriented and perform magnificiently in artistic activities such as Gymnastic.
3. **Confidence** :- Female sportsperson is less confidence the comparison to male sportsperson. While sports women is significantly confident than non sportsperson.
4. **Self-esteem** :- Female athletes have low self esteem in comparison to male athletes. Intensive training helps in enhancing self-esteem.
5. **Self image or body image** :- Sports participation is helpful in the enhancement of positive body image. It provides good shape and well balanced body and finally it improves self-image.

Q.3 Briefly discuss about sociological aspects of sports participation.

Ans. There are various factors, which are responsible for low sports participation of women in society. These factors are:-

1. **Family** - Family is a very significant social factor, which is generally responsible for early sports socialization. The socializing process at home for both sex is different. Males usually get more support and encouragement to get involved in sports activities. They are further provided with more facilities to encourage and support participation in sports and games. However female usually are not encouraged to get involved in sports activities.
2. **School** - The culture of sports is generated in schools and reputation of school is dependent on the success of male and females as sports personalities. Lots of schools do not have girl teams as male teams (soccer/ wrestling/boxing etc/) They do not have proper arrangements for coaches and sports facilities for females.
3. **Culture** - Cultural beliefs have great impact on the involvement of females in sports. Many cultures still firmly believe that women's place is in the kitchen. The participation in the sports masculinises females are viewed negatively.
4. **Attitude and prejudices** - Attitude and prejudices of society play significant role in sports participation, some females avoid certain sports for fear of being perceived masculine. Due to such attitude and prejudices of society regarding sexuality inhibit females to participate.

Q.4. Elaborate the various types of disorders/ problems related to menstrual dysfunction?

Ans.

1. **Absence of menstrual periods** :- This problem may be due to eating disorder, excessive exercise schedule, extreme level of stress and medications etc.

-
2. **Premenstrual syndrome :-** Many girls may have symptoms such as acne, backaches, Sore breasts, headaches, constipation, depression, irritability and feeling anxious etc. These symptoms may be faced by female before their menstruation.
 3. **Abnormal Cramps :-** These cramps are caused by a chemical in the body that makes the muscles in the uterus contract.
 4. **Heavy or prolonged period :-** It is common for a girl's menstrual period to be heavier on some days than others.
 5. **Irregular menstrual period :-** The regular menstrual cycle for a female is 28 days. However, it may vary from 21 to 35 days.
 6. **Delay in the first menstrual period.**

Q.5. Poonam was a good judo player from her school days. She used to come to school from a remote village. Most of the aged persons of the village used to object her taking part in judo. Even they used to say her parents not to allow her for sports, but they wanted their daughter to be an international level judo player. They did not care of them. They tried to give or arrange all facilities for her to be an international player. Now after ten years of hard work, she has been selected for world judo championship. She is sure to win laurels for her country.

On the basis of above passage answer the following questions;

1. Do you agree with the views of most of the villagers? Answer in brief.
- Ans. I am not agree with the views of most of the villages because according to them judo is a body contact game which is not for girl and they thought that girls are weak.
2. What values are shown by poonam's parents regarding her sports participation?

Ans. Poonam's parents have shown support, encouragement,

motivation regarding her sports participation.

3. What values are shown by Poonam in respect of her parents?

Ans. Poonam has shown physical and mental strength, confidence, try to change the attitudes of society towards the participation of women in sports.

Long Answer type Questions (5 marks each)

Q.1 Elucidate the steps to improve participation of women in sports and games.

Ans. The steps to improve women participation in the field of sports and games:-

- A. Motivation and inspiration to women for participation.
- B. Support from family and parents.
- C. To organise camp, seminar and workshops.
- D. To provide knowledge and media coverage.
- E. Educating women at grass root level and participation.
- F. Provide better infrastructure and facilities.
- G. Ensuring safety and security of women.
- H. More opportunity for competition
- I. Develop new techniques and environments.
- J. To build physical and psychological strength.
- K. Healthy and balanced food.
- L. Better incentives and awards.
- M. Culture in domestic constraints.
- N. Change in attitude and perception in village level
- O. Equality and community mobilizing.
- P. Development of self confidence
- Q. Financial help
- R. Employment and career
- S. Designing and implementing government policies

Q.2 What do you mean by female triad? Explain the causes of it?

Ans. Female triad means a syndrome in which osteoporosis,

amenorrhoea and eating disorders are present in the female. The triad is a serious disorder or illness with life long health consequences and can be very fatal. In fact it is syndrom of three interrelated conditions.

(A)- Osteoporosis :- It is a skeltal disorder which refers as to the decreased bone material contents.

- a. Insufficient calcium in diet.
- b. Amenorrhoea
- c. Eating disorder
- d. Bed eathing habbits

(B) Amenorrhoea:- It is a menstrual disorder or illness in female of 18 years or above either never began menstruating or there is an absence of menstruation for three mothss and more.

The factors or causes which may inspire or enhance the chances of amenorrhoea,

- A. Hormone changes
- B. Intensive excises
- C. Intake of less carbohydrates or calories.

(C) Eating disorders: When people began to eat more than normal or very small amounts it is known as earing disorders. These types

- 1. Anoreixa Nervosa
- 2. Bulimia

Q. What do mean by Anorexia Nervosa what are its causes, symptoms and preventions.

Ans. **Anorexia Nervosa:** This is a psycho-physical condition. It is characterised by lack of appetite and a associated with the subconscious desire to remain slim. Such a felling usually develops in young women or adolescent female in order to retain their body figure and image. As a result of this, there is a refusal to maintain normal body weight from their fear of becoming obese and spoiling their figure.

Anorexia is an eating disorder which is affecting the youth nowadays., It is a dangerous disorder for our health and well being.

Anorexia can lead to many problems such as bone loss, loss to skin integrity and many even cause menstruation to stop. It puts great stress on the heart and interreges the risk of heart attacks and other heart related problems. Individual suffering from anorexia also face an increased risk of death.

Causes of Anorexia : Anorexia is an eating disorder that is caused by a combination of several psychological social and biological factors. Several other factors such as family environment, personality traits and low self-esteem may also lead to anorexia. The factors causing anorexia are as follows:

1. **Psychological factors:** Individuals suffering from anorexia are generally perfectionists. Due to their obsession with keeping themselves fit, they are always conscious about their body. For this, they do not even hesitate to use artifactual means. Eating too little, excessive exercise, always being conscious about their body weight and physical appearance become the main causes of anorexia.
2. **Social factors:** Cultural and social constructs about being thin and beautiful put severe pressure on individuals and may cause anorexia. Specific social and cultural ideas relating to health and beauty, promote weight loss and begin thin as the ideal indicators of success and self-worth. Sometimes, parents and relatives may also be critical or their children's physical appearance which may lead to anorexia.
3. **Biological factors:** Biological factors such a circular hormonal functions and nutritional deficiencies may cause anorexia. Genetics also play a significant role in anorexia as parents suffering from anorexia are more prone to having children who are likely to develop anorexia.

Symptoms of Anorexia

1. **Significant underweight:** The individual having anorexia will not be able to maintain BMI and will lose weight significantly.

-
2. **Anaemia:** Anorexia may be one of the leading causes of anaemia. This leads to tiredness in a individual.
 3. **Low pulse rate:** The individual having anorexia will have low heart rate.
 4. **Low blood pressure:** Anorexia may led to low blood pressure.
 5. **Decrease in body temperature:** Low body temperature is also one of the symptoms of anorexia. Due to low heart rate and low blood pressure, temperature of body is not maintained properly.
 6. **Failure of menstruations or cessation of the same once established:** Irregular menses or Amenorrhoea may be one symptom of anorexia. Irregularity in mensuration is one of the main causes of anorexia.
 7. **Denial of illness:** An individual suffering form anorexia has the tendency to deny the facts related to the disorder.
 8. **Self-induced vomiting:** An individual suffering from anorexia will go the wash room frequently and induce vomit, especially after and meal.
 9. **Excess eating at times.** An individual suffering form anorexia will eat excessively and when he is unable to digest the food, the will induce vomit.
 10. **Laxative or derelicta abuse.** An individual suffering from anorexia will use diuretics and drain out fluids from his body to remain slim. Individuals also use laxatives or artificial sweeteners.

Prevention and Management of Anorexia

The prevention and management of anorexia and very important in the treatment of this distorter. The basic preventive measures used in anorexia are also follows:

1. People should be encourage to inculcate a positive self-esteem and body image.
2. Body sizes should not be criticized and students should not be taught to be preoccupied with their weight.
3. Students should have knowledge of generic factors that determine body weight. They should be made to understand

that being thin is not the most important means to be popular, beautiful or successful.

4. They should have a healthy approach towards their eating and exercising habits and should avoid the company of those people who are obsessed about their body weight.

Q.4 Explain women participation in sports in India.

Ans. For women's participation in sports we have a look at ancient period. Regarding participation in the first modern Olympic (1896 athens), there was no participation of women.

- Women participated first time in 1900 olympics. (22 women participated in)
- In 1904 six women participated.
- And after 100 years in 2000 sydeny olympics 4069 women had participated.
- In 2008 Beijing olympics 4637 women participated.

Participation in India

- In 2000 karnam Malleshwari was the first woman who won bronze medal in Sydney Olympic from India.
 - In 1984 performance of P.T. Usha was very good in Athletics.
 - In 2012 london olympics Saina Nehwal and M.C. Mericom got bronze medal.
- In 2016, Rio Olympics, Sakshi Malik won bronze medal, P.V. Sandhu won silver medal where as Deepa Karmakar opened new dimesions in gymanastics.

Over the past several decades the participation of women in sports in sports field has increased tremendously.

But really, it is a matter of regret for all of us to know that sports is such a field where gender inequality in strongly evident. The general social environment has not only inhibited women from participation in sports but has also criticise them when they participate. Many people comment for women

“Why don’t they stay in the kitchen where they belong”?

But Now time has changed. Women are capable of changing society. Now the ideology suggests that women are participating in every sphere of life and proving themselves globally.

Q.5. What is Bulimia? What are its causes symptoms and prevention.

Ans. Bulimia is an affecting adolescent girls or young women it is characterised by period of excessive eating (binge) alternating with normal eating. Types of Bulimia 1. Purging, 2. Non-purging.

Causes of Bulimia: Bulimia is not the result of a single or definitive cause. There are many factors that are related to bulimia.

1. Genetic factors: Genetic factors play a vital role in the development of bulimia if one or both parents of an individual or siblings has bulimia then he/she is most likely to suffer from this disorder.
2. Psychological Factors: Psychological factors also play an important role in the development of bulimia in individuals. If an individual has a problem of low self esteem and body image,
3. To maintain weight categories in sports: Sportspersons taking part in sports like Judo, wrestling weight lifting which have different weight categories are more likely to suffer from this eating disorder.
4. Pressure of performance in sports: Sportsmen reduced body weight will enhance their performance in sports and increase their chances of success, thereby making them vomit the food that they eat.
5. Social factors: Social factors such as peer pressure and preconceived notions about body weight and being thin, play a significant role in causing bulimia the media also engorges the desire to thin among the youth.

Symptoms of Bulimia

Frequent episodes of self-induced vomiting.

Feeling of thirst

Swelling and inflammation in food pipe.
Overeating or episodes of binge eating
Excessive physical activities to remain slim misuse of medical aids
Red coloured eyes due to broken blood vessels caused by vomiting jerks.
Peptic ulcers
Erosion of dental enamel
Disturbed body image

Revelation and manage metnt of Bulimia : There is no fixed cure for Bulimia. This disorder may be prevented upto some extent by following.

1. Individuals should take a balanced diet and follow healthy eating habits.
2. A proper regimen of exercise should be followed regularly to maintain a healthy lifestyle.
3. Bulimia can also prevented by having a positive self and body image. Individuals should not be critical of their body shapes and sizes and focus on maintaining proper lifestyle.

Practice questions

Very short questions

1. Explain any one psychological aspect of female athletes due to which they are reluctant to participate in sports.
2. What do you understand by amenorrhea.
3. What are the possible cases for irregular menstrual cycles in female athletes.
4. What are the causes of Bulimia.
5. What are the preventive measures against Anorexia Nervosa.
6. What do you mean by the participation of women in sports.

Short Question

1. How media is responsible for the less participation of women in sports.
2. Describe the prevention and treatment of Bulimia.

-
3. Mention the symptoms of Anorexia Nervosa.
 4. How do social factors affect women athletes?
 5. How do eating disorder affect the performance of women athletes? Explain in detail.
 6. Eating disorders are mental illnesses justify why are women more affected by eating disorders.

Long Question

1. Explain in detail the reasons due to which women are reluctant to participate in sports.
2. Explain in detail the psychological aspects due to which women are reluctant to participate in sports.

UNIT - 7

Test & Measurement in Sports

Key Points :-

- 7.1 Computation of Fat Percentage
Slaughter- Lohman Children Skinfold Formula :
Triceps & Calf Skinfold (Male 6 to 17 yrs)% body fat =
 $(0.735 \times \text{sum of skinfold}) + 1.0$
(Female 6 to 17 yrs)- % body fat = $0.610 \times (\text{sum of skinfold}) + 5.0$
- 7.2 Measurement of Muscular Strength- Kraus Weber Test
- 7.3 Motor Fitness Test-AAPHER
- 7.4 General Motor Fitness-Barrow three item general motor ability (Standing Broad Jump, Zig Zag Run, Medicine Ball Put- For Boys : 03 Kg & For Girls : 01 Kg)
- 7.5 Measurement of Cardio Vascular Fitness- Harvard Step Test/Rockport Test
- 7.6 Computation of Fitness Index=
$$\frac{100 \times \text{Duration of the Exercise in Second}}{5.5 \times \text{Pulse count between 1 to 1.5 Min after Exercise}}$$
- 7.7 Rikli and Jones - Senior Citizen Fitness test
 - 1. Chair stand test for lower body strength
 - 2. Arm curl test for upper body strength
 - 3. Chair sit & reach test for lower body flexibility.
 - 4. Back scratch test for upper body flexibility.
 - 5. Eight foot up & go test for agility
 - 6. Six minutes walk test for aerobic endurance

Introduction

Test. Test refers to any specific instrument, procedure or technique used by administrator to elicit or to search out from the test taker. There are various types of test such as, Test, Kraus-Weber Test, Harvard Step Test, Aapher and Sit and Reach Test etc.

Measurement. Measurement refers to the process of administering a test to obtain a quantitative data. It can also be said that the measurement aids evaluation process in which various tools and technique are used in the collection of data.

Important of Measurement in Physical Education & Sports.

- To know about the progress
- Individual centered training program
- Helps in selection of athletes
- To study the development of athletes
- Motivation of an athlete
- To predict in advance the performance potentials
- To prepare norms and standards
- To measure current fitness status
- To achieve goals and objective of the activity
- To conduct research

7.1 Computation of fat percentage :

Fat percentage of children, i.e. boys & girls can be easily calculated with the help of sloughter Lohmon children skin fold formula.

A. Triceps and calf skin fold males 6 to 17th years)
⇒ Body fat percentage = $(0.735 \times \text{sum of skin foid}) + 1.0$

B. Triceps & caif of skin fold (formulas 6 to 17 years)
⇒ Body fat percentage = $(0.610 \times \text{sum of skinfold}) + 5.0$

The thickness of the skin folds is common known as “fat folds thickness.”

7.2. Muscular Stregth. Muscular strength is the amount of force of the muscle or a group of muscles can exert against the resistance for short duration as in aerobic activities.

Kraus-Weber Test. Kraus_Weber tesst is composed of six

items. It is supposed to measure the minimum muscular fitness of an individual.

1. Strength of abdominal plus psoas muscles
2. Strength of abdominal minus psoas muscles
3. Strength of psoas and lower abdominal muscles
4. Strength of upper back muscles
5. Strength of lower back muscles
6. Flexibility of the trunk.

7.3. Motor Fitness. Motor fitness refers to the capability of an athlete to perform effectively at his/her particular sport. It can also be said that “motor fitness is a person’s ability to perform physical activities”.

Motor Fitness Test-AAPHER (American Alliance for Physical Health Education & recreation)

Test Items	Parts of Body-Physical Fitness Components
1. Pull up (boys)	1. Muscular strength or endurance of arm & shoulder
Flexed arm hang (girls)	2. Muscular strength or endurance of arm & shoulder
2. Bent Knee-sit-ups (boys & girls)	3. Muscular strength and endurance (trunk)
3. Shuttle run (boy & girls)	4. Speed and Agility
4. Standing broad jump (boys and girls)	5. Explosive strength of legs
5. 50yard dash	6. Speed of lower extremities-explosive strength
6. 600 yard or 9 minute runs & walk	7. Cardio-vascular endurance
7. Soft ball throw	8. Explosive strength of Arm & shoulder

7.4. General Motor Fitness Test

Barrow’s – general motor fitness’s three-item test battery :-

1. Standing broad jump

-
2. Zig-Zag run
 3. Medicine ball throw
 4. (a) boys-03 kg
(b) Girls- 01 kg.

7.5. Cardio-Vascular fitness Test- Harvard step test and Rockport one mile test

Cardiovascular Fitness. Cardiovascular fitness is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movements.

(a) Harvard Step Test. It is a cardiovascular fitness test. It is also called aerobic fitness test. It used to measure the cardiovascular fitness or aerobic fitness by checking the recovery rate.

Fitness Index (F.I) =

$$\frac{\text{Duration of Exercises in Seconds} \times 100}{2 \times \text{sum of three pulse counts after exercise}}$$

(b) Rockport One Mile Test. It is also known as Rockport Fitness Walking Test. Its objective is to check or observe the development of the individual's VO_2 Max i.e., maximum volume of oxygen.

The calculation of VO_2 max = $132.853 - (0.0769 \times \text{body wt.}) - [0.3877 \times \text{Age}] + (6.135 \times \text{Gender}) - 3.2649 \times \text{Time}] - (0.1565 \times \text{Heart Rate})$

-Body wt. in pounds

-Gender -male -1, Female 0

-Time in minutes & 100th of a minutes.

-Heart Rate in beats/minute.

7.6 Computing of fitness Index

1. Fitness index score (long term)

$$= \frac{100 \times \text{test duration in sec.}}{2 \times \text{sum of heart beats in recovery period (three)}}$$

Fitness Index score (short term)

$$= \frac{100 \times \text{test duration in sec.}}{5.5 \times \text{pulse count between 1 to 1.5 minutes after exercise}}$$

7.7 Rikli and jone's-senior citisen Test.

Test Items and objectives.Parts of Body-Physical

Fitness Components

- | | |
|--|--|
| 1. Chair stand. Test for lower body strength. | 1. Lower body strength, leg strength & Endurance |
| 2. Arm curl test for upper body flexibility | 2. The upper body strength, arm flexor, strenght & endurance |
| 3. Chair sit & reach test for lower body flexibility | 3. The hemi string and lower back flexibility |
| 4. Back-scratch test for upper body flexibility | 4. The upper body flexibility of the body & range of motion of the shoulders |
| 5. Eight foot up & Go test for agility | 5. The motor agility, speed & balance |
| 6. Six minute walk test for aerobic endurance | 6. Cardio-vascular endurance & recovery |

Very Short Questions

Q.1. What is test?

Ans. Test is a tool, a question set of question an examination which is used to measure a particular characteristic of an individual or a group of individulas.

OR

Test refers to “any specific instruments, procedure or technique used by starter to dicit from the test taker”.

Q.2. What is measurement?

Ans. According to R.N. Patel

“Measurement is an act or process that involves the assignment of numerical values to whatever is being tested. So it involves the quantity of something.”

-
- Q.3. What do you understand by muscular strength?
- Ans. It is the amount of force the muscle or a group of muscles can exert against resistance for short duration as in anaerobic activities and aerobic activities.
- Q.4. What is Kraus-Weber test?
- Ans. **Kraus-Weber Test** : Kraus-Weber test is composed of six items. It is supposed to measure minimum muscular fitness of an individual.
- Q.5. What is motor fitness?
- Ans. Motor fitness is a "person's ability to perform physical activities".
- Q.6. What do you understand by cardiovascular fitness?
- Ans. Cardiovascular fitness is the ability of the heart and lungs to supply oxygen-rich blood to the working muscle tissues and the ability of the muscles to use oxygen to produce energy for movement.
- Q.7. What do you understand by Harvard step test?
- Ans. It is a cardiovascular fitness test. It is good for measurement of fitness and the ability to recover after a strenuous exercise.
- Q.8. What is Rockport one mile test?
- Ans. It is cardio respiratory test used to determine VO₂ max. (volume of oxygen) VO₂ max is the maximum capacity of the person's body to move and use oxygen during exercise.
- Q.9. What do you understand by flexibility?
- Ans. Flexibility is the range of motion in a joint muscle or group of joints, muscle, or, the ability to move joints effectively. Flexibility is related to muscle strength.
- Q.10. What do you understand by senior citizen fitness test?
- Ans. Senior citizen fitness test are easy to understand and effective tests to measure aerobic fitness, strength and flexibility using minimum and inexpensive equipments.
- Q.11. Why measurement is necessary?
- Ans. It is tool which provides information regarding individual's ability, knowledge, performance and achievement.
- Q.12. By which test the one can measure abdominal strength?
- Ans. Kraus-Weber test Abdominal pluse and minus psoas muscle.
- Q.13. Write the slaughter & lohman children skin fold formulae to

calculate the fat percentage in boys & girls.

Slaughter– lohman children skin fold formula

fat % (boys) = $0.735 + (\text{sum of skin fold}) + 1.0$

fat % (girls) = $0.610 + (\text{sum of skin fold}) + 5.0$

Q.14. To calculate the fitness index of an individual?

$$\text{Fitness Index} = \frac{\text{Duration of activities (in seconds)} \times 100}{5.5 \times \text{sum of three pulse count after rest}}$$

OR

$$\frac{\text{Duration of activities (in seconds)} \times 100}{2 \times \text{pulse counts (any one)}}$$

Q. 15. Calculate body fat % of boy aged 16 years whose measurement of skin fold tricep's 14 mm and calf is 11 mm.

By using slaughter & lohman's formula?

Slaughter Lohman's fat % of formula = $(0.735 \times (\text{sum of skin fold}) + 1.0$

$$\Rightarrow 0.735 \times (14 + 11) + 10$$

$$\Rightarrow (0.735 \times 25) + 1.0$$

$$\Rightarrow 18.375 + 1.0$$

$$\Rightarrow 19.375$$

Short Answer Questions (3 words)

Q.1 Explain the Rock port one mile test's Administration?

Ans. It is also known as Rock port fitness walking test. Its objective is to check or observe the development of the individual VO₂ max, (maximum volume of oxygen.)

Administration of Rockport Fitness Walking Test :

The athlete is asked to start the mile long walk and complete it as quickly as possible. The athlete has to bear in mind that She/he does not start running or jogging in an effort to complete the test. Once the athlete has completed walking the mile, the time taken to do so is recorded in minutes and hundreds of seconds and the heart rate is recorded as beats per minute. After the time and heart rate are recorded, the following variables are also recorded :

-
- Age in years
 - Gender (women are given a value of 0 and men a value of 1)
 - Time to complete the one mile walk (in minutes and hundreds of seconds.)
 - Heart rate in beats per minute (recorded immediately after stoppoing)

The following formula is used to calculate the score for this test :

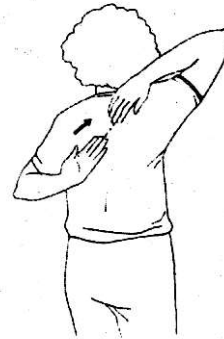
$$VO_{2mnax} = 132.853 - (0.0769 \times \text{Weight}) - (0.3877 \times \text{Age}) + (6.315 \times \text{Gender}) - (3.2649 \times \text{Time}) - (0.1565 \times \text{Heart rate})$$

Q.2. Discuss the Back Scratch test for upper body flexibility.

Ans. **Back Scratch Test : Purpose :-** To assess the upper body (shoulder) flexibility, which is important in performing various jobs such as combing one's hair, putting on overhead garments and reaching for a seat belt etc.

Equipment Required:- A ruler.

Procedure:- This test is performed in standing position. Keep one hand behind the head and back over the shoulder and reach as far as possible down middle of the back. Plams should touch to body and the fingers should be downwards. Then carry other arm behind back palm facing outward and fingers upward and reach up as far as possible trying to touch or overlap the middle fingers of both hands. Fingers should be aligned. Measure the distance between the tips of the fingers. If the finger tips touch then the score is zero. If they do not touch measure the distance between the fingertips (–ve score). If they overlap measure by how much (+ive score). Practise two times and then test



Q.3 Explain the chair stand test for lower body strength?

Ans. **Chair Stand Test : Purpose.** The main purpose of this test is to measure the lower body strength, particularly legs strength

which is usually required for various tasks such as climbing stairs, getting in and out of vehicle, bath tub or chair.

Equipments Required : A chair with a straight back and a seat of at least 44 cm and a stopwatch.

Instructions for Participants.

1. The participant should sit in the middle of the chair.
2. She/He should keep his hands on the opposite shoulder crossed at the wrists.
3. The feet should be flat on the floor.
4. Her/His back should be erect.
5. Repeat sit up and down for 30 seconds.

Prodcedure : Keep the chair against the wall. The participant sits in the middle of the seat. His/her feet should be shoulder width apart and flat on the floor. The arms should be crossed at the wrists and held close to the chest. From the sitting position, the participant stands up completely then back down at the start of the signal. This is repeated for 30 seconds. Count the total number of complete chair stands. In case the participant has completed a full stand from the sitting position when the time is finished the final stand is counted in the total.

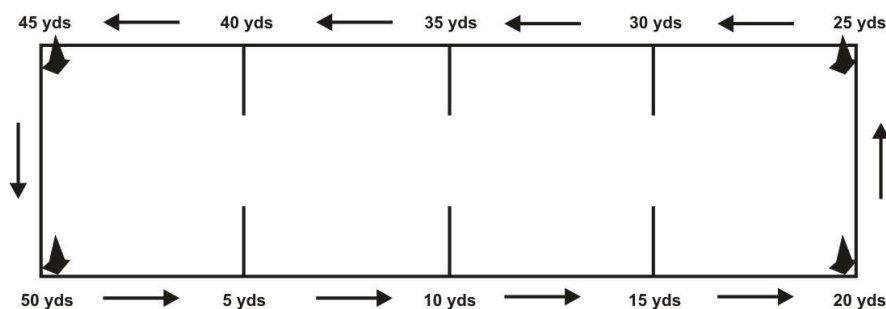
Q.4. Write the test to measure the aerobic fitness of serious infirm?

Ans. Rikli & Jone's Test- Senior citizen's test.

6 Minutes Walk Test is used for aerobic fitness.

Purpose : This test measures aerobic fitness of senior citizens.

Equipment required : Measuring tap to mark out the track distances, stopwatch, chairs positioned for resting.



Procedure :

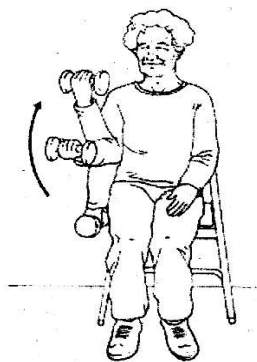
- The walking course is laid out in a 50 yard (45.72m) rectangular area (dimensions 45 × 5 yards), with cones placed at regular intervals to indicate distance walked.
- The aim of this test is to walk as quickly as possible for six minutes to cover as much distance as possible.
- Subjects are set their own pace (a preliminary trials is useful to practice pacing), and are able to stop for a rest if they desire.

Q.5. Discuss the test item of Rikli & Jones to measure the upper body strength?

Ans. **Arm Curl test of Rikli & Jones** used to Testing upper body strength of senior citizen

Equipment : 5 lb Weight & an 8 lb weight, stopwatch & a straight-back chair with no arms.

Women will curl a 5 lb. weight in this test and men will curl a 8 lb. weight for their test. It is extremely important to the accuracy of the test that we use the appropriate weight for men & women in this test.



Procedure :

- Test assistant will tell to begin and will time for 30 seconds, using the stopwatch or a watch with a second hand.
- Do as many curls as can in the allotted 30-second time period, moving in a controlled manner.
- Do a full curl, squeezing lower arm against upper arm at the top of each curl and returning to a straight arm each

time. Keep upper arm still.

- Do not swing the Weight.
- If started raising the weight again and are over half way up when time is over, count that curl!

Scoring : The score is the total number of controlled arm curls performed in 30 seconds.

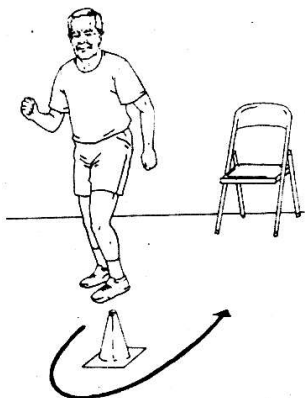
Q.6. Which Test is used to measure the coordination and Agility of senior citizen. Write in detail?

Ans. **Eight Foot up and Go Test:- Rekli & Jones Senior Citizen Test :** This test is a coordination and agility test for senior citizens.

Purpose : To assess speed, agility and balance while moving. These are important in performing various jobs which require quick manoeuvring, such as getting of a bus in time and to answer the phone etc.

Equipments Required : A chair with straight back (about 44 cm high) a stopwatch, cone marker, measuring tape and an area without any hindrances.

Procedure : Keep a chair next to the wall and the marked, 8 feet in front of the chair. The participant starts completely seated, hands resting on the knees and feet flat on the ground. On the command 'Go" stopwatch is started and the participant stands and walks (no running at all) as quickly as possible to and around cone and returns to the chair to sit down. Time is noted as She/he sits down on the chair. Two trials are given to the participant.



Eight Foot Up and Go Test

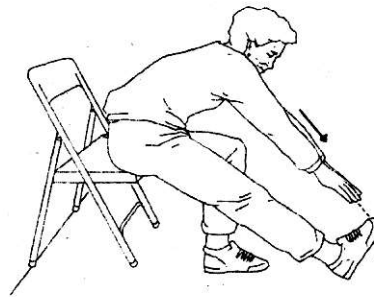
Q.7. Discuss Chair Sit and Reach Test in briefly?

Ans. **Chair Sit and Reach Test**

Daily Benifit : Lower body flexibility is important for preventing lower back pain. It also plays a role in balance, posture, in fall prevention, or walking. Lower body flexibility is important for maintaining an active, independent lifestyle.

Purpose : This test measures lower body flexibility.

Equipment required : Ruler, straight back or folding chair, (about 17 inches/ 44 cm high)



Procedure :

- The subject sit on the edge a chair (placed against a wall for safety).
- One foot must remain flat on the floor. The other leg is extended forward with the knee straight, heel on the floor, and ankle bent at 90°.
- Place one hand on top of the other with tips of the middle fingers even. Instruct the subject to inhale, and then as they exhale, reach forward toward the toes by bending at the hip.
- Keep the back straight and head up. Avoid bouncing or quick movements, and never stretch to the point of pain. Keep the knee straight, and hold the reach for 2 seconds.
- The distance is measured between the tip of the fingertips and the toes.
- If the fingertips touch the toes then the score is zero. If they do not touch, measure the distance between the fingers and the toes (a negative score). If they overlap, measure by how much (a positive score).
- Perform two trials

Q.8. Explain General Motor Fitness Test?

Ans. **General Motor Fitness Test :**

Barrow's Three-items General Motor Ability Test

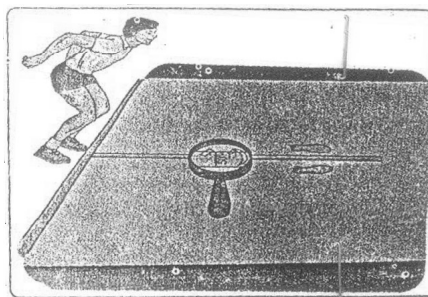
Motor abilities play a very vital role in achieving apex position in games and sports. Motor fitness involves speed, agility, power, coordination, strength and so on. These components of fitness are necessary for competing at top levels.

For measuring general motor fitness, the three-item test battery of Barrow is used. In this test, battery of three items such as standing broad jump, zig-zag run and medicine ball throw are used to measure the general motor ability of an individual. The details of administration of these tests are described below :

1. Standing Broad Jump (for measuring leg strength)

Equipment and material : A mat of 5 × 12 feet and a measuring tape, if the mat is unmarked.

Procedure : A take-off line is marked on the ground. Subject stands just behind the take-off line with the feet several inches apart. The subject swings the arms and bends the knees to take a jump in the long jump pit. Three trials are given to the subject. The distance is measured from the take-off line to the heel or other part of body that touches the ground nearest to the take-off line. All jumps are measured and the best one is recorded.

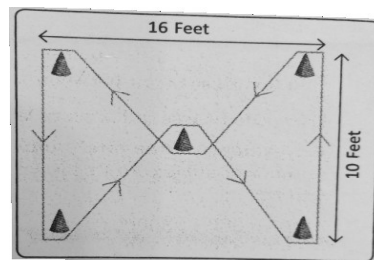


Standing broad jump

2. Zig-Zag Run (for measuring agility and speed)

Equipment and material : Stopwatch, five obstacles and space enough to accommodate the 16 × 10 feet course.

Prodecure : The subject begins from a standing start on the command to run. The subject runs the prescribed pattern stated to him as quickly as he can without gasping. Three complete circuits are run. The stopwatch is started when the command to run is given and stopped immediately when the subject crosses the finish line. The time is recorded to the nearest tenth of a second. Before running the zig& zag run, the subject should warm up properly. The subject should wear proper fitting shoes with good traction to avoid blisters and slipping. Demonstration of the pattern of the course should be given by the administrator before the beginning of the run.



Zig-Zag run

3. Medicine Ball Put (for measuring arm and shoulder strength)

Equipment and material : A medicine ball and measuring taps.

Procedcure : The subject stands between two restraining lines which are 16 feet apart. In case of girls, a medicine ball of 1 kg is provided, whereas in case of boys a medicine ball of 3 kg is provided to be put. After that he/she asttempts to put the medicine ball out as far as possible without crossing the restraining line. He/she should hold the medicine ball at the junction of the neck and shoulder then the ball should be put straight down the course. Three trials are given to him/her. The best of three trials is recorded. The distance is computed to the nearest foot. A put in which the subject comnits a foul is not scored. However, if all the trials are fouls, subject he/she should try until he/she make a fair put.



Medicine ball put

Q.9. The duration of a runner to run 30 seconds. The of heart beats in 1-1/2, 2-2 & 3-3 minutes 85, 75 and 60 respectively of calculate physical fitness index for the runner?

Ans. According to Harvard step test,
Physical fitness Index of runner

$$= \frac{100 \times \text{Test duration (in sec)}}{2 \times \text{no of heart beats during the process of regaining health}}$$

$$\text{Total no. of heart beats} = 85 + 75 + 60 = 220$$

$$\text{Physical fitness index} = \frac{100 \times 300}{2 \times 220} = 68.18$$

(Long Answer Type Question (5 marks each))

Q.1. Describe the procedure of the components of Kraus-Weber Test?

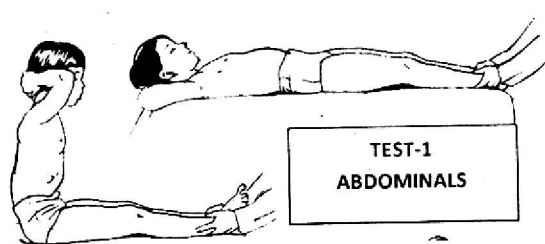
Ans. **Kraus-Weber Test**

Dr. Hans Kraus and Dr. Sonja Weber developed the Kraus-Weber Minimum muscular strength Test in the 1950's. The six-items medical fitness test measures the strength and flexibility of key postural (core) muscles. The test consists of five strength challenges and one general flexibility procedure.

Administration of the Kraus-Weber Test

The following six tests of key muscle groups represent the

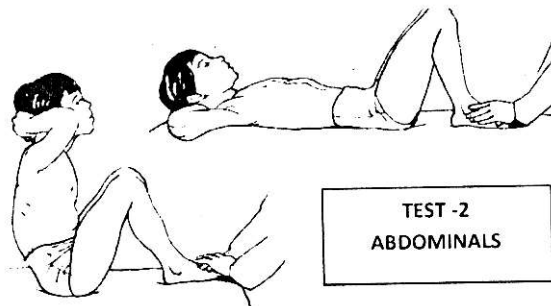
minimal performance necessary for healthy living. Because this is a minimum test, you will need to be able to perform All six parts successfully.



Test-1 Abdominals

Test-1 : Purpose : To measure the flexibility of the lower back and hamstring muscles.

Procedure : The subject lies down in supine position i.e... flat on his back and hands behind his neck. The legs are straight. The examiner holds the feet to keep them on the ground. The subject is asked to perform one sit-up.

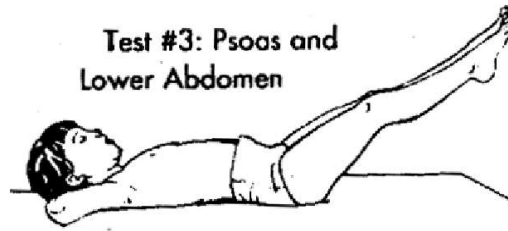


Test-2 Abdominals

Test-2 Purpose : to assess the strength of the abdominal muscles.

Procedure : The subject lies down in a supine position flat on his back and hands behind his neck except that this time the knees are bent. The examiner holds the feet to keep them on the ground. The subject is required to perform one sit-up.

**Test #3: Psoas and
Lower Abdomen**



Test-3 Psoas and Lower Abdomen

Test-3 Purpose : to assess the strength of the psoas and lower abdominal muscles.

Procedure : Subject lies in supine position i.e., flat on his back with his hands behind the neck. He is asked to raise his feet 25 cm (10 inches) from the ground. His legs should be straight, no bending at the knee.

Test #4: Upper Back



Test-4 Upper Back

Test-4 Purpose : to assess the strength of the upper back muscles.

Procedure : The subject lies in prone position i.e... face down on his stomach with a pillow under his lower abdomen and his hands behind his neck. The examiner holds his feet down. The subject is asked to raise his chest, head and shoulders, while the examiner counts to 10 seconds.

Test #5 : Lower Back



Test-5 Lower Back

Test-5 Purpose : to assess the strength of the lower back muscles.

Procedure : The subject lies in prone position i.e... face down on his stomach with a pillow under this lower abdomen and his hands behind his neck. The examiner holds his chest down. The subject is asked to raise his feet, keeping his knees straight. The examiner counts to 10 seconds.



Test-6 Flexibility Bounce

Test-6 Purpose : To measures the flexibility of the lower back and hamstring muscles.

Procedure : The subject stands erect, bare-footed, hands at sides and feet together. He is asked to lean down slowly to touch the floor with finger-tips for 10 second. Bouncing and jerking is not allowed. The examiner holds his knees in order to prevent any bending.

Q.2. Explain the Administration of AAPHER Youth Fitness Test?

Ans. **Motor Fitness Test AAPHER** (American Alliance for Health, Physical Education and Recreation)

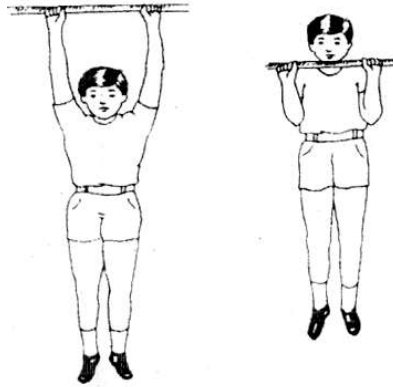
Motor fitness refers to the capability of an athlete to perform effectively at their particular sports. The components of motor fitness are agility, balance, co-ordination, which entails speed and strength and finally reaction time.

The following items were included in AAPHER youth fitness test battery.

1. Pull-ups for boys & flexed arm hand for girls.
2. Flexed-let sit-ups
3. Shuttle run
4. Standing long jump
5. 50 yards dash

6. 600 yards run/walk

1. **A. Pull-ups for boys**



Purpose : To measure arm and shoulder strength.

Equipment : A metal or wooden bar approximately 1½ inches in diameter is preferred. A doorway gym bar can be used and if no regular equipment is available, a piece of pipe or even rungs of a ladder can serve the purpose.

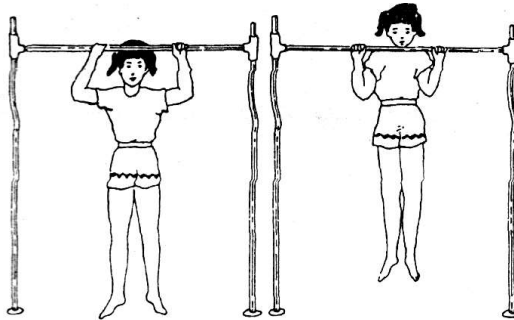
Procedure : The bar should be high enough so that the student can hang with his arms and legs fully extended and feet free from the floor. The bar is held with palm facing away from his. The student is advised to raise body so that the chin reaches the level of bar. Then he/she lowers his body to a full hang as in starting position. The exercise is repeated as many times as possible.

Rules :

- (i) Each student will be allowed one trial.
- (ii) The body must not swing during the execution of the movement.
- (iii) The knees must not be raised and the kicking of legs is not permitted.

Scoring : Record the number of completed pull ups.

B. Flexed arm hang for girls



Purpose : To measure arm and shoulder strength.

Equipment : A horizontal bar is used. The diameter of the rod to be $1\frac{1}{2}$ inches. A stop watch is needed to record time.

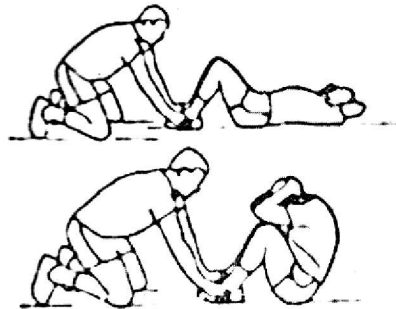
Procedure : The height of the bar should be adjusted so it is approximately equal to the pupil's standing height. The pupil should use an overhang gaps, with the assistance of two supporters, one in front and one in back. The Pupil raises her body off the floor to a position where the Chin is above the bar, the elbows are flexed and the chest is close to the bar.

The pupil holds this position as long as possible.

Rules :

1. The stopwatch to start as soon as the subject takes the hanging position.
2. The watch is stopped when.
 - (i) Pupil's Chin touches the bar
 - (ii) Pupil's head hits back ward to keep Chin above the bar.
 - (iii) Pupil's Chin falls below the level of the bar.

2. Flexed-leg sit-ups



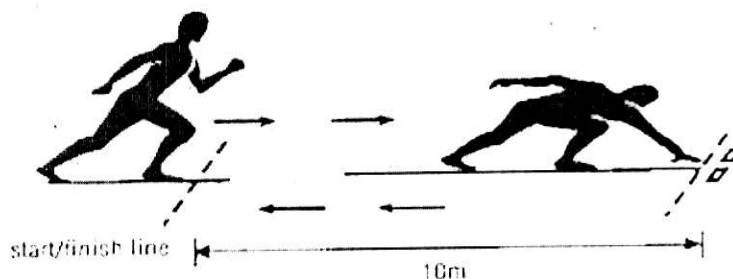
Purpose : To measure abdominal strength and endurance.

Equipment : clean floor, mat or dry turf & stop watch

Procedure : The student is advised to lie on floor on his/her back. keeping knees bent. The angle of knees should be around 90 degree. The feet are held by partner. The student is further advised to put fingers interlocked and put behind the head. The student curls up and touches the elbows to knees.

Score : The score is counted as maximum number of sit ups in 60 seconds.

3. Shuttle run



Purpose : To measure speed and agility.

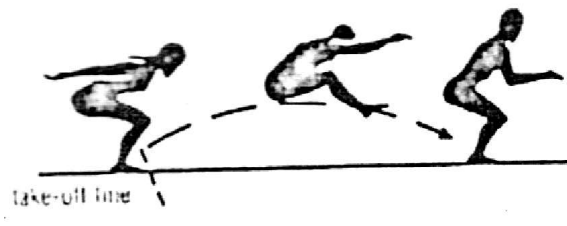
Equipment : 1. Two wooden block 2 × 4 inches 2. Stop watch

Procedure : Two parallel lines are marked 30 feet (10 mts) apart wooden blocks 2 × 4 inches are kept on one side of marked line. The student stands opposite to the line, where

wooden blocks are placed. On start the student runs towards wooden blocks and pick one of them. Then places the block on the line from where he started. The student continues to run and similarly lift other block and place at starting line.

Score : The score is each lap time for complete trial. The better of two trials is taken as final score.

4. Standing long Jump



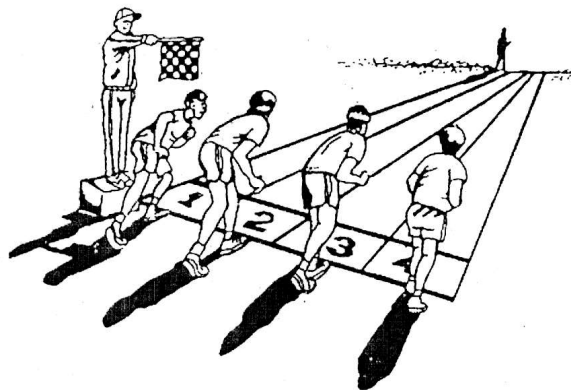
Purpose : To measure legs power.

Equipment : Mat, Floor or outdoor jumping pit & measuring taps.

Procedure : The student is advised to stand on restraining line with feet close and he/she dips at the knee swinging arms before jumping. The student lands on both feet together. The distance from take off line to the heel is measured in inches.

Score : The best of three trials is recorded as final score.

5. 50 yards dash



Purpose : To measure speed

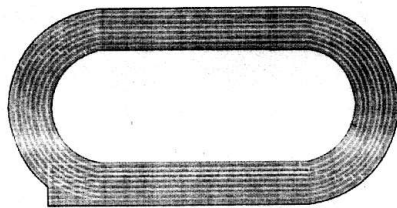
Equipment : 50 yards marked track, stop watch

Procedure : pupils will take positions behind the starting line. The starter will give the start and the time keeper on finish will take the time on starter's signal.

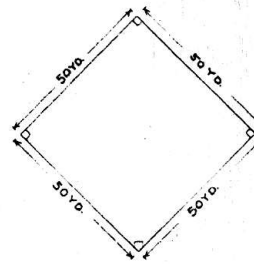
Score : The score is the amount of time between the starter's signal and instant the pupil crosses the finish line. The time is recorded nearest to 10th of a second.

6. 600 Yards run (548.64 Meter)

6. 600 yards run (548.64 METER)



400M Track may be used for the test



Equipment : marked track, stop-watch

Procedure : Pupil will take standing start from starting line. On starter's signal they will start running. The pupils are advised to run or walk for 600 yards but the aim is to finish as early as possible.

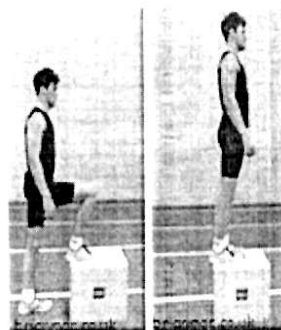
Q.3. Explain harvard Step Test in details?

Ans. **Harvard Step Test :** The harvard step test is a test of aerobic fitness, developed by Brouha et al. (1943).

Objective : The objective of this test to monitor the development of the athlete's cardiovascular system.

Required Resources :-

- Gym bench (45 cm high)
- Stopwatch
- Assistant



How to Conduct the test

This test requires the athlete to step up and down off a 45 cm high gym bench for 5 minutes at a rate 30 steps/minute.

- The athlete warm up for 10 minutes
- The assistant gives the command “Go” and starts the stopwatch.
- The athlete steps up-up and down-down onto a standard gym bench once every two seconds for five minutes (150 steps)
- The assistant stops the test after 5 minutes.
- The assistant measures the athlete’s heart beat rate (bpm) one minute after finishing the test pulse 1
- The assistant measures the athlete’s rate (bpm) two minutes after finishing the test - Pulse-2
- The assistant measure the athlete’s heart rate (bpm) three minutes after finishign the test pulse 3.

Fitness Index physical efficiency Index

$$= \frac{\text{Duration of examises (In sec)} \times 100}{2 \times \text{sum of heart beat after rest. (three counts)}}$$

Short method physical fitness Index

$$= \frac{\text{Duration of examises (In sec)} \times 100}{5.5 \times \text{pulse cont of 1-1.5 min after exemises (one count)}}$$

Model Questions very Short Answer Questions (1 words)

1. Though which techniques of of muscles can be evaluated?
2. Define AAPHER?
3. What is the senior citizen fitness test?
4. Which body measurement of an individual indicates his oxygen comsumption during excises.
5. Your grandmother feels that she has reduced her upper body flexibility & therefore she wants to test herself. Which test would you suggest her?
6. Which tests are conducted in slaughter whoman children skin fold formula.

Value Based Questions

1. Ram is going regularly to the park near his home in the morning. He found that many old people have same or other type of fitness problem in terms of flexibility . He decided to check the fitness level of such people in the park.

Give the answer of following mentioned questions.

1. What type of fitness problem found in the old people.
2. Write the qualities are shown by Ram to check the fitness level of old people?
3. Write the steps of test can be used by Ram for measuring the fitness?
2. What is the high risk zone flow Arm curl test. Why?
3. Why was the six minutes walk test develop & How?
4. What is the need for testing in senior citizen?
5. What does the eight foot up & go test help to determine?

Long Answer Type questions 5 mark

1. What is the senior citizen fitness test? Why is it important?
2. Explain the contests and administration of minimum muscular strength & flexibility test?

UNIT - 8

Physiology and Sports

Key Points :-

- 8.1. Gender differences in physical & physiological parameters.
- 8.2. Physiological factors determining component of physical fitness.
- 8.3. Effect of exercises on cardio vascular system.
- 8.4. Effect of exercises on respiratory system.
- 8.5. Effect of exercises on Muscular system.
- 8.6. Physiological changes due to ageing
- 8.7. Role of physical activity maintaining functional fitness in aged population

8.1 Gender Differences in Physical & Physiological parameters Physical Parameters

Parameters	Male	Female
Height	Taller	Shorter
Body Mass	More	Less
Body Fat	More	Less

Skeleton System

Head, face	Broader	Shorter
------------	---------	---------

Organs

(Stomach, kidney)	Smaller	Bigger
Liver, Thyroid glands)		

Physical Fitness components

Strength	50% more	less
Endurance	More	less
Speed	More	Less
Flexibility	Less	More
Coordination & Agility	Less	More

Physiological components**1. Muscular system**

Muscle, mass size and composition	More	Less
Metabolic power	Less	More

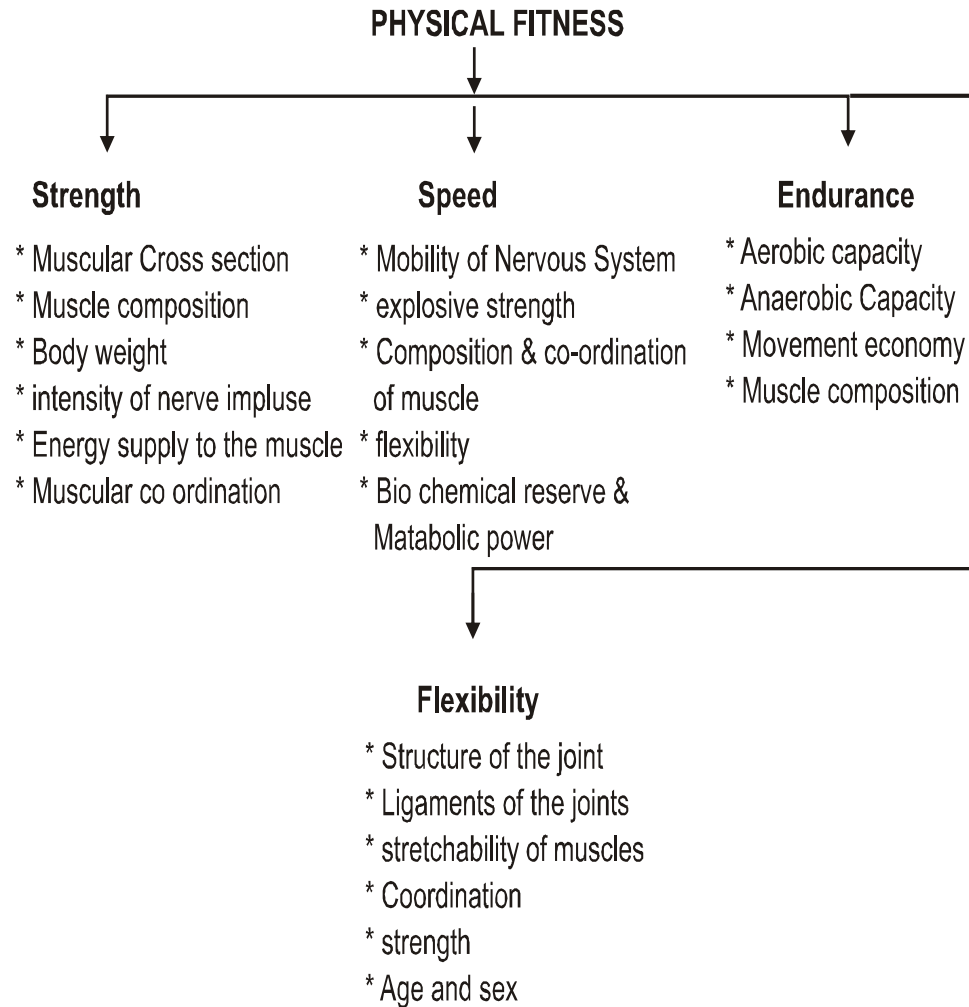
2. Circulatory system

Hert size	Bigger	small
[vital capacity, VO ₂ max stoke volume, Recovery phase]	More	Less
Blood pressure	Less	More
Heart rate	Less (70-72/ min)more (72-80min)	

3. Respiratory system

Lung size	Bigger	Smaller
Alveoli Tidal volume Residual value]	More	Less

8.2. Physiological factor effecting physical fitness



8.3 (a) Effect of Exercise on Cardio-Vascular System

Cardio Vascular system means to deliver oxygen and nutrients to the body parts to Produce energy & remove waste material from it.

Effects of Exercise on Cardio Vascular System

Immediate effects

- Increase heart rate
- Increase blood flow in the body
- Increase blood pressure
- Increase cardiac output
- Increase in stroke volume

Long term Effects

- Decrease in basic heart rate
- Increase the efficiency of heart rate
- Increase the heart size and weight
- Increase cardiac output and stroke volume
- Increase no of capillaries
- Decrease cholesterol Level
- Fast recovery period
- Delay fatigue

8.4. Effect of Exercise on Respiratory System

Effect of Exercise

Strong will power
Increase Tidal Air capacity
Decrease in Rate of Respiration
Strengthens Diaphragm and Muscles
Delay in second wind
Prevention from Diseases

increase in Endurance
passive Alveoles become Active
Increase in Endurance
Increase in Residual volume
Increase in size of lungs and chest
Increase in Vital Air capacity

8.5 (C) Effects of exercise on Muscular System

“Muscle is a specialized tissue, which enables the body and it's part to move and give shape to the body”.

Effects of Exercise

- Change in shape and size of muscle
- Muscle hypertrophy skeletal
- More energy supply to muscle
- Improve in reaction time
- Capillarization
- Reduction in fat
- Muscular endurance
- Posture
- Controls extra fat
- Delays fatigue
- Increase food storage
- Strength and speed

8.6 Physiological Changes due to ageing

“Ageing is a gradual and continuous irreversible process that results in structural and functional alternation”

- Decrease Bone density
- Change in the capacity of Respiratory system
- Change in nervous system
- Decrease in Metabolism rate
- Decrease the capacity of Cardio -vascular system
- low capacity of digestive system
- loss in senses
- Flexibility decrease.

8.7 Role of physical activities maintaining functional fitness in aged population :

- Reduce the loss of muscles mass
- Helps in maintaining bone density
- Reduce risk of cardio-vascular diseases.
- Improve flexibility & strength

-
- Enhance the lung capacity.
 - Slowdown the brain ageing
 - Improve the mental & social health
 - Reduce the risk of age-linked diseases.
 - A. Diabetes
 - B. Obesity
 - C. Hypertension
 - D. Bad cholesterol
 - Improve brain function.

Very Short Answer Questions (1 Mark Each)

Q.1 What is flexibility?

Ans. Flexibility is the range of movement of joints in other words, it means the range of motion available in a joint.

Q.2. what is ageing?

Ans. Ageing is a process of continuous & irreversible decline in the efficiency of various physiological functions.

Q.3 What is stroke volume?

Ans. Stroke volume is the amount of blood ejected per beat from the left ventricle. It is measured in ml/beat.

Q.4 Define oxygen intake?

Ans. It is the amount of oxygen, which can be taken by the lungs from the atmosphere.

Q.5 Define physical fitness?

Ans. Physical fitness is considered a measure of the body's ability to perform effectively & efficiently in work without any fatigue.

Q.6 What is cardiac output?

Ans. The total volume of blood, pumped by heart per minute, cardiac output = heart rate Stroke volume.

Q.7 What is oxygen uptake?

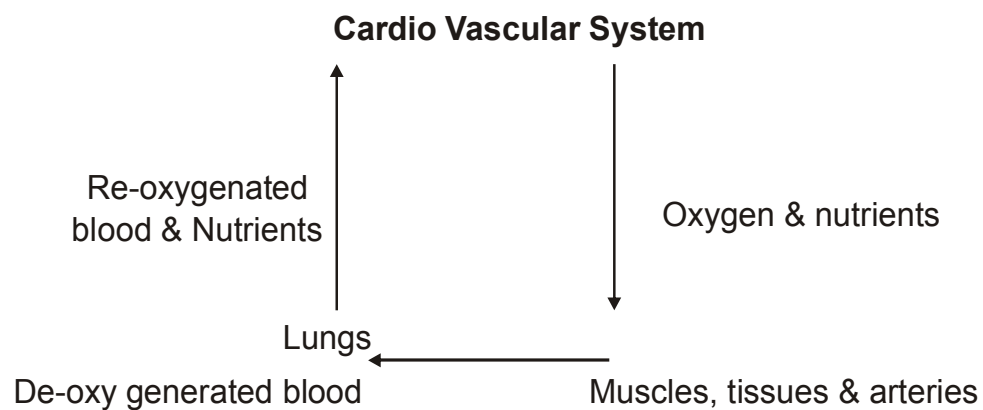
Ans. the amount of oxygen, which can be absorbed and consumed by the working muscle from the blood.

Q.8 What do you mean by physiology?

Ans. Physiology is the division of biology that deals with the functions and activities of living organisms & their parts as well as physical and chemical process i.e. Nutrition, movement & reproduction, which are the living activities.

Q.9. What is cardio-vascular system?

Ans. In this system heart and lungs send oxygen to various muscles, tissues & arteries and at the same time returns the de-oxygenated blood to the lungs to be re-oxygenated and return the fuel to the active tissues of the different parts of body.

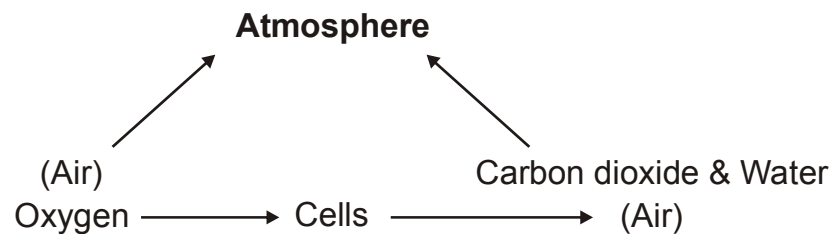


Q.10. Define Respiratory System ?

Ans. It is a system in which organs take oxygen inside and throw away carbon dioxide from the body.

Q.11. What is Respiration?

Ans. The process of Oxygen supplied to the cells and the transport of carbon dioxide from the cells is called respiration.



Q.12. Define Blood Vessels?

Ans. Blood vessels are, tube like structures in the body, in which, blood flows from heart to cell and vice-versa. Three types of blood cells arteries, veins & capillaries.

Q.13. What do you mean by circulatory system?

Ans. The body system, which specialized function ofr transporting Air, Nutrients, Waste Material, Harmons and Enzymes. It consists Heart, Blood vessels & glands.

Q.14. What is 'Trachea'?

Ans. A long tube is your neck and chest that carries air in to and out of your lungs.

Q.15. What is the Tidal Volume?

Ans. it is the volume of Air, Ventilated with one normal inhalation during ordinary respiration.

Q.16. what is vital capacity?

Ans. It is the amount of air which an individual can inhale and exhale with maximum effect.

Q.17. What is VO_2 max (maximum oxygen uptake)

Ans. It is the maximum amount of oxygen, utilized by the body in one minute.

Q.18. Explain Aerobic capacity?

Ans. It means perform activity with maximum use of oxygen to produce energy for that activity.

Q.19. Explain Muscle Fibre?

Ans. The muscle tissue consists of specialized contractile cells. The type of muscle fibre in the body.

1. Fast twitch fibers-white fibres
2. Slow twitch fibers-red fibres.

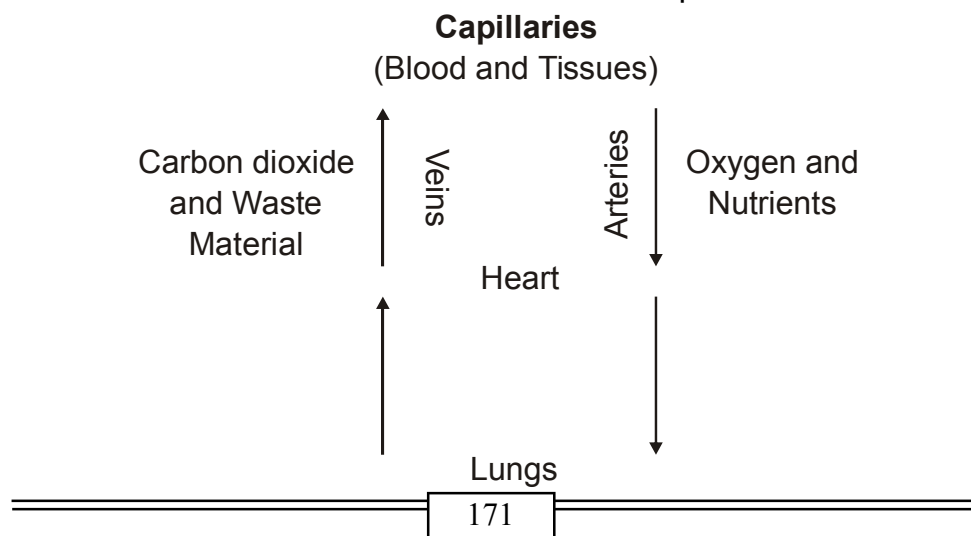
Q.20. Define Anaerobic capacity

Ans. Capability of muscles to do work without the presence of oxygen called Anaerobic capacity.

3 Marks Questions

Q.1. What are capillaries?

Ans. Capillaries are the smallest and thinnest vessels in the circulation system. The wall of capillaries, made up of only one layer of cells. The interchange of gases and substances between the blood and the tissues takes place here.



Q.2. Write the immediate effects of exercise on Cardio-Vascular system?

Ans.

1. **Increase in heart rate** :- When an individual starts exercise, his heart rate increases as per the intensity and duration of exercise.
2. **Increase in stroke volume** :- Stroke volume increases proportionally with exercise intensity. It is measured in ml/beat.
3. **Increase in cardiac output** :- Cardiac output increases proportionally with the intensity of exercise's is measured in ltr/ mintue.
4. **Increases in blood flow** :- Cardio-vascular can be distribute more blood to those tissues which have more demand and less blood & those tissues which have less demand for oxygen.
5. **Increase in blood pressure** :- During the exercise, systolic blood pressure can increase while diastolic blood pressure usually remains unchanged even during the intensive exercise.

Q.3. Differentiate between slow twist fibre and fast twist fibre?

Ans.

Slow twitch fibre (red fibres)	Fast twitch fibre (white fibres)
1. The red fibres of muscles are mainly responsible for the endurance activities.	The white fibres of muscle are responsible for strength and speed activities.
2. The red fibres are produced energy but the nutrients in the presence of oxygen only.	The white fibre are produced energy by the nutrients without the presence of oxygen.

Q.4. Discuss the physiological factors, determine the strength as a component of physical fitness?

Ans. **1. Muscle size:** Bigger and larger muscles can produce more force. Males have larger muscles than females so their muscles

are strong with the help of weight training, the size of muscle can be increased.

2. **Body weight:** The individuals who are heavier are stronger than the individuals who are lighter for example the heavier weight lifters.
3. **Muscle composition:** The muscles which have more percentage of fast twitch fibers can produce more strength while the slow twitch fibers are not capable to contract faster but they are capable to contract for a longer duration. The percentage of fast twitch fibers and slow twitch fibers is genetically determined and can not be changed through training.
4. **Intensity of the nerve impulse:** When a stronger nerve impulse from central nervous system excite more number of motor units, the muscles will contract more strongly or it can be said that the muscle will produce more force or strength.

Q.5. Discuss the physiological factors, determine the endurance as a component of physical fitness:

Ans. Aerobic capacity: oxygen intake

- * oxygen uptake
- * oxygen transport
- * Energy Reserve

Anaerobic capacity :

- Storage in body of ATP and CP (phosphagen stores)
- Buffer capacity - in muscles lactic acid accumulation ineffective
- Endurance of lactic acid
- VO_2 max. This is the quantity of oxygen, which active muscles use during exercise in one minute.

Q.6. Elaborate the role of regular exercise on Ageing process.

Ans. Regular exercise reduces the problems faced in Ageing.

- increase in muscle strength
- Maintaining the bone density
- slow down the brain due to ageing
- enhances the capacity of lungs and heart
- improves elasticity
- reduces depression and tension

5 Mark Questions

Q.1 Describe the effects of exercise on respiratory system?

- Ans. 1. **Increase in vital air capacity-** It is the amount of air which an individual can in hale and exhale with maximum effect. its capacity varies from 3500 cc. Dut to exercise its capacity increases upto 5500 cc.
2. **Increase in Residual value-** Dut to regular exercise increases the capacity of residual value from normal capacity.
3. **Passive Alveolus become Active-** Regular exercise activates the unused alveoles because much amount of O_2 is required in prolonged exercise of daily routine.
4. **Minute volume decrease-** Decrease the value of oxygen in per minute because
5. **Second wind almost finished-** Due to regular exercise need of second wind is almost finished.
6. **Increase in Endurance-** If exercise is performed regularly and for a longer period, it increases endurance. An activity can be done for a onger period without taking any rest.

Q.2 Write the effects of exercise in muscular system?

- Ans. 1. **Muscle Hypertrophy-** Dut to regular exercise growth in size of muscles.
2. **Capillarisation-** Increase the number of capillaries due to regular exercise and the colour will be dark red.
3. **Control Extra fat-** Regular exercise controls the extra fat of body. Exercises burn the entra calories.
4. **Delay fatigue-** Regular exercise delay fatigue. This fatigue is mainly due to formation of carbon dioxide, lactic acid and acid phasphate.
5. **Posture-** Regular exercise helps in improving posture by improving postural defomities.
6. **Strength and speed-** Regular exercise improve the strength and speed muscle cells.
7. **Increases food storage-** The food storage capacity in increased when regular exercise are done. This

storage of food can be utilised immediately when it is needed.

Q.3 Discuss how physiological factors determine flexibility?

- Ans. 1. **Muscle strength** :- The muscle should have minimum level of strength to make the movement, specially against the gravity or external force.
2. **Joint structure** :- There are different types of joint in human body, some of the joints intrinsically have greater range of motion than others for example. The ball and socket joint of the shoulder has the greatest range of motion in comparison to the knee joint.
3. **Internal environment** :- Internal environment of athlete influences the flexibility. For example-warm bath increases body temperature and flexibility whereas 10 minutes outside stay in 10°C temperature reduces the body temperature and flexibility.
4. **Injury** :- Injuries to connecting tissues and muscles can lead to thickening or fibrosis on the effected area. Fibrous tissues are less elastic and can lead to limb shortening and lead to reduce flexibility.
5. **Age and gender** :- Flexibility decreases with the advancement of age. However it is trainable. It can be enhanced with the help of training as strength and endurance are enhanced. Gender also determine the flexibility. Females tend to be more flexible than male.
6. **Active and sedentary life style** :- Regular activities enhance the flexibility, whereas inactive individual loses flexibility due to the soft tissues and joints shrinking and losing extensibility.
7. **Heredity** :- Bony structures of joints and structure length and flexibilities of the joint capsules and surrounding ligaments are genetical and can be altered by stretching programs.

Q.4 Describe the physiological factor determine the speed.

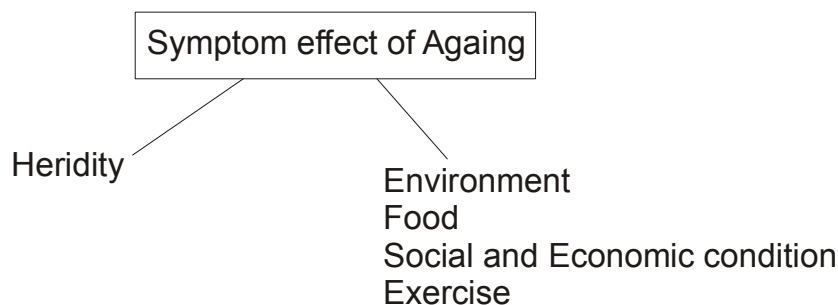
- Ans. 1. **Explosive strength**- For every quick and explosive movement, explosive strength is indispensable. Like, a quick punch in boxing can not be delivered if the boxer

lacks explosive strength. Explosive strength further depends on muscle composition, muscle size, and muscle coordination.

2. **Muscle composition-** The muscle which have more fast twitch fibers. They can do more speed. The muscle composition is genticly determined. We will improve it only by some training methods.
3. **Mobility of nervous system-** Motor and sensory nevers of nervous system can be determined by the mobility of nervous system. By training only we can limited extent in the mobility of nervous system because speed is determined to a great extent by genetic factors.
4. **Flasticity and Relexing capacity of muscle-** Through the elasticity of muscle, muscle can move to a maximum range which reduces the inner hurdles and is instrumental in speeding up the activity. The muscles which get relaxed soon, they contract easily.
5. **Bio-chemical Reserves and Metabolic Power-** For doing the exercises which are done quickly muscles need more energy. This energy in our muscles is obtained through the prensence of phosphosen (ATP) and creating phosphate (CP). The percentage of power and quantity in ATP and CP can be increased through training.

Q.5 Elucidate physiological change due to Againg.

Ans. Againg, in its broadest sense is the continuous and irreversible decline in the efficent of various physiological functions. These changes are noticeable usually after 30's.



Physiological changes due to Ageing-

1. **Muscular system-** Decrease the muscle Mass strength
2. **Change in nervous systems-**
 - Loss of sense like Ear, Nose, smell power talking power,
 - Capacity of doing work by (CNS) center nervous system also gets reduced
3. **Digestive system-** Decrease in metabolism body composition
 - Reduction in HCL acid, saliva, digestive enzyme and salivary glands.
4. **Skeleton system-** Decrease bone density
 - Less bone density can result in osteoporosis which may lead to fracture
 - Collagen vascular disease
5. **Change in cardio-vascular system-**
 - Weakness in cardio-vascular muscle
 - Reduction in stroke volume, cardiac-output, and blood volume
 - Blood vessels also lose their elasticity
 - Feeling of fatigue
6. **Change in respiratory system-**
 - Decrease in work efficiency of lungs in advancing age
 - The airways and lung tissues become less elastic
 - Decrease oxygen uptake, oxygen exchange
 - Muscles of ribcage become weak
7. **Decrease physical fitness component Like :-** Strength, speed, flexibility, endurance co-ordination and activeness.
8. **Change in Urinary system-**
 - Mass of the kidneys decreases for that reduction in the rate of blood filtration.
 - Increase in residual urine.

Practice Questions**1. Mark Questions**

1. When does ageing process begin?
2. What is muscles Hypotrophy?
3. What is Blood pressure?
4. Describe physiology.

3. Mark Questions

1. In growing age, cardiac muscles weakens. The capacity of muscles, tolerance power etc start decreasing and blood pressure increase due to growing age A person should exercise daily to keep himself fit on the basis of above passage, answer the following.
 1. Name different kind of disease due to growing age
 2. What kind of exercise and activities to be done by a person in growing age?
- Q.3 What kind of moral support is required to an old person?

5 Mark Questions

1. How can regular exercises be helpful in growing age
2. Describe different kind of physical activities on the basis of gender.
3. Describe immediate and long term effects of exercise on circulatory system.

UNIT - 9

Sports Medicine

Key Points :

- 9.1. Concept Aims and scope of sports medicine.
- 9.2. Sports injuries: Classification, Causes & Prevention
- 9.3. First Aid-Aims & Objectives
- 9.4. Management of Injuries :

Soft Tissue Injuries

(Abrasion Contusion, Laceration, Incision, Sprain & strain)

Bone & joint Injuries

(Dislocation, Fracture: Stress Fracture, Green Stick, Comminuted, Transverse & Oblique & impacted)

9.1.A Concept of sports medicine

- Bio mechanics related to sports.
- Effect of altitude on endurance performance
- Psychological aspect of performance.
- Nutrition and metabolism in relation to competition and performance.
- Cardio-respiratory function in relation to performance
- Exercise in Cardio-Vascular disease prevention & Rehabilitation.

Definition of Sports Medicine :

“Sports Medicine includes all games & sports & Physical activities, which contribute to the health & welfare of mankind,

Sports medicine also includes all kinds of muscles activities & studies related to sports”

9.1.B Aims of Sports medicine :

- A. To aware the sports person & athlete about the different kinds of injury in respect of different games.
- B. To concentrate on the causes of injury
 - Lack of Warming up
 - Lack of Sound Techniques/Skills
 - Environment
 - Psychological factors
 - Physical fitness components
- C. To provide adequate medical help-Different methods & equipments of treatment -Rehabilitation centres
 - 1. Infra-red rays
 - 2. Physiotherapy
 - 3. thermal treatment
 - 4. Electro therapy
- D. To knowledge of kinds of injury & their necessary precaution i.e., Protective Measures

9.1.C Scope (areas) of Sports Medicine :

- Athlete’s nutrition
- Prevention of accidents in sports
- New methods of detecting doping
- Swimming Pool
- Methods of prediction of sports talent
- Sports & society
- Scientific promotion of sports & games
- Equipments & facilities
- Playgrounds
- Psychological aspects
- Specific fitness
- Human anatomy & physiology
- Sports & first aid
- Sports injury rehabilitation
- Female & sports

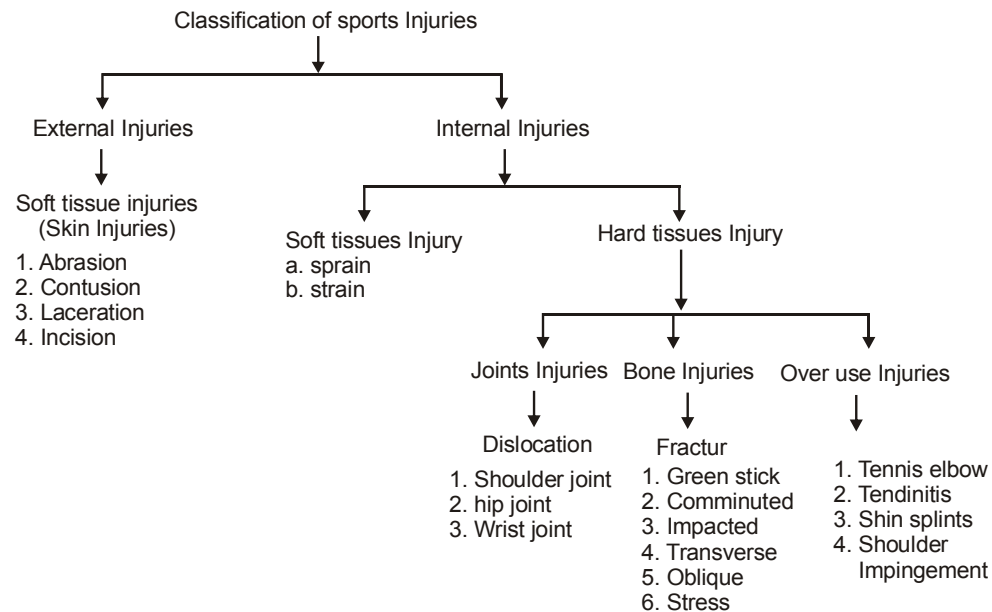
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- Sports & heamatology
 - Study of optional load for different ages
 - Research

9.2 Sports Injuries:

Classification, causes & prevention sports injuries are “those injuries which usually occur to be the sports persons during training or sports competitions.”

Sports injuries are the stage/ situation of a sports person in which he she is not able to participate in the physical/ sports events with same speed or strength. So time she/he should not able to preform in the event.

9.2.A Classification of sports Injuries



9.2.B Causes of sports Injuries :

Intrinsic Risk Factor	Extrinsic Risk Factors	
<ul style="list-style-type: none">– Physical preparation– Lack of proper training fitness levelInproper warming up & cooling down–Over use of muscles–Muscles imbalance–Individual variables:-	<ul style="list-style-type: none">– Coaching<ul style="list-style-type: none">a. Poor techniquesb. Lack of knowledge–skill– Rules & regulations–Surrounding–Environment–Equipments facilities	Environmental Factor <ul style="list-style-type: none">a. Climateb. Playing surfacesc. Preventive Measuresd. Medical facilities

- a. Gender & age
- b. Nutrition
- c. Fatigue
- d. Posture deformities

9.2.C Prevention from Sports Injuries :

1. Warming up, stretching and cooling down.
2. Undertaking training prior to competition to ensure readiness to play.
3. Including appropriate speed work in training programme so muscles are capable of sustaining high acceleration forces.
4. Including appropriate stretching and strengthening exercises in weekly training programs.
5. Gradually increasing the intensity and duration of training.
6. Maintaining high levels of cardiovascular fitness and muscle endurance to prevent fatigue.
7. Allowing adequate recovery time between workouts or training sessions.
8. Wearing protective equipment, such as shin guards. Mouth guards and helmets.
9. Pre participation-medical check up.
10. Ensuring the playing surface and the sporting

-
- environment are safe and clear from any potentially dangerous objects.
11. Wearing appropriate footwear that is well fitted and provides adequate support and contraction for the playing surface.
 12. Drinking water before, during and after play.
 13. Avoiding activities that cause pain.
 14. Avoid De-hydration & over training.
 15. adequate & effectively maintained facilities.
 16. Psychological & environmental condition of players.
 17. Balanced diet.

9.3 First aid Aim & objectives

First aid: "It is care that is give to an injured or sick person prior to treatment by medically trained personel."

OR

"First aid is a combination of some simple procedures and the application of common sense to relief an injured person."

OR

It is an immediate & temporary care give to an injured or an accident or sudden illness before the services of a physician as obtained.

9.3.A Aim of first aid:

The Aim of first aid to save the life of an injured & ill person.

9.3B Objectives of first aid

1. To preserve life
2. To alleviate pain & suffering
3. To prevent the condition from worsening
4. To promote recovery.
5. To procure Early medical Aid.
 - (a) Doctors
 - (b) Equipments
 - (c) facilities
 - (d) Specific aids

9.4 Management of Injuries

9.4.A Soft tissues injuries

1. Price Treatment

- P-Protect the wound
- R-Rest-No more movement
- I-Ice-To stop the bleeding
- C-Compression - To stop bleeding
- E-Elevation - Heart level

2. MICE Treatment

M – Mobilization

I – ICE

C – Compression

E – Elevation

3. REST Therapy

R – Rest

E – Elevate

S – Support

T – Tight

First aid: Treatment or Assistance given to injured person before formal treatment is conducted.

F= First

I – Impression

R – Rest and Relation

S – Support Physical and Psychological (patient)

T – Tie no movement of Injured part

A – Assistance in distress accident investigative (division)

I – In

D – Distress

S – Safety.

9.4.B Management of joint Injuries

(i) Rest Therapy

(ii) Price Therapy

9.4.C Management of Bone Injuries:

(i) Price Therapy

Rehabilitation

(i) Normal Movement

(a) Treatment

-
- (b) Physio therapy
 - (c) Massage
 - (ii) Training and Practice
 - (a) strength
 - (b) endurance
 - (c) flexibility
 - (d) speed
 - (e) coordination & Agility
 - (iii) Specific fitness
 - (iv) Test and measurement

Very Short Answer Type Questions

Q.1. What is sports injury.

Ans. "Sports injuries" are the types of injuries that occur during participating in sports/ competition, training sessions or sports activities?

Common Sports Injuries are :

1. Sprain & strain
2. Knee Injuries & elbow injury (Abrasion)
3. Contusion
4. Incision
5. Dislocation
6. Fracture

Q.2. What is sports medicine?

Ans. Sports medicine is a branch of sports science which deals with the athlete or sportsman is Preserving their health and increasing their physical performance and to prevent the disease.

Specific field of sports medicine are

- (a) sports injuries & its prevention & management
- (b) sports training
- (c) sports exercises
- (d) sports nutrition

-
- (e) sports psychology
 - (f) physiology of sports

Q.3. How to classify sports injury?

Ans. 1. Soft tissue injuries : The injury of muscles, tendons, ligaments.
2. Hard tissue injuries : The injury of bones & joints.
3. Over use injuries : Bone & muscles.

Q.4. What is soft tissues injury?

Ans. A soft tissue injury is the damage of muscles, ligaments and tendons throughout the body.

Q.5. Write types of soft tissue injury.

Ans. Types of soft tissue injuries include.

- Bruise (haematoma) – Incision
- Sprain (ligaments) – Abrasion
- Strain (tendon) – Contusion
- 1. Lacerations (skin)
- 2. Tendinitis (tendons)

Q.6. What is contusion?

Ans. Contusion is a soft tissue injuries. Contusion occurs when a direct blow or repeated blow from a blunt object strike part of the body crushing underlying muscles & connective tissue without breaking the skin. Contusion parts of body are bleeding, pain & inflammation. In severe contusion can cause deep tissue damage & can lead to complications.

Q.7. What is abrasion?

Ans. It is an injury, which is caused when skin is scraped or rubbed by friction. It causes severe pain sometimes bleeding.

Q.8. Define sprain?

Ans. Sprain is a sudden stretching of ligaments of a joint & associated with the pain & de-coloration into tissues. For example Ankle, Elbow, knee.

Q.9. Define first aid? Discuss the aim of first aid?

Ans. First aid is the first help which is given to the wounded or accident victim before the arrival of the doctor.

The aim of first aid is to try to save the precious life of the wounded person or victim.

Q.10. What do you mean by fracture?

Ans. A fracture is a broken bone. It can range from a thin crack to a complete break. Fracture caused by a direct blow to the bone either in a fall or a kick.

1. **Simple fracture** : Only bone fractured but no damage to the surrounding soft tissues
2. **Compound fracture**: A body fracture is the an open wound through which bone fragments.
3. **Complicated fracture**: Breakage in an osseous structure such that the sharp edges of the bone have pierced an organ or bodily structure.

Q.11. Define stress fracture?

Ans. Pain caused by repeated stress to the bone over time. Stress fracture is common injury of an athlete-long distance runner or a basket ball player, caused due to the over use of bones & muscles.

Q.12. Define the dislocated of shoulder joints?

Ans. **Shoulder dislocation** : The shoulder joint is the most frequently dislocated major joint of the body. In a typical case of a dislocated shoulder, a strong force that pulls the shoulder outward (abduction) or extreme rotation of the joint popo the ball of the humerus out of the sholder socket. Dislocation commonly occurs when there is a backward pull on the arm that either catches the muscles unprepared to resist or overwhelms the muscles.

Q.13. Write the role of proper condition in the sports Injuries.

Ans. Many injuries occur due to weakness of muscles which are not ready to play sports. proper comparability is must for muscular power training load and circumference training are method of proper comparability which develops co-ordination among muscles.

Q.14. What do you mean by wound?

Ans. Would is an injuries which caused by superficial damage to the skin, during the sports training exercise wound most commonly occur when exposed skin comes into contact of sharp objects, broken glass, rough surfaces etc.

Ex. Abrasion, Incision, Laceration.

Short Answer Type Questions (3 Marks each)

Q.1. Write the scope of sports medicine in the field of sports?

Ans. Human Anatomy & physiology

2. Athlete nutrition
3. Sports & first aid
4. Prevention of accident insports
5. New method of detecting the doping.
6. Sport injuring rehabilitation
7. Fitness of games & sports
8. Method of prediction of sports Talent
9. Female & sports
10. Sports & society
11. Study of optimal load for different ages
12. Scientific promotion by sports & game
13. Sports & traumatology
14. Equipments and facilities
15. Summing pool
16. Play ground
17. Research
18. Psychological aspect
19. Specific fitness

Q.2. Define soft tissue injuries in the sports? Write its preventive measures?

Ans. Soft issue refers to tissues that connect, support or surround other structures and organs of the body the muscles, tendons, ligaments, fascial, nerves, fibrous tissue, blood vessels, etc. soft tissue injuries involve injuries to muscles, ligaments and tendons in the body.

Preventive measures of soft tissue injuries:'

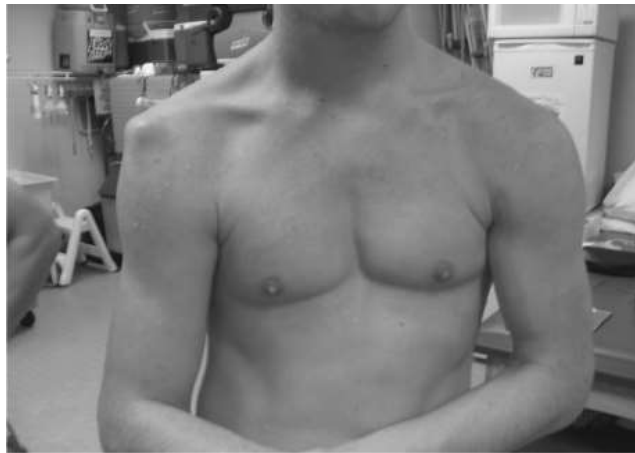
1. Proper warming up
2. Proper conditioning of body
3. Scientific equipments & facilities
4. Clean & plain surface of play grounds
5. Knowledge rules & regulation of sports events.
6. Actively & alternerss participation during the sports training & competition.

-
7. Fatigue, sickness & injuries's condition to avoid the participation in the sports training.
- Q.3. What do you mean by dislocation in joints? Explain any two dislocation in the body.

Ans. **Deislocation**

A dislocation is a separation of two bones where they meet at a joint. Joints are areas where two bones come together.

1. **Dislocation of Lower Jaw** : Generally, it occurs when the chin strikes to any other object. It may also occur if mouth is opened excessively.
2. **Dislocation of Shoulder Joint** : Dislocation of shoulder joint may occur due to sudden jerk or a fall on hard surface. The end of the humerus comes out from the socket.



Dislocation of Right Shoulder

Q.4. Write the signs & symptoms and treatment of dislocation.

Ans. Discuss the preventive measures of dislocation.

Signs and symptoms :

A dislocated joint may be

- Accompanied by numbness or tingling at the joint or beyond it.
- Intensely painful, especially if you try to use the joint or put weight on it.
- Limited in movement.
- Swollen or bruised.

-
- Visibly out of place, discoloured, or misshapen.

Treatment of Dislocation- First-aid

- | | |
|-------------------------|-----------------------------|
| 1. Rest of injured part | P – Protection |
| 2. Elevate if possible | R – Rest |
| 3. Support the part | I – Ice |
| 4. Tie for support | C – Compression wound |
| (Rest Therapy) | E – elevate if feel comfort |
| | (PRICE therapy) |

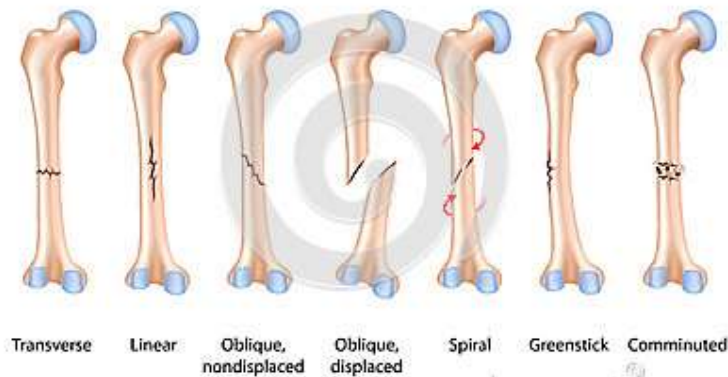
Prevention of Dislocation of Joints :

1. Adequate warm-up should be performed prior to any physical activity.
2. Proper conditioning should be done in preparatory period.
3. Stretching exercises should be included in warm-up.
4. Players should be careful and alert during practice and competition.
5. Protective equipments should be used as per the requirement of the games/sports.
6. Practice should be discontinued during fatigue.
7. Players should have good anticipation and concentration power.
8. Always obey the rules and regulations.
9. Proper cooling down after the physical activities.

Q.5. Enumerate the types of fractures? Write briefly about any three type of fracture?

Ans. Types of Bone Fractures

Types of Bone Fractures



- Greenstick fracture : An incomplete fracture in which a bone bends and cracks. This type of fracture usually occurs in children because their bone are soft and flexible.
- Transverse fracture : A fracture at a right angle to the bones axis or a straight break right across a bone.
- Oblique fracture : A fracture is a slanted fracture that occurs when a force is applied diagonally an angle to a bone's long axis.
- Impacted fracture: It is loss of continuity in the structure of bones.
- Stress fractures : It is a crack in bone due to high impact physical activity.
- Comminuted Fracture : A fracture in which the bone fragments.

Q.6. Discuss the causes of fracture?

Ans. Fracture usually occurs due to a high impact on the bone. It can be caused by overuse.

The most common causes of fracture are:

1. In such sports events where there is a high impact.
2. Traumatic, forceful and unnatural movements of the body.
3. Prolong long distance walking & running
4. Sudden falls on hard surface

-
5. Direct strike or hit with any solid sports equipment
 6. Osteoporosis

Q.7. Explain the objectives of first aids?

Ans. It is an immediate & temporary care given to a victim of an accident or sudden illness before the services of a physician is obtained.

Objectives of first aid

1. To preserve life
2. To alleviate pain & suffering
3. To prevent the condition from worsening
4. To promote recovery
5. To procure early medical Aid
 - (a) Doctors
 - (b) facilities & equipments
 - (c) specific aids

Long Answer type Question (5 Marks each)

Q.1. Write down aim & objectives of sports medicine.

Ans. The aim of sports medicine is to deal with the improvement of general well being and health of the population through promotion of an active lifestyle.

The main aim of sports medicine is to provide information, knowledge and restore function of vital organs to sports persons and other related personalities at highest level.

The objective are :

1. Preventive health care:-
 - (a) Maintenance of fitness
 - (b) Detection of disorders.
 - (c) Functional Evaluation
2. Scientific promotion of games and sports:-
 - (a) Planning of training programs
 - (b) Evaluation of training programs
 - (c) Injury prevention

(d) Psychological counselling and guidance

3. Sports Medical Services :

Sports medicine services may also be extended to prevention of obesity, cardiac illness, cardiac rehabilitation, prevention and control of diabetes.

Q.2. Explain the need & importance of sports medicine in the field physical education & sports & games?

Ans. To achieve the aim & objectives of sports medicine in the held of physical education & sports require a sports medicine “team” includes specially physician, surgeons, athletics trainers, physical therapists, coaches, doctor of osteopathy, exercise physiologist, kinesiotherapist (develops & supervise exercise program), nutritionist, occupational therapists etc. Different field of sports need sports medicine mentioned following.

1. In identifying & selection of talent sportmen.
2. In preparation of training schedule.
3. In preparation of balance diet of sportmen.
4. To coaches to identify training methods.
5. To Attainment of total fitness.
6. To Minimise the sports injuries.
7. To Treatment and rehabilitation of sports injuries.
8. To Regular examination of performance level of sports person.
9. To Help the female athlete to specific medical problem.
10. To inform athletes about the side effect of doping and smoking.
11. Scientific promotion of sports & games.
12. In sports medical extension services.
13. In prophylactic health care
14. In service for Nation
15. Management of physical education programme & discovery of new recent trends.

Q.3. Explain importance of sports physician in the sports of games?

Ans. The sports medicine physician are specially trained for total care of athletes & active individuals. Basically sports medicine physician take care of sports persons who have injuries.

Important duties of sports physician

1. Regular check up sports personalities at different level.
 - (a) School sports athletes
 - (b) Colleges
 - (c) Universities
2. To record all the facilities equipments, injuries & its preventive & treatment etc.
3. Treatment of all athletes's injuries, rehabilitation etc.
4. Kinesiology, pathological, psychological cardiology, endocrinology, traumatology etc. all scores related to athletes records maintained & tries to treat its problem.
5. Duties during training.
 - (a) To supervise condition exercises
 - (b) Health check up
 - (c) Training pattern
6. During competition :-
 - (a) To supervise proper care of Injuries.
 - (b) Promotion of rights and proper amounts of diet.
 - (c) Balance diet
 - (d) Proper rest & sleep
7. After the competition
 - (a) Performance Analysis
 - (b) Motivation for betterment in future.
 - (c) Analysis of – ve & +ve part of performance
 - (d) To Recover as early as possible in case of injuries

Q.4. How you will prevent injuries in sports?

Ans. **Prevention From Sports Injuries**

Competitive athletes may have difficulty avoiding sports injuries due to the intensity and frequency of their training and competition. However, it is possible to prevent most of the sports injuries by undertaking following preventive measures.

1. **Proper warming up** : Before the start of any practice of competition proper warming-up is essential. Sports injuries can be prevented to a greater extent. Proper warming up helps our muscles to get ready for the work.
2. **Proper conditioning** : Many injuries occur due to

weakness of muscles which are not ready to meet the demand of sports. So, for getting proper compatibility is a must for muscular power training load and circumference training weight training circuit training methods which develops Neuro-muscular co-ordination among muscles and prevents us from injuries.

3. **Balanced diet :** Balanced diet helps us (to some extent) prevent from injuries. For example, intake of calcium, phosphorous and vitamin D in lots of quantity to meet demands of muscles and organs to practice of activities.
4. **Proper knowledge of sports skills:** Proper knowledge of sports skills is necessary for the prevention of injuries. Players are fully skilled or sound knowledge of sports skills can prevent injuries.
5. **Use of protective equipment :** The use of protective equipment is necessary for the prevention of sports injuries. So always, wear protective equipment while playign sports. They provide security to the bodies. For their better results, always try to put on high quality protective equipments.
6. **Proper sports facilities :** Sports facilities and sports injuries have relation between them. In fact, sports injuries can be prevented if there are high-quality protection sports equipment and proper play grounds are available for practice and competition.
7. **Unbiased officiating :** If the team officials take decisions without any bias, injuries can be minimised. If the officials or referees practise partiality, these may be more changes of indiscipline among players which leads to injuries. So unbiased officiating can prevent injuries in sports fields.
8. **Not to do overtraining :** Physical training should be gradually increased to avoid injury. Exercise should be according to the current status of physical fitness level of the athletes to increase the strength and quality of muscals. Avoid training which muscle is fatigued or

weakened.

9. **Use of proper technique** : Using proper techniques of playing different sports prevents us from severe sports injuries, such as tendonitis and stress fracture.
10. **Obeying the sports rules** : Obeying the sports rules is also helpful in preventing sports injuries to a greater extent.
11. **Proper cooling down** : After regular practice or competition, cooling down is equally important as warming-up before practice or competition. Cooling down should be done properly

OR

Tips of Preventing of Sports Injuries

1. Avoid training when you are tired.
2. Increase your consumption of carbohydrate during periods of heavy training.
3. Increase in training should be matched with increase in resting.
4. Any increase in training load should be preceded by an increase in strengthening.
5. Treat even seemingly minor injuries very carefully to prevent them from becoming a big problem.
6. If you experience pain during training, STOP your training session immediately.
7. Never train hard if you are stiff from the previous effort.
8. Pay attention to hydration and nutrition.
9. Use appropriate training surfaces.
10. Training and competition areas should be clear of hazards.
11. Equipments should be appropriate and safe to use.
12. Introduce new activities very gradually.
13. Allow a lot of time for warming-up and cooling down.
14. Check overtraining and competition courses before participation.
15. Train on different surfaces, with the right footwear.
16. Shower and change your dress immediately after cool

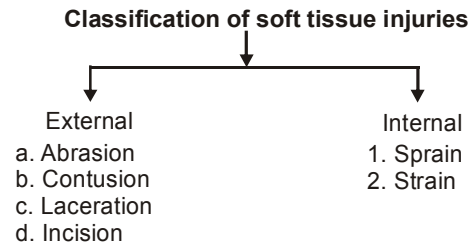
down to maintain hygiene.

17. Aim for maximum comfort when travelling.

18. Stay away from infectious areas when training or competing very hard.

Q.5. Classified the soft tissue injuries cause & preventive masseurs in detail?

Ans. Soft tissue injuries mean injuries of muscles, tendons, ligaments, fascia, nerve, fibrous tissues blood vessels, synovial membranes. Basically soft tissues refers to tissues that connect, support or surround other structure & organs of the body.



Causes of soft tissue injuries

1. Over use
2. Falls
3. Stops & twists
4. Improper equipments
5. New & Increased activities
6. Fatigue
7. Poor warming up
8. Impact
9. Unilateral movement
10. Faulty techniques & posture

Preventive measures of soft tissue injuries.

1. Proper warming up
2. Appropriate condition of body.
3. Sound technical knowledge of skills and equipments.
4. Healthy diet.

-
5. Efficient use of techniques
 6. Use of proper protective gears
 7. No over training & over use of body
 8. Obey safety rules
 9. Fair of ficiating and unbiased officiating
 10. Proper cooling down.

Model questions for practice

Very short Answer type questions (1 mark each)

1. Write an important preventive measure sports injuries?
2. Write the aim of sports medicine?
3. Name the sports injuries occur in the Hockey player & why?
4. Why do dislocation occur in the joints?

Value based Question

Sushil & suresh are the best long distance runner of their state team. During off season they used to do hard practice one day during the training suresh slipped down & his elbows & knees scraped. There was miner bleeding. Sushi/got a first aid kit from the sports room & tended to Surshis injury. By first aid suresh's bleeding was stop & relief from pain.

1. What is the type of injury that Suresh sustained.
2. Mentioned any two first aid treatments provided by Sushil.
3. What values aid Sushil/display?
4. What are the reasons of slipped down?
5. Why is a first aid kit important for sports room?
6. Write the contribution of first aid kit in the sport and games.

UNIT - 10

Kinesiology, Biomechanics and Sports

Key Points :-

- 10.1. Projectile and factors affecting projectile trajectory.
- 10.2. Newton's law of motion and its application in sports
- 10.3. Aerodynamics principles
- 10.4. Friction and sports
- 10.5. Introduction of Axes and planes
- 10.6. Type of movements (flexion, extension, abduction and adduction)
- 10.7. Motor Muscles involved in running, jumping & throwing.

10.1. A. Projectile :

An object throw into the space either horizontally or at an actue angle under the action of gravity is called a projectile. In the field of games and sports there are many examples of projectiles such as putting the shot, throwing a hammer, discus and javelin in athletics.

Trajectory or Parabola : The path followed by a projectile is called trajectory or parabola.

Factors affecting projectile trajecotry

- Direction – Horizontal & veritcal
- Angle of release
- Height of release
- Speed/velocity of release

-
- Gravity
 - Spin

10.2 Newton's laws of motion & their application in sports

Newton's law of motion are excellent approximation at the scale & speeds of every day life. Even in sports. The law of motion play a vital role in every aspects. Newton's laws of motion are:

- I. Newton's first law of motion – Law of Inertia
- II. Newton's second law of motion – Law of acceleration
- III. Newton's Third law of motion – Law of reaction.

10.3 Aerodynamics Principles

The word "Aerodynamics is originated from the Greek word "Aerios" means related to 'air' and "dynamics" means study of motion or movement". So Aerodynamics means "the study of motion of air".

OR

Aerodynamics is the study of properties of moving air of the interaction between the air & solid bodies moving through it bodies

The Aerodynamics is principles are based on four major aspects:

1. Weight
2. Lift
3. Thrust
4. Drag

10.4 Friction and sports

The force of friction is the force that develops at the surfaces of contacts of two bodies & opposes their relative motion.

Type of friction

1. Static friction
2. Kinetic friction
 - (a) Sliding friction
 - (b) Rolling friction

10.5 The Introduction of Axis and planes :

- (A) Axis, is a defined “as an imaginary point or line around which the movement takes place.”

Types of Axis;

- (a) Frontal Axis;
- (b) Sagittal Axis;
- (c) Vertical Axis;

- (B) Planes is a “an imaginary two-dimensional surface through which the body segment or units moves.”

Types of planes,

- (a) Sagittal or medial plane
- (b) Frontal or coronal plane
- (c) Transverse or Horizontal plane;

10.6 Type of movements (flexion, extension, Abduction, Addition)

Movement is “the act or process of moving especially change of place or position or posture.”

Type of movement

- | | |
|--------------|--------------|
| 1. Flexion | 2. Extension |
| 3. Abduction | 4. Adduction |

10.7 Major muscles involved in running, jumping and Throwing

- (A) **Running:** Soleus, Hamstring, Quadriceps, Gluteus maximus, Calf, Biceps, upper and lower abdominal.
- (B) **Jumping:** Hamstring, Gluteus, maximum upper and lower abdominal, triceps, calf muscles.
- (C) **Throwing :** Deltoid, pectoralis major, gastrocnemius, latissimus dorsi, Biceps, Triceps, Extensors

Very Short Answer Type Questions (1 Mark Each)

Q.1. Define trajectory?

Ans. The flight path followed by a projectile is called its trajectory.

Q.2. What do you mean by sport biomechanics?

Ans. Sport biomechanics is the study of forces and stresses of human movements & their effects, athletic performance and safety.

Q.3. What is Kinesiology.

Ans. Kinesiology is science dealing with interrelation ship of physiology processes & Anatomy of human body with respect to movement.,

Q.4. What do you mean by axis?

Ans. Axis is an imaginary point or line around which the movement take places.

Q.5. Explain Gravity?

Ans. Gravity is the force of attraction exerted by the earth towards it's centre on a body or an object.

Q.6. What is Air-resistance?

Ans. When a projectile moves through the air, it is slow down by air-resistance.

Or

Air-Resistance is a force which applied by air to object slowdown or fast in the air.

Q.7. Define velocity?

Ans. The distance covered by an object per unit time is called velocity.

$$\text{Velocity} = \frac{\text{Distance}}{\text{Time}} \text{ Km/h or m/s}$$

Q.8. What is planes in sports?

Ans. Planes is an imaginary, flat surface passing through the body organ.

OR

Plane is a surface on which the movement occurs or take places.

Q.9. What is the law of inertia?

Ans. It is the first law of motion. According to this law. "A body at rest will remain at rest and a body in motion will remain in motion at the same speed and in the same direction unless & untill acted an external faces on the body."

Q.10. What do you mean by aerodynamics?

Ans. "Aerodynamics is the study of properties of moving air & the interaction between the air and solid bodies moving through it."

Q.11. What is weight?

Ans. Weight is the force generated by the gravitational attraction force of the earth?

Q.12. What is lift?

Ans. Lift is the force that pushes the objects to move upward.

Q.13. What do you mean by movement?

Ans. Movement is the act or process of moving especially change of place or position or posture.

Q.14. What is angular movement?

Ans. Angular movement occurs only between the long bones. Angular movement, "the angle between the two bones is increased/decreased the movement of body.

Q.15. Define circumduction?

Ans. Movement which takes place between the head of a bone and its articular cavity.

Q.16. What is friction?

Ans. Friction is an invisible force (external force) that opposes the motion of the objects.

Q.17. Write the type of friction?

Ans. Friction is two types.

1. Static friction
2. Dynamics/Kinetic friction
 - (a) Rolling friction
 - (b) sliding friction

Q.18. Enlist the muscles involved in running?

Ans. (a) Glutes, (b) Quads, (c) Calves, (d) Hamstrings, (e) core muscles, (f) Biceps.

Short Answer type Questions (3 marks each)

Q.1. Define bio-mechanics? Write its importance in sports.

Ans. Biomechanics is the study of structure & function of biological system of human in relation to movement".

Or

Bio-mechanics means," Study of living being's muscles/ physical activities and the activities of active muscles.

Importance of biomechanics in sports.

- Improve performance in sports
- Improvements in technique.

-
- Development of sports equipments.
 - Improve in training technique
 - Helps in understanding human body.
 - Knowledge of safety principles.
 - Helps in research work.
 - Creates confidence in player.
 - Helps in maintaining healthy body.
 - Increase the popularity of sports.

Q.2. State the Newton's law of motion with suitable examples of its application in sports.

Ans. **Newton's Law of Motion and Their Application in Sports**

First Law of Motion (Law of Inertia)

According to first law of motion "an object rest will remain at rest or an object in motion will remain at motion at constant velocity unless acted by an external force."

Example : A moving football slows down and then stops often. Sometime. It comes to rest due to the friction between the ground and the ball.

Second Law of Motion (The Law of Acceleration)

According to Newton's second law of motion, "the rate of change of momentum of a body is directly proportional to the impressed force and takes place in the direction of force.

$$F = m.a$$

Example : A cricket players while catching a ball moves his hands backwards. Initially the ball is moving with a certain velocity. The players has to apply a retarding force to bring the ball to rest in his hands.

Third law of Motion (Law of Action And Reaction)

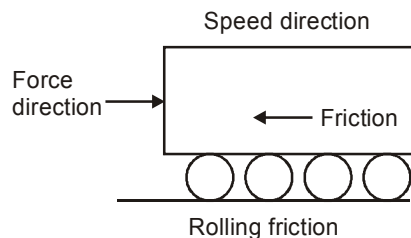
According to the Newton's third law of motion, "to every action there is always an equal and oppsite reaction."

Example : The swimmer pushes the water in the backward direction with a certain force. Water pushes the man forwards with an equal and opposite force.

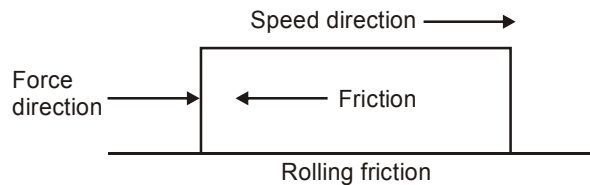
Q.3. What is Friction? Discuss various types of Friction.

Ans. Friction is the force that combats relative motion between the two surfaces that comes in contact. Friction always acts in the opposite direction of the applied force. Type of frictions : **Static friction** : The opposite force that comes into play when one body is actually moving over the surface of another body. Dynamic friction are two types.

Rolling friction : The oppsing force that comes into play when body is actually rolling over the surface of another body. For example, hockey/cricket ball is hit



Sliding friction : The opposing force that comes into play when one body is actually sliding over the surface of the other body. For example- Ice sketting.



Q.4. What is kinesiology. Write its importance in the field of sports.

Ans. Kineoiology is the branch of physiology that studies mechanics and Anatomy in relation to human movement”.

Importance of kinesiology in sports.

1. To enchanche performance of athlete.
2. To help to select the athlete’s events.
3. Help to select the athlete’s activities & equipment
4. To help to develop sound psychology toward the exercises
5. To help physiotherepist for testing a person’s range of movement.
6. To help of design rules & regulation & facilities
7. To evaluate the performance.

Q.5. Differentiation between advantage & disadvantage of friction in the field of sports.

Ans. Friction is usually called necessary evil. It means it is essential in the life and we can not do any work without it.

Advantages of friction

- a. Keeps the object at position By friction, the objects can be placed at position and shaped.
- b. Helps to move: Frictional forces helps to move the object by friction. It helps in running, walking. With friction of feet/ shoes on the surface, helps to speed. Frictional force helps to move the object in the speed. For example : Spikes are used by the athletes to run fast.
- c. Hold or grip an object: with the help of friction the ridges of skin of our fingers and our palm enable us to grab and hold objects. For example- In badminton the players use grip to hold it.
- d. Produce heat : The law of conservation of energy states that the amount of energy remain constant. Thus, the energy that is

Disadvantage of friction

- a. Wear and tear of object: Due to friction, there is wear and tear of objects. Lubrication is used to allow the parts to move easier, moreover, prevents wear and tear.
- b. Wastage of Energy: Excess of friction means extra energy, thus energy is being wasted.
- c. Slow down the Speed: In the roller Skating, Rolling Shoes and smooth surface are used to minimize friction.
- d. Makes movement difficult:- Friction can make the job more difficult when one has to move the object. Excess friction can make it difficult

lost due to friction in trying to slide a box across the floor, walk through deep snow.
to move and object is really turned into heat energy.

Q.6. Discuss the principles of aerodynamics in brief.

Ans. Aerodynamics is related to the flow of air around a projectile which can influence the speed & direction of the object. But in case of water, water around an object influence the speed & direction of the object is called hydrodynamics.

The Aerodynamics principles are based on:

1. Weight: The force of gravity pulling the objective.
2. Lift the Air pressure imposed on the object.
3. Thrust: It is the forward movements needed by the object to travel.
4. Drag: It is the part or surface of the object providing resistance and slowing it down.

Q.7. Differentiate between flexion and extension?

Ans. Flexion Movement

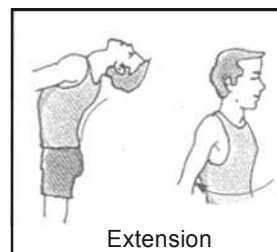
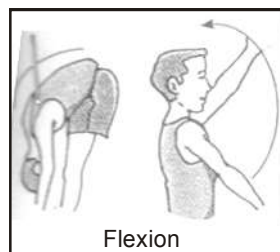
Extension Movement

1. Flexion is an angular movement in which joints angle of the body's parts decrease & parts of body come closer together.

Extension is an angular movement in which joint's angle of the body's parts increase & parts of body move farther (apart)

Ex. bending of lower limb

Ex. straightening the lower limb at the knee.



Q.8. Differentiate between Abduction and Adduction.

Ans. **Abduction movement**

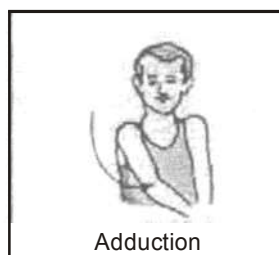
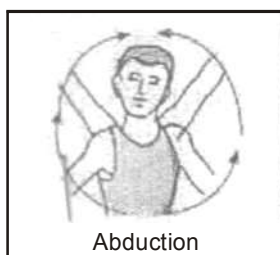
Adduction movement

Abduction is an angular movement in which parts of body move away from the midline.

Adduction movement is an angular movement in which parts of body move toward the mid line.

Ex. Lifting the upper limb horizontal to form a right angle with the side of the body.

Ex. Returning the upper limb from the horizontal position to the side of the body.



Practice Question

Q.1. Is friction advantageous or disadvantageous in the field of sports & sports. Give your connect with examples.

Ans. Is friction advantageous or disadvantage in the field of games and sports? Friction is usually called a necessary evil. It means that it is essential in games and sports. Without friction, we cannot give a better performance in the field of sports. For example, athletes (racers and jumpers) use spikes and football players use studs to have appropriate friction while they run fast. Without friction they are unable to run fast. Even gymnasts also use lime on their palms to perform on horizontal bar, uneven bars and Roman rings to have friction. Even walking may be difficult due to less friction. The weightlifters also use lime on palms before holding the bar in jerk and snatch. In badminton, the players are usually seen to rub their soles of shoes with lime before going to the wooden court. In fact, in sports field, there are a lot of examples where friction is advantageous.

On the other hand, friction is disadvantageous in some of the sports and games, such as in cycling, there should not be more friction between road and the tyres of cycle. If there is more friction there will be more wastage of energy of the rider. The tyres must be fully inflated to reduce the force of friction in cycling. In roller skating, there should be less friction for better performance.

Consequently, it can be said it is advantageous in some of the sport but in other sports more force of friction is diadvantageous. Up to some extent, some force of friction is required in various sports. The requirement may differe or varyfrom sports to sports.

Long Answer Type Questions (5 Marks Each)

Q.1. Write the application of Newton's Laws motion in sports with suitable examples?

Ans. **Application of Newton's Laws of motion in Sports**

Using mechanical principles athletes can build excellent technique. Newton's Laws of Motion are the foundation for these mechanical principles, which when applied along with other sports training principles renders higher levels of sport performance.

The three laws of newton find application in the following forms in sports :

Principles from the Law of Inertia

1. Effective combination of linear and angular motions are helpful in achieving dexterous movements. For example, a discus thrower's body must move in a straight path from the back to the front of the ring while rotating with increasing velocity.
2. When two or more motions are required, athletes must execute movements continuously in sequence. For example, if a javelin thrower hesitates or stops at the end of the approach just prior to the throw, the advantage of the approach is lost.

Principles from the Law of Acceleration

3. Acceleration is proportional to force applied. For example, a sprinter increases acceleration by increasing the force that he applies against the track.
4. Maximum acceleration can be achieved by coordinating all body forces in the intended direction. For example, a

swimmer coordinates the body actions to generate maximum force while minimizing unnecessary movements that cause excessive lateral deviations.

Principles from the Law of Counterforce

5. Counterforce can be maximized with stable surfaces. If a surface is stable, it offers the same amount of force back as is generated against it. For example, sand does not offer a stable surface for running as compared to a concrete surface.
6. Maximum jumping height can be achieved by pushing directly downward upon take off. The direction of counterforce is directly opposite to that of the applied force and the applied force is most effective when it is perpendicular to the supporting surface.
7. Staying in contact with the ground helps. In activities involving throwing, pushing, pulling or striking, one or both feet should be kept in firm contact with the ground until the force application is complete.

Q.2. What is projectile? Explain the factors affecting project trajectory?

Ans. **Projectile:** It is a body in free fall that is subject only to the forces of gravity and air resistance.

Any object when thrown or projected into space or air with a force is called a projectile. The primary force acting on a projectile is force of gravity but the force of air resistance also affects the motion or path of projectile.

Projectile motion : It is a form of motion in which an object or projectile is thrown obliquely near the earth's surface, and it moves along a curved path under the action of gravity only.

Trajectory: The path followed by a projectile motion is called its trajectory or parabola. Projectile motion only occurs when there is one force applied at the beginning of the trajectory, after which there is no force in operation apart from gravity.

Some examples of projectiles include :

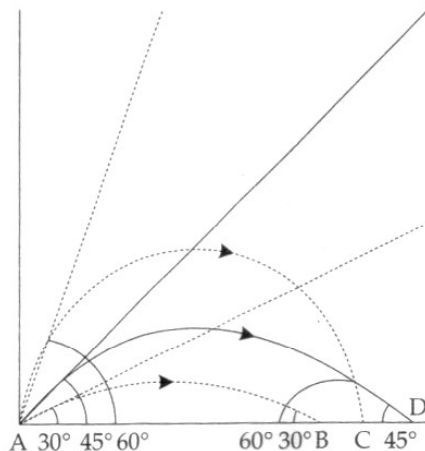
1. A baseball that has been pitched, batted, or thrown.
2. A bullet the instant it exits the barrel of a gun or rifle.

-
3. A hammer, javelin or discus once it is released by the athlete.
 4. A long jumper while performing the jump.

Factors Affecting Projectile Trajectory

The projectile trajectory or object (hammer, javelin, shot, ball, long jumper, diver or an athlete) flight is affected by the following factors :

1. **Angle of projection :** It is the initial angle of trajectory relative to the horizontal. The shape of the projectile motion (trajectory) also depends on the angle of projection because the relative magnitudes of the vertical and horizontal components vary with the angle of the projectile velocity. If angle is perfectly vertical, trajectory also vertical, If angle oblique, trajectory is parabolic, If angle horizontal, trajectory is half parabola. If an object is projected at the angle of 90° it does not cover any linear distance and falls back on the same spot from where it was projected. To maximize range, optimum angle of landing is always 45° .

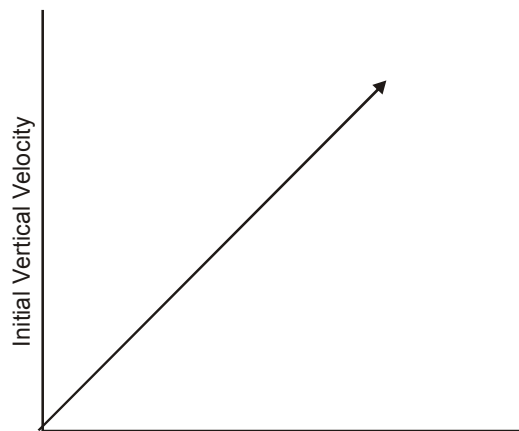


The parabolic path of an object at different angles

2. **Relative height of projection :** This is the release height compared to the final landing height of the projectile. When projection speed is constant, greater relative projection height provides longer flight time

which increases horizontal displacement. Taller shot putters can throw farther than shorter ones even if throw with same speed.

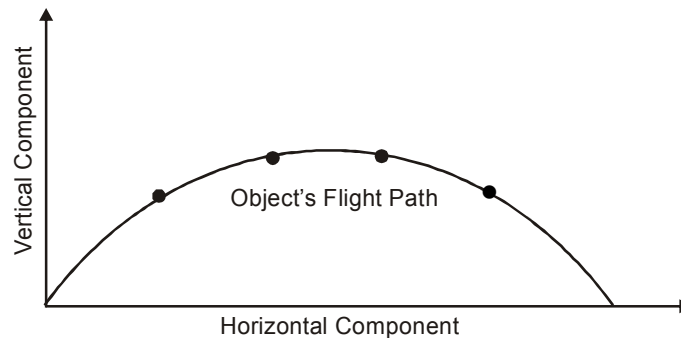
3. **Initial velocity** : It is the speed of projection the velocity of the object when it was first released. When projection angle and other factors are constant, projection speed determines the length of trajectory (range), for vertical projectile, speed determines apex, for oblique projectile, speed determines height of apex and horizontal range.



Initial Horizontal Velocity Initial Velocity of a Projectile

4. **Air resistance and wind** : Particles of the air are to be deflected so that the projectile can move forward, so the projectile applies a force to the fluid (air) particles that moves them along the outside of the system. This applied force tends to resist the motion of the projectile. Hence, the air resistance (or air drag) will tend to affect the velocity of a projectile. It tends to slow down the horizontal component of velocity so that the path of a projectile (if the initial horizontal component $\neq 0$) will tend to have a steeper angle at the end than when the projectile is launched.
5. **Gravity** : Newton's law of universal gravitation states that everybody in the universe attracts every other body with a force directed along the line of centers for the two objects that is directly proportional to the square of the separation between the two objects.

The force of gravity acts on the body, accelerates it towards center of earth and limits its vertical component. This decreases the upward motion of the projectile by pulling it down towards the earth. If the weight of trajectory is more; gravity affects it more.



Action of gravity

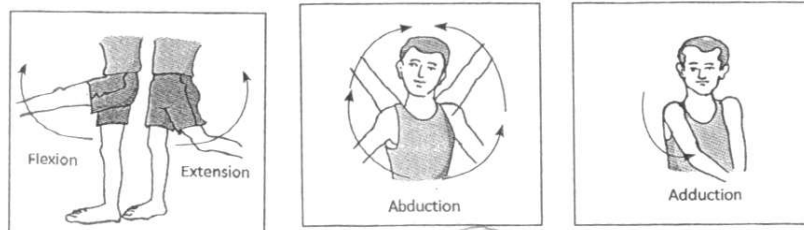
6. **Spin** : The amount and direction of spin acting on a projectile will directly affect the distance a projectile will travel. The reason for this is the air pressure acting on the ball. A topspin shot creates a region of high pressure on top of the ball, and a region of low pressure below. Air moves from a region of high to low pressure and as a consequence the ball will dip suddenly, decreasing the vertical component of the trajectory and in turn, the distance travelled. In a backspin shot, a region of high pressure is created under the ball, and low pressure above the ball. Air moves from high to low pressure. The air pressure acting on the ball will cause it to stay up longer, increasing the vertical component of the trajectory, therefore increasing the distance travelled. An object propelled without spin tends to waver due to air resistance against an irregular surface, but a small amount of spin produces stability. For example, a volleyball served with a slight spin follows a true course of flight.

Q.3. Discuss the various types of movement in detail?

Ans. Movement is the act of or process of moving especially change of place or position or posture. There are various types of

movements in joints which may be divided into four major kinds, *i.e.*, gliding and angular movements, circumduction and rotation and a few other movements.

1. **Gliding Movement:** Gliding movement is the simplest kind of motion that can take place in a joint, one surface gliding or moving over another without any angular or rotatory movement. Though it is very common to all movable joints, but in most of the articulations of the carpus and tarsus, it is the only motion permitted.
2. **Angular Movement:** Angular movement occurs only between the long bones. By angular movement, the angle between the two bones is increased or decreased. It may take place forward, backward, flexion, extension, adduction and abduction. Adduction and abduction combined with flexion and extension are met within the more movable joints as in the hip and the shoulder. The various movements which fall under angular movement are described below:
 - (a) **Flexion.** Bending parts at a joint so that the angle between them decreases and parts come closer together (bending the lower limb at the knee).
 - (b) **Extension.** Straightening parts at a joint so that the angle between them increases and the parts move farther apart (straightening the lower limb at the knee).
 - (c) **Abduction.** Moving a part away from the midline (lifting the upper limb horizontally to form a right angle with the side of the body).
 - (d) **Adduction.** Moving a part toward the midline (returning the upper limb from the horizontal position to the side of the body).



Q.4. Discuss the major muscles involved in running?

Ans. **Major Muscles Involved in Running**

There are following major muscles involved in running

1. **Glutes.** These muscles stabilise your hips and legs. These muscles give extra strength. These muscles work with the hamstring muscles and help hip flexors when your leg retracts behind you preparing to propel forward.
2. **Quads.** Quads propel you forward and help straighten out the leg in front so that it can make a good contact with the surface of the ground. These muscles are mainly used in the 'drive' phase.
3. **Calves.** These muscles give you spring in your step and at the same time these muscles act as shock absorbers.
4. **Hamstrings.** As you move forward, the action switches to your hamstrings, the muscles at the back of your thigh muscles. Infact, these muscles help you in pulling the leg back behind your and give you the strength to propel your body forward. They have to lengthen quite a bit when you run.
5. **Core Muscles.** Strong abs and back are really important because they keep your posture upright and overall form good. These muscles play a very significant role in running.
6. **Biceps.** Biceps also play a vital role in running. In fact, biceps maintain a bent arm and help in swinging your arms back and forth while running.

Q.5. Explain the major muscles involved in jumping & throwing.

Ans. **Major Muscles Involved in Jumping**

Most probably, the leg, feet and gluteus muscle groups are used in jumping. Specific muscles which are involved in jumping are gluteus maximus, hamstrings, quadriceps and soleus. In fact, jumping occurs in three stages. (I) The first stage is the preparatory stage where ankle muscles calf muscles and soleus tense to prepare launching. (II) The second phase is the launch phase, where hip extensors, the hamstrings

and gluteus maximus combine and the knee extensors extend the knees to allow the body to launch into the air. (III) In the last stage is the landing phase where all the muscles embrace impact and allow the body to return to a resting position. Core muscles also play a very vital role in jumping. However, the muscles of the arms also help in jumping farther.

Major Muscles Involved in Throwing

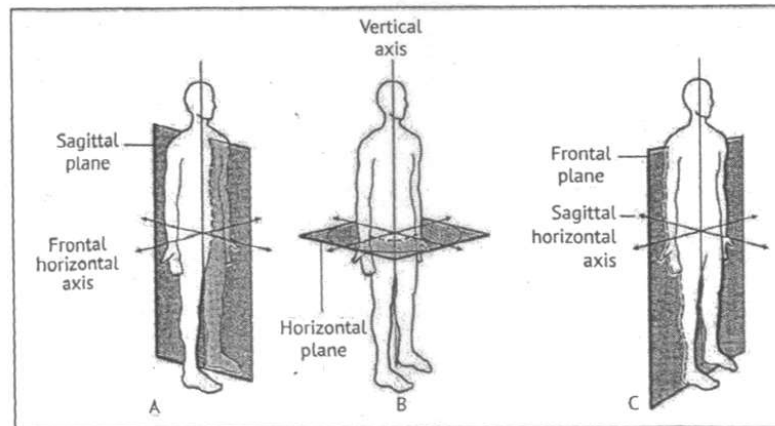
In throwing, the major muscles such as pectoralis, major, latissimus dorsi, anterior deltoid and teres major are involved. These muscles are completely responsible for velocity during the throw. The pectoralis major is the large muscle in the chest and latissimus dorsi are the large muscles on each side of your back. Deltoid, biceps and triceps are also involved in throwing shot and javelin in athletics.

Q.6. What do you mean by Axis & Plane? Discuss the type of axis of rotation & planes?

Ans. **Introduction to Axes & Planes**

Human movements are described in three dimensions based on a series of planes and axis. An axis is a straight line around which an object rotates. Movement at the joint takes place on a plane about an axis. There are three axes of rotation:

1. **The Sagittal Axis:** The Sagittal axis passes horizontally from posterior to anterior and it is formed by the intersection of the sagittal and transverse planes.
2. **The Frontal Axis:** The Frontal axis passes horizontally from left to right and it is formed by the intersection of the frontal and transverse planes.
3. **The Vertical Axis:** The Vertical axis passes vertically from inferior to superior and is formed by the intersection of the sagittal and frontal planes.



There are three planes of motion that pass through the human body.

1. **The Sagittal Plane:** The Sagittal plane lies vertically and divides the body into right and left parts.
2. **The Frontal (coronal) Plane:** The Frontal plane also lies vertically and divides the body into anterior and posterior parts.
3. **The Transverse (horizontal) Plane:** The Transverse plane lies horizontally and divides the body into superior and inferior parts.

When describing anatomical motion, these planes describe the axis along which an action is performed. So by moving through the transverse plane, movement travels from head to toe. For example, if a person jumped directly up and then down, their body would be moving through the transverse plane in the coronal and sagittal planes. There is a tendency when describing a movement for it to be referred to in the particular plane that it is dominated by. An example of this would be a notion of walking as a sagittal plane movement.

Plane	Axis	Description
Sagittal/ Antero-posterior	Coronal or Frontal,	Bisects the body from to back, dividing it into left and right halves. Flexion and Extension movements usually occur in this plane.

Coronal/front/ Lateral	Sagittal or Antero- posterior	Bisects the body laterally from side to side, dividing it into front and back halves. Abduction and Adduction movements occur in this plane.
Transverse/ Horizontal	Vertical	Divides the body horizontally into Superior and Inferior halves. Rotational movements usually occur in this plane.

Practice Questions

Very Short Answer Type Questions (1 Mark Each)

1. What is sliding friction?
2. Write the Newton's law of reaction?
3. What do you mean by projectile trajectory?
4. Which law of motion helps athlete to take a quick start of a 100 mtr. race?
5. Which law of motion helps a swimmer to move quickly in water?
6. What is the methodical & physical analysis of body joints known as?

Short Answer Type Questions (3 Marks Each)

1. How does the gravity influence the motion of a projectile?
2. How does projection velocity determine the length of a trajectory?
3. Write any three advantages of friction in the field of sports & games?
4. Write down the importance of friction in the following questions :
Kanika was a good athlete. She used to take part in most of the running as well as throwing events. However, her performance was not appropriate in throwing events. One

day she went to discuss this problem to state athletic coach because she wanted to improve her performance. The coach watched her throwing technique. She told her that there are various faults but major fault was improper angle of projection of implement. She suggested her to release the throwing implements such as shot and hammer etc. at the appropriate angle. In this way she helped her in enhancing her performance.

Based on the above passage, answer the following question :

1. Comment upon the values of kanika in brief.
 2. What were the various faults of kanika regarding about the values shown by the state athletic coach.
- Q.6. Discuss the four basic forces of aerodynamics in brief?
- Q.7. Discuss the effects of aerodynamics on a ball.
- Q.8 Explain axis with sports example.

Long question answer type question (5 Mark)

- Q.1. How are the laws of motions applied in sports?
- Q2. What is kinesiology? Write its importance and scope in the field of sports.
- Q.3. Friction is a necessary evil. Without it. sports and games are not possible comment on above mentioned statement?

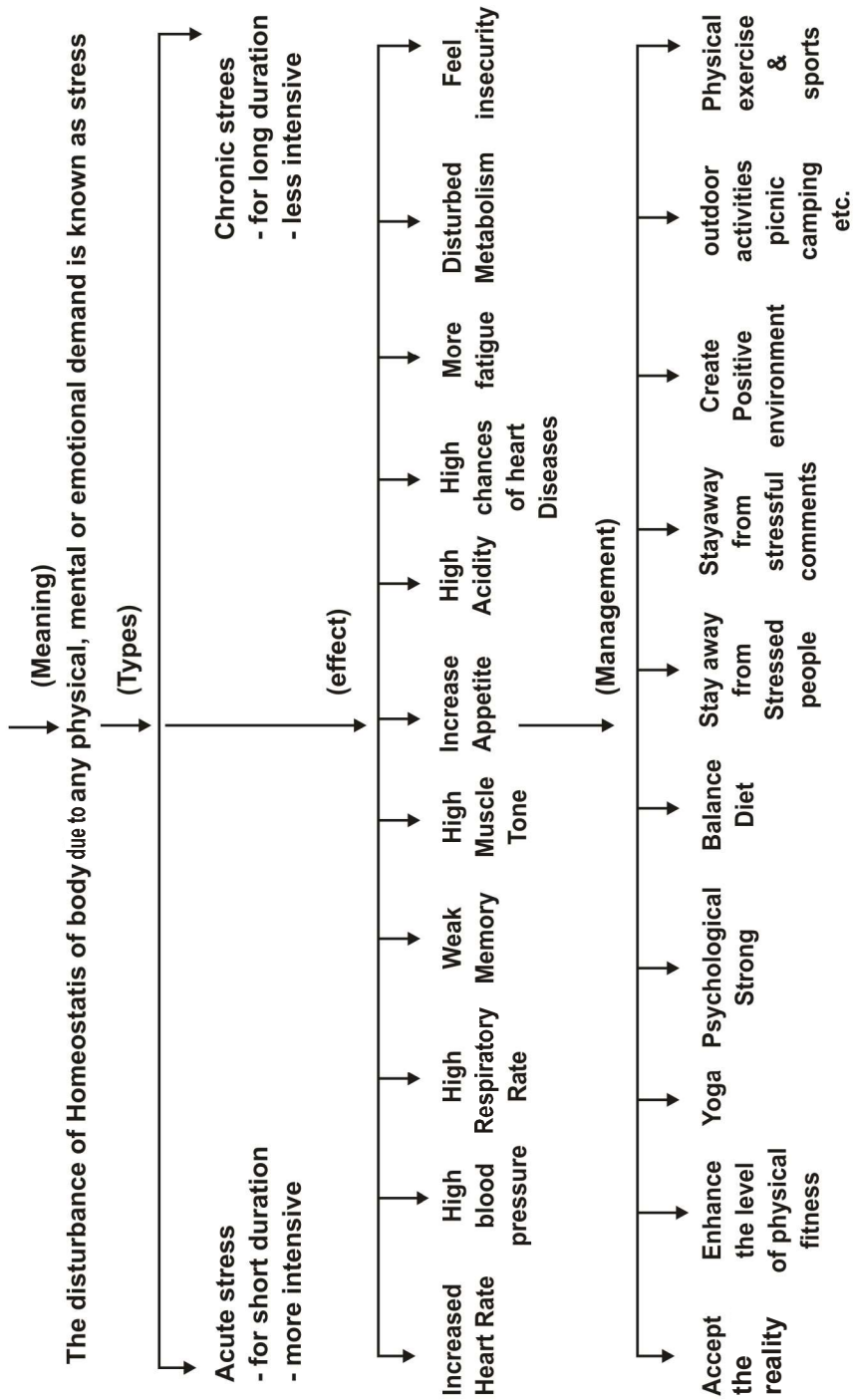
UNIT - 11

Psychology and Sports

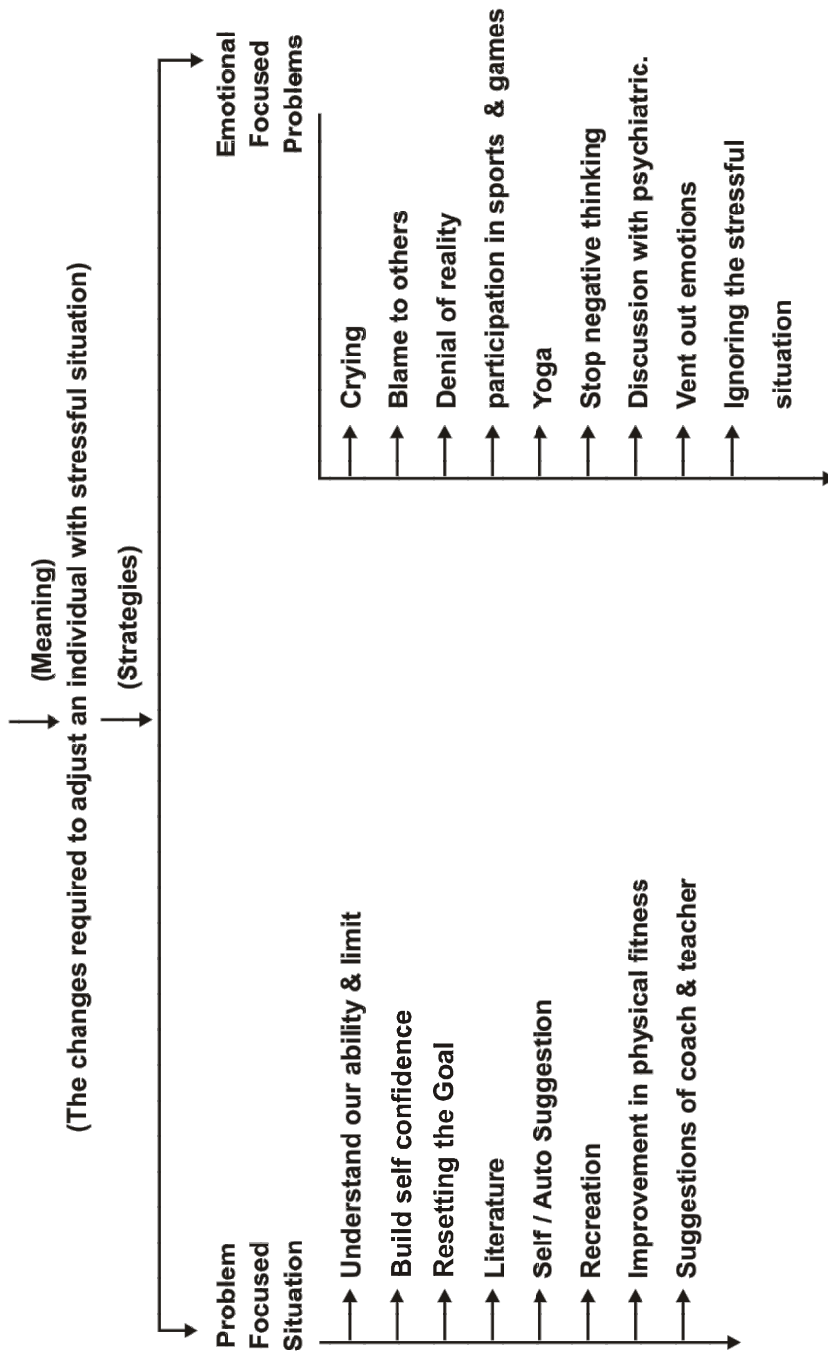
Key Points :-

- 11.1 Under standing stress and coping strategies (Problem focussed and emotional focussed)
- 11.2 Personality; its definition and type-trait and type (Sheldon and jung classification) and big five theory.
- 11.3 Motivation, its type and techniques
- 11.4 Self esteem and body image
- 11.5 Psychological benefits of exercise
- 11.6 Meaning, concept and types of Aggressions in sprots.

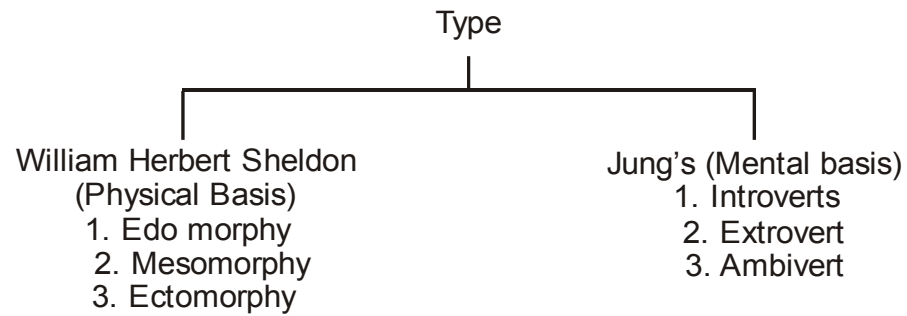
11.1 (A) Stress



11.1 (B) Coping strategies



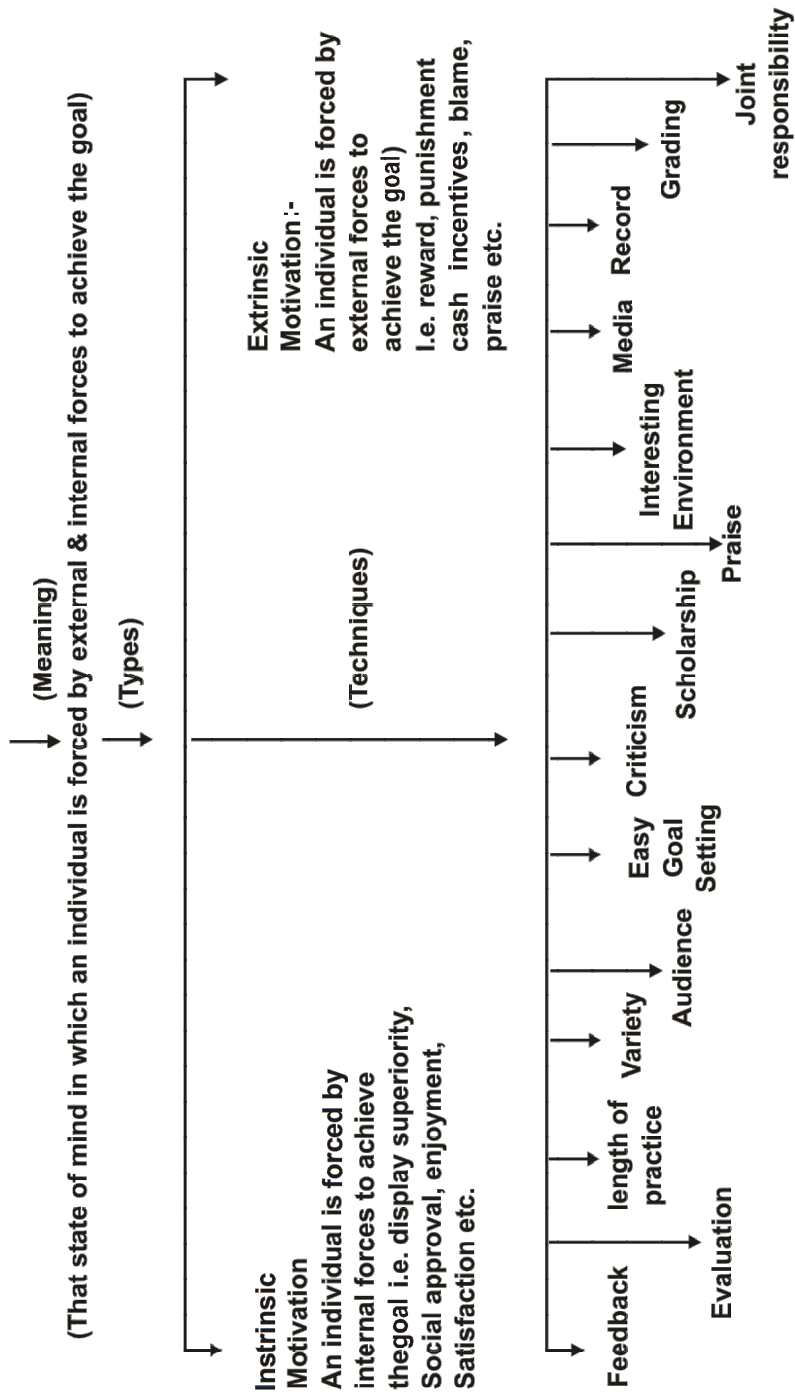
11.2(A) Personality: Includes the physical, mental, social and emotional qualities, interest and behaviour of an individual".
"Personality is that quality which permits a prediction of what a person will do in given situation."



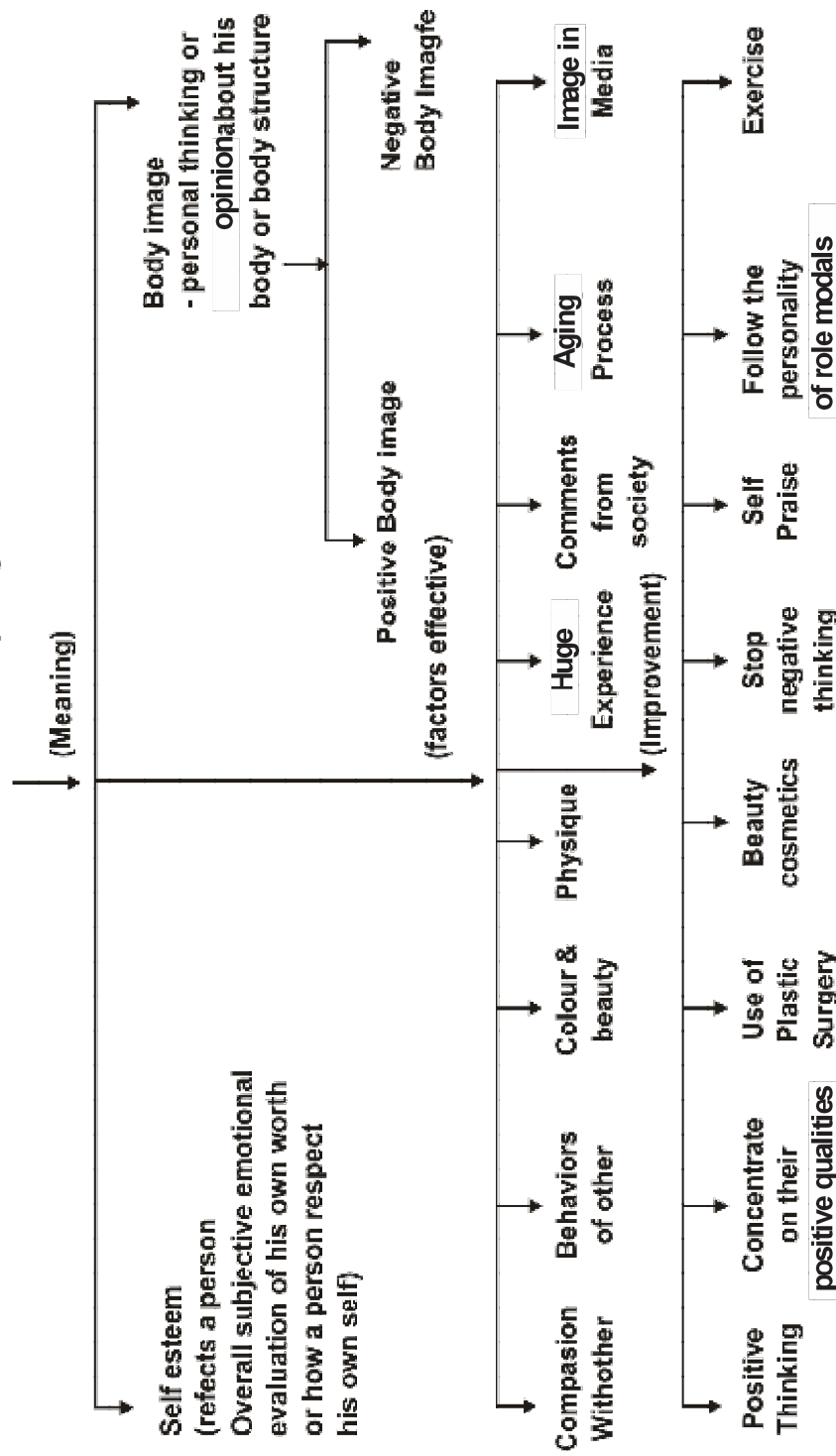
11.2(B) Big five personality theory

- | | |
|----------------------|------------------|
| 1. Openness | 2. Agreeableness |
| 3. Conscientiousness | 4. Neuroticism |
| 5. Extroversion | |

11.3 Motivation

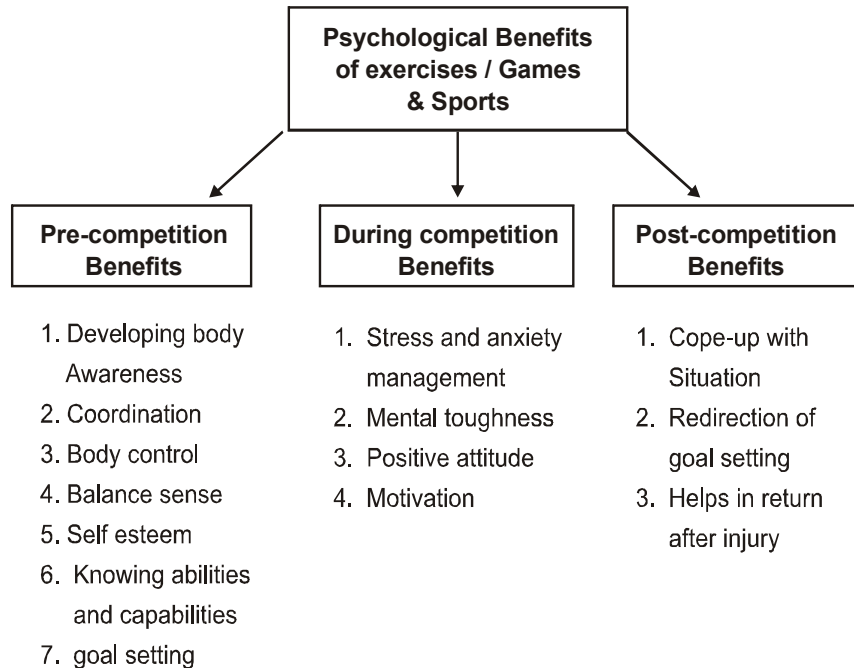


11.6 Self Esteem & body Image



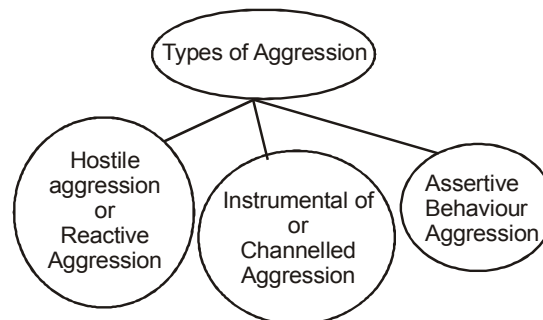
11.5 Psychology “deals with the activities of the individual the relation to his environment”.

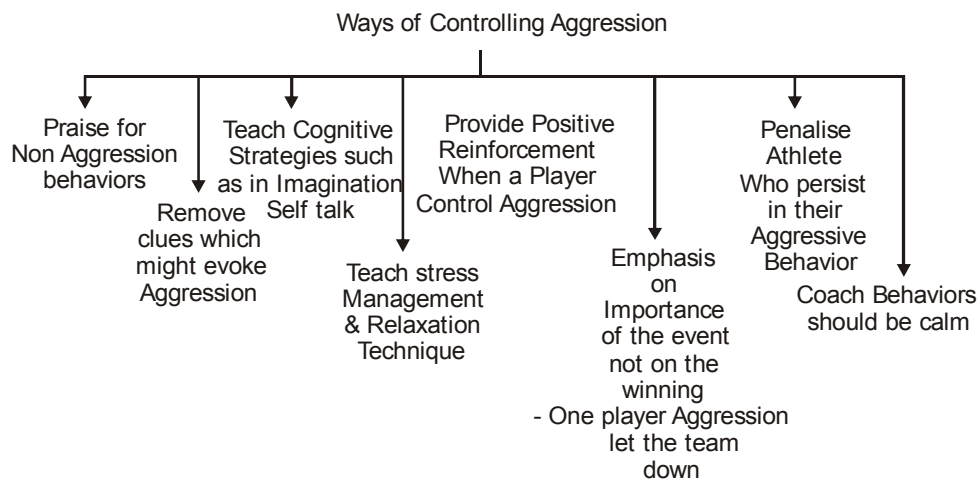
“Psychology is the study of the human behavior & human relationship.”



1.6 Aggression

It is a physical or verbal behavior which is directed towards the goal of harming other living being either physically or psychologically.





Very Short Question Answer (1 marks)

Q.1. What do you understand by stress?

Ans. It is the state in which homeostatis of our body get disturbed due to any physical, mental and emotional demand.

Q.2. Write the types of stress.

Ans.(A)Acute Stress :- That type of stress generate for very short period but the intensity of the stress is very high. It causes less harm.

(B)Chronic Stress :- That type of stress generate for long time period but the intensity of stress is low. It is more harmful.

Q.3. State the coping strategies?

Ans. Coping strategies means behavioural changes & pychological changes, those are required to adjust an individual in the stressful condition.

Q.4. What do you understand by personality?

Ans. The word personality is taken by the latin word “persona” which means “the mask”. So personality is mask that is worn by an individual to deal with the society or the environment. Personality covers all the physical, mental social, emotional, Interest & behavioural qualities of an individual.

Q.5. Define the personality?

Ans. "It is the integration of an individual's most characteristics structure, mode of behaviour, interest, attitudes, capacities, aptitudes, and abilities.

"Personality is the sum total of all biological innate disposition, impulses, tendencies, aptitudes and instincts of the individual, disposition and tendencies acquired by experience".

Q.6. Explain word motivation?

Ans. The word motivation is derived from the latin word "movere" which means to move so in the condition of motivation an individual is moved by internal & external forces towards the goal.

Q.7. What is self esteem?

Ans. Self esteem means how an individual respect him self after the evaluation of their various qualities and capabilities.

Or

"Self esteem is a person's overall sense of self worth or personal value".

Q.8. Explain body image?

Ans. An individual perception about ones' body structure is known as body image.

Or

"Picture of body in mind, which may or may not match body's shape, size, height and weight".

Q.9. What do you understand by Aggression.

Ans. Any physical or verbal behavior that is intended to harm another either physically or psychologically intentionally or unintentionally.

Q.10. What do you understand by hostile Aggression.

Ans. Any physical behavior that is intentionally aimed to injured other living being is known as Hortile aggression.

Q.11. What do you mean by the instrumental Aggression.

Ans. Any physical behavior that was not aimed to injured other

living being rather aimed to acquire high sports performance but caused to physical harm to living being is known as instrumental Aggression

Q.12. What do you understand Assertive Aggression.

Ans. It is the verbal behavior which used legitimate forces to harm the living being psychological. It should be within the criteria rules.

Short Question Answer

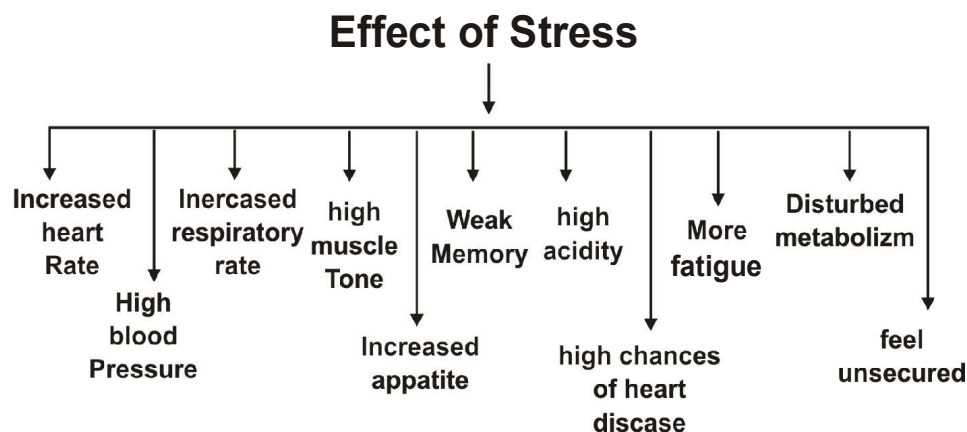
Q.1. Explain the types of Aggression.

Ans. There are three types of Aggression.

- (a) Hostile Aggression: Any physical behaviour which is aimed to physically injure the living being intentionally is known as Hostile Aggression.
- (b) Instrumental Aggression: Any physical behavior which is aimed to achieve high performance but unintentionally physically harm to the living being is known as instrumental Aggression.
- (c) Assertive Aggression: Any verbal behaviour under the Rules & Regulation of the sport which is used to harm psychologically the living being. In this only legitimate forces are used.

Q.2. Explain the effects of stress on an individual?

Ans. Stress is a condition which can disturb the normal physical & mental health of a person.



Q.3 Write about problem focuese copied strategies?

- Ans.
- (i) To understand their capabilities & accept the reality.
 - (ii) Build up the self confidence
 - (iii) Reset the goal
 - (iv) Information seeking
 - (v) Self analyses the stressful situation
 - (vi) Recreation
 - (vii) Development of physical fitness
 - (viii) Seeking social support - Teachers, coaches, trainers or experts
 - (ix) Evaluation of situation.

Q.4 Briefly state about emotion focused coping strategies?

- Ans.
- (i) Crying
 - (ii) Sharing the problem with other
 - (iii) Blame to other
 - (iv) Denial of reality
 - (v) Spend more time in sports & games
 - (vi) Recreation
 - (vii) Stop negative thinking
 - (viii) Take advise from the psychiatric
 - (ix) Vent out of emotions
 - (x) Ingore the stressful situation
 - (xi) Yoga.

Q.5 Classify personality?

Ans. *Physical Basis (Sheldon)*

- (i) Endomorphic :- Fatty, round, cheerful, short height
- (ii) Mesoporhic :- Strong build up, tall, body, cheerful
- (iii) Ectomorphic :- Thin, long, depressed.

Mental Basis (Jung's)

- (i) Extrovert :- High self confidence, social, friendly, make more friend, confident, responsive, lively, leader.
- (ii) Introvert :- Poor self confidence, talkative, busy in own, mody, unsocial, pessimist, quiet rigid.

-
- (iii) Ambivert :- Moderate confidence level, makes Few friend.
It has the mix qualities of extrovert and introvert.

Q.6 Explain the types of motivation?

Ans. Motivation are two types

- (i) Intrinsic Motivation :- In motivation an individual is forced by his internal forces to achieve the goal. In intrinsic motivational state “an individual is motivated by their own desire not by any external factor” i.e. for enjoyment, for satisfaction, to show mastery over skills, to display superiority or to get social approval, fame etc.
- (ii) Extrinsic Motivation :- Motivation an individual is forced by the external forces to achieve the goal such as prize, praise, scholarship, grade, job, money etc.
In the extrinsic motivational state “an individual is motivated by some external factors.

Q.7 Write the types of Body Image?

Ans. Body images are of two types :

- (i) Positive Body Image :- An individual has a realistic perception of their body. He accept & enjoy all his physical traits of his body such as shape, colour, tone of muscle etc.
- (ii) Negative Body Image :- An individual is not satisfied from his body image. He does not accept & enjoy the trait of his body such as height, shape, colour, performance etc.

Long Answer Types Questions (5 Marks)

Q.1 How can you manage stress?

or

Discuss the techniques of stress management.

Or How can you reduce the stress?

Ans. Stress consists of bodily changes produce by physiological, phychological condition that lend to upset the homeostasis balance. Some below mentions Techniques have positive effect on reducing stress.

-
- (i) **Accept our capabilities and limits :-** An individual has to accept his own capabilities & his limit. Look for the upside in a situation when the most stressful circumstances can be an opportunity for learning or more personal growth. When he accept the reality. He know very well up to which level he can perform things demand beyond his performance level will not give him stress.
 - (ii) **Physical Fitness :-** Effect of stress can be minimised by increase the level of physical fitness of an individual. The goal of stress management is to use stress advantageously. Too little or too severe stress lowers the performance.
 - (iii) **Yoga :-** By the yogic exercise, the level of the stress can be minimised such as *pranayams, dhyan, savasana* etc.
 - (iv) **Psychological Strong :-** The level of stress and its bad effects can be minimised in an individual by make him psychological strong and taking advice or guidance from counselor if required.
 - (v) **Balance Diet :-** Balance diet help an individual to avoid the stress condition and to minimse the effect of stress. We have to take plenty of water, minerals & vitamins to avoid the stressful condition or to minimize effects.
 - (vi) **Avoid the company with stressful people :-** To avoid stress it is necessary to avoid the company with people who are already living with stress.
 - (vii) **Environment :-** If we make the enviornment according to our interest then only we will able to enjoy the enviornment which can be made interesting by adding the various things such as music, audience etc. and can minimize the effect of streess.
 - (viii) **Exercise :-** Exercise play vital role to reduce stress in our body by producing harmones which helpful for us to keep our self away from the stress.
 - (ix) **Avoid Stressful Thoughts :-** Stressful thoughts should be avoided to reduce the level of stress.
 - (x) **Relaxation Techniques :-** Deep breathing, pranayam, etc. can be used to relax our body to minimize the stress.

-
- (xi) **Self / Auto Suggestions :-** Self suggestion or self counselling minimize the stress, For eg: all is well, Yes I can.
 - (xii) **Busy Attitude :-** Aloneness can increase the level or stress because in the alone condition we can not share our views / thoughts about the stress or the source of stress. So to avoid the stress or to minimize the bad effects of stress, keep ourself busy by various life skills.
 - (xiii) **Load :-** Our daily life load such as training, homework, duties, etc. can increase stress. To change or modify the load / task can reduce the stress.
 - (xiv) **Education :-** Education help an individual to understand the stress, when an individual get all the knowledge about the stress then. It is easy to manage the level.

Q.2 Explain the factors effecting body images and self esteem?

Or

How body image and self esteem can be improved?

Ans. A body image includes the picture of body that have in the mind which may or may not match body's actual shape, size, height & weight. Self esteem; is the value and respect of self as a person.

- (i) Factors effecting body image and self esteem.
- (ii) Puberty and development
- (iii) In media image
- (iv) Experiences of life
- (v) Physical development and physique
- (vi) Mental abilities
- (vii) Natural agencies process
- (viii) Life style.

Methods of improvement

- (i) To think positive
- (ii) Always think about our abilities not about weakness
- (iii) Plastic surgery can be used to improve beauty
- (iv) Beauty cosmetics help to improve beauty
- (v) Stop negative thinking always think positive
- (vi) Self praisie make us psychological strong
- (vii) Follow the role modal personalities of the society

-
- (viii) Daily exercise and balance diet
 - (ix) Change the life style.

Q.3 Explain the psychological benefits of the exercise.

Or

Elucidate the psychological effects of regular exercise on an individual?

Ans. Regular exercise are important to develop the good concept towards the life following are the psychologic benefits of exercise.

- (i) Reduce depression
- (ii) To improve the mental abilities
- (iii) To make psychological strong
- (iv) To enhance the learning abilities
- (v) Make personality attractive
- (vi) Boosts the memory and decision abilities
- (vii) Improve the growth and development process
- (viii) Enhance self esteem
- (ix) Improve the motor learning process
- (x) Improve the abilities of coping indifferent unwanted situation
- (xi) Help to control and release the emotions
- (xii) Help to control the anxiety
- (xiii) Reduces stress.

Q.4 Explain the techniques of motivation.

Ans. "Motivation is the general level of arousal to action in an individual".

Following mention techniques of motivations are applied on sportspersons, which can enable them to achieve the top position in the field of sports and games.

- (i) **Evaluation :-** Evaluation make and aware the sportsmen from his abilities and motivate him/her for higher position.
- (ii) **Variety :-** Variety in the training programme make the practice more interesting and always to motivate the sportsman to perform better to best.
- (iii) **Role of Spectators :-** The presence of audience / spectators help to sportsman to perform in dynamic form too.

-
- (iv) **Criticism** :- Criticism for the poor performance of an athlete motivate to perform better.
 - (v) **Cash Prizes, Scholarship etc.** :- Good incentive to the sports persons always motivate and strives hard to achieve better in the competitions.
 - (vi) **Latest Equipments** :- Use of latest equipments in training make the training more interesting and motivated the athlete to achieve the goal.
 - (vii) **Practice Session** :- By reducing the length of practice an athlete is motivated to be continue in their training and to achieve the goals.
 - (viii) **Resetting of Goal** :- Resetting of goal from easy to complex motivate the athlete to continue in training to achieve the goals.
 - (ix) **Awards** :- Awards for good performance of athlete motivate him to do better.
 - (x) **Praise** :- Praise given by the society for the performance of athlete always motivate athlete to do better.
 - (xi) **Positive Environment** :- Environment make more interesting by including music audience etc. and interesting environment help to perform better.
 - (xii) **Role of Mass Media** :- When the performance of an athlete is telecasted by media he is motivated to perform well, so get praise from the society.
 - (xiii) **Record** :- Record always aware an athlete to his current performance and his past performance which help to motivate him to perform better.
 - (xiv) **Jobs** :- On the basis of achievement and educational qualifications, outstanding sports persons should be offer good jobs. There are various department — Police, Bank, Railways, Air India etc. offer good jobs. This opportunity is also a motivated force.
 - (xv) **Feed back** :- With the help of feedback an athlete can remove easily negative factors from his performance and try to perform better.
 - (xvi) **Sharring Responsibilities** :- Sharing responsibilities always help to develop and motivate an individual to perform well.

Q.5. How can we control the Aggression level of a Aggressive athlete?

Ans. Aggression” Range of Behaviors that can result in both physical & psychological harm to oneself other or objects in the environment.

Method to control Aggression level of a athlete.

- (a) Praise : For non aggressive behaviour and criticise the Aggressive behaviour.
- (b) Remove the causes, evoke the aggression in the athlete if it is possible than shift the athlete from that situation & condition.
- (c) Teach the cognitive strategies such as self talk & imagination.
- (d) Teach the stress management & Relaxation technique such as Yoga, langhing therapy, reverse counting, five breath technique etc.
- (e) When a players control the Aggression give him the positive Reinforcement by giving him some award or prize.
- (f) Always emphasis on the importance of event not on the winning of the event & explain how the aggression of one player can let down the team.
- (g) Inspite of a lot of effort if an Athlete is persist on the Aggressive behaviour then impose some penalty on him.
- (h) Coach should maintain the non aggressive behaviour.

Q.6. Explain the Big 5 Traits theory of personality in details.

Ans. Big 5 traits theory refers that individual personality can be assessed on the basis of 5 big traits named openness, conscientiousness, extroversion, Agreeableness, Neuroticism,

1. **Openness Traits:** The accessment of openness traits shows that how the person is

- * Imaginative
- * Insightful
- * having variety of interest
- * with degree of intellectual curiosity
- * creative
- * able to enjoy the new experiences
- * able to earn new changes & concept

-
2. **Conscientiousness:** The assessment of this trait shows that how the person is able to
- * Compete with life challenges
 - * control self discipline
 - * To act dutifully
 - * To plan & to organize
 - * Work independently
 - * To do hard work
3. **Extroversion:** The assessment of this trait shows that how the person.
- * is energetic
 - * has positive emotions
 - * has Assertiveness
 - * is sociable
 - * is talkative
 - * is fun loving
 - * has friendly nature or has tendency to make new friends
 - * able to get affection from other
4. **Agreeableness:** The assessment of this trait shows that how the person.
- * has sense of cooperation
 - * is systematic
 - * is kind
 - * is friendly
 - * is gentle
5. **Neuroticism:** The assessment of this trait shows. How the person.
- * has emotional stability
 - * is able to control anger
 - * is able to control the level of anxiety
 - * is able to protect him self from depression.

Very Short Questions Answer

- Q.1. If a person has disturbed homeostasis due to any physical or mental demand that state is known as?

-
- Q.2. The stress continue for a long time is termed as?
- Q.3. Strategies those help to cope of with stressful situation are known as?
- Q.4. What do understand by Big five trait theory.
- Q.5. Write down the traits of Big five Trait theory.
- Q.6. What do you understand by Reinforcement
- Q.7. If a person is directed towards its aim due to his internal force that type of state of motivation is know as?
- Q.8. How feedback is helpful for motivation explain with example.
- Q.9. Name the condition in which an industrial is fully satisfied with his body in age.
- Q.10. Name the Aggrasion in which an individual psychological harm to other person.
- Q.11. Name the type of Aggression in which individual intentionally by harm to other person.
- Q.12. Name of the type of Aggression is which an individual is injured unintentionally
- Q.13. Write down any three characteristics of openness traits.
- Q.14. Write down any there characteristics of Neuroticism trait.
- Q.15. What do you understand by Mesomorphy

Short Questions Answer

- Q.1. An individual homoeostasis can be disturbed in two ways. Explain it with examples.
- Q.2. On basis of whose characteristic we can identified the stressful situation.
- Q.3. Explain “problem focused situation” and emotional focused situation” strategies with any three examples.
- Q.4. Name the person who classified personality on the psychological basis write down three characteristics of his

classified categories.

- Q.5. Differentiate between introvert & extrovert.
- Q.6. Write down the name of all traits of Big 5 trait theory of personality.
- Q.7. Explain the meaning of self esteem & body image.
- Q.8. Explain the types of Aggression with examples

Values Based Question

Vidhi was a good long distance runner of our school. She used to do strenuous training regularly to achieve apex position at the national level meet. In spite of her consecutive endeavours she could not get success in achieving her goal. Her parents also wanted her to succeed.

Then she got frustrated with her poor performance. Finally, due to overstress, depression & anxiety, she resorted to drug abuse as a means of emotion focused coping strategies. She started misbehaving with her teachers & friends in school. The school principal & E.V.G.C counselled her regularly but all in vain. Her parents took her to a rehabilitation centre for proper treatment. After few months she came completely recovered.

On the basis of the above passage, answer the following questions.

- 1. What values did the principal & E.V.G.C. reflected through her initiative?
 - 2. Is drug abuse good as one of the means of emotion focused strategies. Give your views in brief?
 - 3. What should be the attitude of her parents after her complete recovery?
- Q.9. Explain any three benefits of exercise

Long Questions Answer

- Q.1. Explain any five techniques to control the level to stress.

-
- Q.2. Explain Big five traits theory of personality.
- Q.3. Write down any ten technique of motivation.
- Q.4. Explain the method to curtail the Aggression level.
- Q.5. What do mean by Aggression? Explain the types of Aggression and how it can be control.
- Q.6. Explain the psychological benefits of exercise in details.

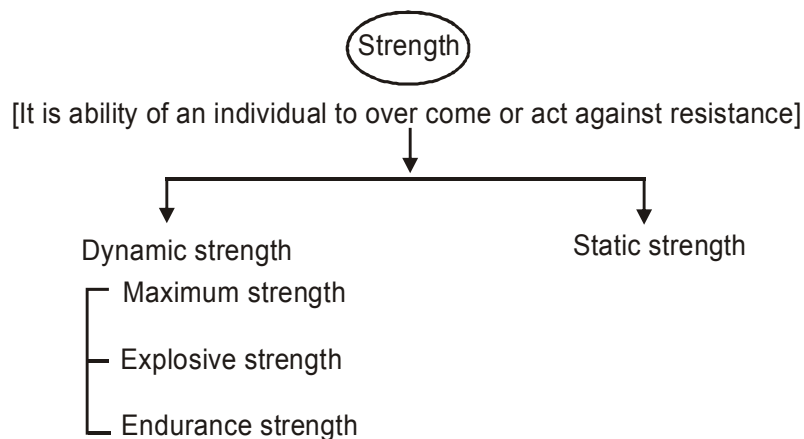
UNIT - 12

Training In Sports

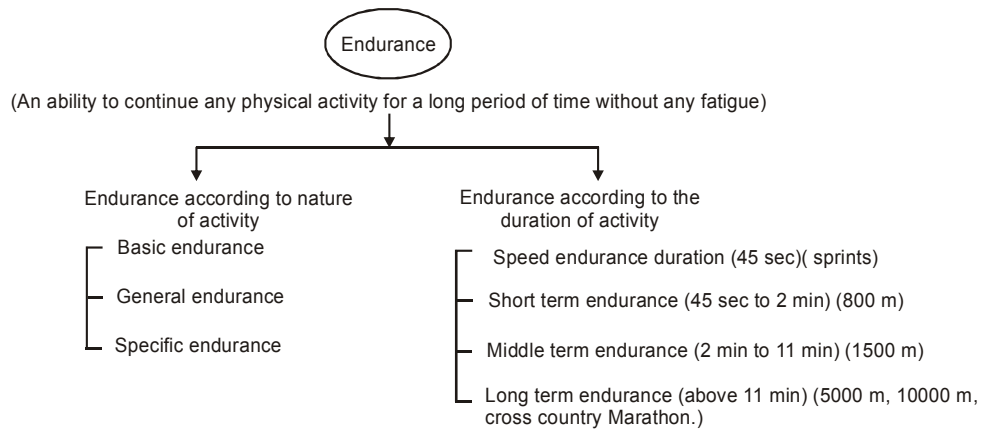
Key Points :-

- 12.1 Strength - Definition, Types and methods of improving strength- isometric, isotonic and isokinetic.
- 12.2 Endurance - Definition, types and methods to develop endurance (continuous training, interval training and fartlek training.)
- 12.3 Speed- Definition, types and methods to develop speed- (Acceleration run and pace run.)
- 12.4 Flexibility - Definition, types and methods to improve flexibility.
- 12.5 Coordinative Abilities - Definition and types.
- 12.6 Circuit training and high altitude training-Introduction and its impact

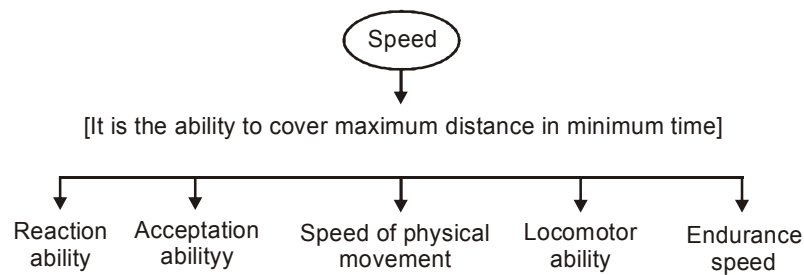
12.1 Strength



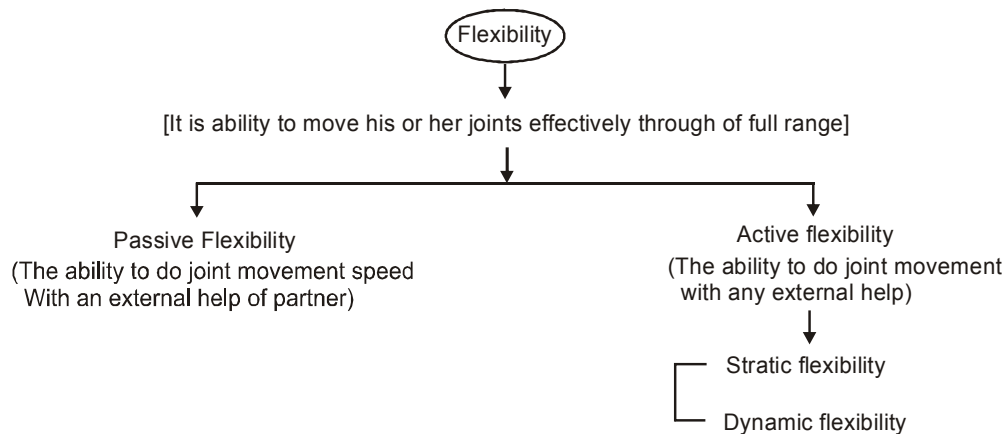
12.2 Endurance



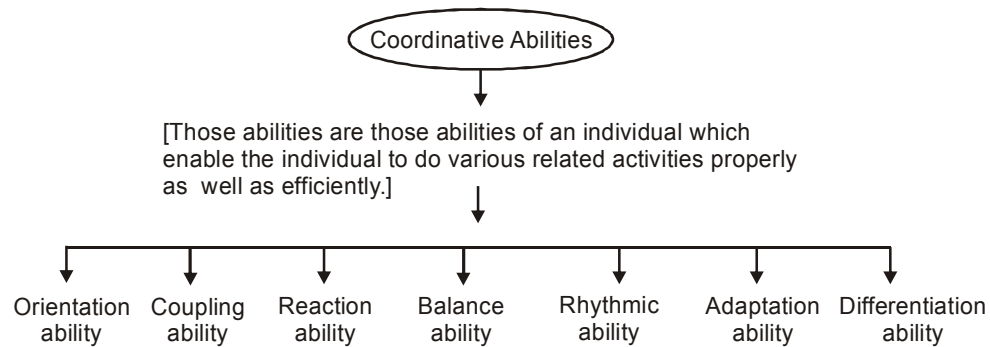
12.3 Speed



12.4. Flexibility



12.5 Coordinative Abilities



12.6. Circuit Training

Circuit training is a form of body conditioning or resistance training using high intensity aerobics. It targets strength building or muscular endurance.

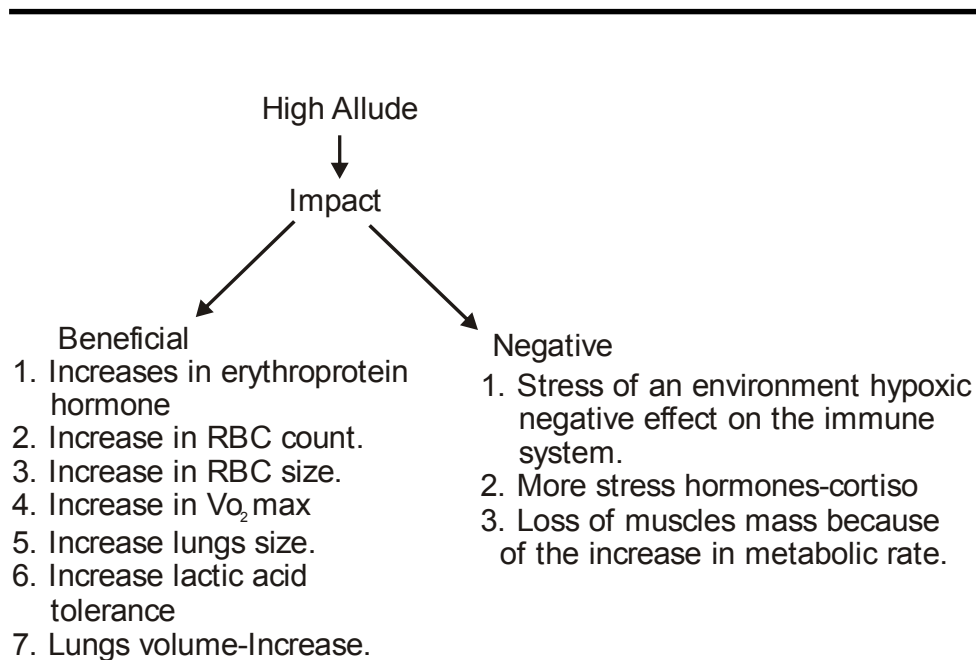
Impact of Circuit of Training : This training method has the following impact on a trainee

- (i) It improves cardiovascular fitness through exercises such as jumping rope, joggine etc.
- (ii) It improves general fitness by improving strength, flexibility and endurance.
- (iii) VO_2 max improves. This means that the body can take in more oxygen to be utilised by the muscles.
- (iv) Improves oxygen consumption by muscles.
- (v) Circuit training improves muscles strength. But it does not improve maximum strength or explosive strength. Some strength training exercises are push-ups, dumbbells etc.
- (vi) It improves muscular endurance. But circuit training alone cannot train a long distance runner for the top performance.

Some Examples of Circuit Training Exercises

1. Running on the spot.
2. Throwing medicine ball and catching it again 15 to 20 times.
3. Splits squat jumps 15 to 20 times.
4. Carrying weight or partner on shoulder 30 to 50 metres.
5. Chin-ups 5 to 10 times.
6. 50 metre run with sub-maximum speed.
7. Push-ups 10 to 20 times.
8. Standing jumps 10 to 20 times.
9. Sit-ups from supine position 10 to 20 times.
10. Rope skipping 1 to 2 minutes.
11. Dips 15 to 20 times.
12. Half squat with weight.
13. Rope climbing, once or twice.
14. To perform bench press.
15. Bench press in sitting position.

B. High Altitude: “Means distance of place from sea level. High Altitude training means practice or training of sports person at high altitude to enhancing their potential mostly endurance athletes used this training method.



Beneficial

1. Increase in erythropoietin hormone
2. Increase in RBC count.
3. Increase in RBC size
4. Increase in VO_2 max
5. Increase lungs size.
6. Increase lactic acid tolerance.
7. Lungs volume- increase.

Negative

1. Stress of an environment has a negative effect on the immune system.
2. Increase cortisol hormones (Cortisol is a stress hormone)
3. Loss of muscles mass because of the increase in metabolic rate.

VERY SHORT ANSWER TYPE QUESTION (1 MARK EACH)

Q.1 What is speed?

Ans. It is the ability of an individual to cover a unit distance in minimum time.

Q.2 Define is strength?

Ans. It is the ability of an individual to overcome or act against resistance.

Q.3 What do you mean by endurance?

Ans. It is the ability of an individual to resists the fatigue for long time.

Q.4 Write the meaning of flexibility?

Ans. It is ability of an individual to move his or her joints effectively through of full range.

Q.5 What is coordinative ability?

Ans. it is the ability of an individual to perform a sequence of movements smoothly and accurately

Q.6 What do you mean by Speed endurance?

Ans. It is the ability of an individual to perform body movement with high speed to resist fatigue in activities. Example - 400 mt race.

Q.7 What is strength endurance?

Ans. Strength endurance is the ability to develop sustained contraction force of muscles one time.

Q.8 Define is acceleration?

Ans. It is the ability of an individual to reach & achieved speed from in shortest period of time.

Q.9. Explain is explosive strength?

Ans. It is the ability of an individual to overcome resistance with high speed.

Q.10. What is reaction ability?

Ans. it is that ability of an individual to react effectively and quickly to a signal.

It is two types :-

1. Simple / General reaction ability
2. Complex reaction ability

Q.11. Define movement speed?

Ans. it is the ability of an individual to do movement in minimum time. It depends upon techniques explosive strength, flexibility & coordination abilities.

Q.12. What is the meaning of sports training?

Ans. Sports training is a planned and controlled process in which, For achieving a goal, changes in complex sports motor performance.

Q.13. What are pace races?

Ans. Pace races mean running the whole distance of a race at a constant speed. In pace races, an athlete run the race with uniform speed. Example - 800mt, 1500mts.

Q.14. What do you mean by adaptation ability?

Ans. It is the ability to adjust or change the movement effectively on the basis of changes or anticipated changes in the situation. Because in the most of the sports players have to play as per the circumstances.

Q.15. What is maximum strength?

Ans. It is ability to exert against maximum strength for example- weight lifting, Roman Ring, throwing events, etc.

Q.16. Write two Isometric exercise for shoulder area.

- Ans.
- | | |
|------------------------------|--------------|
| 1. Down the arrow | 2. gymnastic |
| 3. wrestling | 4. Judo |
| 5. Hanging on horizontal bar | |

Q. 1. Describe fartlek Training Method?

Ans. It is another method to develop the endurance ability. This method was developed by Swedish coach "Gosta Holmer" in 1930. So it is also known as "Swedish play" or "Speed play" (changes her/pace. Himself/herself according to surrounding (hills, river, forest, mud etc.)

This method helps in development of strength and endurance of the sports person. Athlete changes his / her speed according. So it is self-disciplined in nature. The heart rate fluctuates



between 140 - 180 beats/ minute/ Fartlek training involves varying our pace throughout our run. Alternating between fast and slow pace.

Q.2. What do you mean by flexibility? Explain types of flexibility?

Or

What is the difference between active & passive Flexibility?

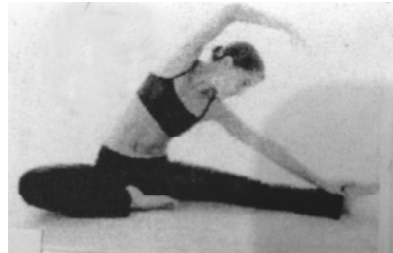
Ans. Flexibility is the range of movement of the joint of a sports person.

1. **Active flexibility** :- The ability of an individual to do the joint movement for a longer range without any external help. Active flexibility is always greater than passive flexibility. Ex. doing any stretching exercise without external help.

It is two kinds :-

- **Static Flexibility** :- It is usually required by a sports person when he remains in static position e.g. Diving, sitting, lying, etc.
- **Dynamic Flexibility** :- It is needed for walking and running its increase by static stretching.

2. **Passive Flexibility** :- The ability to do joint movement with a greater range with an external help of partner. This flexibility is largely determined by joint structure, stretch ability of the muscle and ligament. Passive flexibility helps in the development of active flexibility.



Q.3 Sandeep is making a handball team for which he designed a training program. During the training programme he noticed few player are very good shooter but they were lacking stamina or endurance were getting tired very easily. Now Sandeep tried to enhance the endurance level of these players by different methods.

1. Which components were lacking in the players and what values are depicted by sandeep?
2. To develop the capability to resist the fatigue in the players which type of training will you suggest?
3. What are components required for football or handball players to perform better.

Ans.

1. They were lacking of stamina or endurance and values depicted by Sandeep - good coach, awareness, alertness, and hard working.
2. I'll suggest to continuous & interval training to develop the motor components.
3. Endurance, speed, strength, and coordination components are important for football or handball players.

Q.4 Briefly explain the types of endurance.

or

“Endurance is one of the most important factor for high performance in games & sports” Explain

Ans.

1. **Basic Endurance** :- is the ability of an Individual to do the Movement in which large no. of body & muscles involve at slow pace for a duration such as Walking, Jogging, Swimming at a moderate speed.
 2. **General Endurance** :- is the ability of an individual to resist fatigue satisfactorily caused by different type of activities.
 3. **Specific Endurance** :- is the ability of an individual to complete the task without any fatigue. It's requirement is depends upon the nature of activity (games and sports) Requirement of specific endurance of a boxer is different from that of a Wrestler.
- **Speed Endurance** :- is the ability of an Individual to perform a movement with high speed to resist of fatigue in activities upto 45 seconds.

-
- **In short term endurance** - * Short term endurance is needed to resist fatigue in sports activities lasting from 45 seconds to 2 minutes. Ex. 800 m race.
 - **The medium term endurance** :- is the activity lasting from 2.min to 11 minutes. Ex. 1500 & 3000 mts.
 - **Long term Endurance** - is needed for those sports which require more than 11 minutes time ex. 5000m to 1000m cross country race.

Q.5. Explain about acceleration Run and pace run.

Or

Briefly explain the methods for improving speed.

Ans. **Pace run** : Pace run means running the whole distance with a constant speed. Generally 800 m and above races are included in pace races. An athlete can run a distance of 300m. at full speed but



in longer races such as 800 mtr. or above, he must conserve his energy by reducing the speed. Ex-If there is a runner of 800m race. His best time is 1 minute 40 seconds. So he should run first 400 m in 49 seconds and next 400m in 51 seconds. This procedure is called pace race or pace run.

Acceleration Run : Acceleration runs are usually used to develop speed indirectly by improving explosive strength, technique, flexibility and movement frequency. It is the ability of a sprinter to achieve high speed from a stationary position. For direct improvement of acceleration speed a sprinter should do 25-30 m. sprints of 6-12 times. The maximum speed should

be achieved within 5-6 sec. Sufficient intervals should be provided between the repetitions.

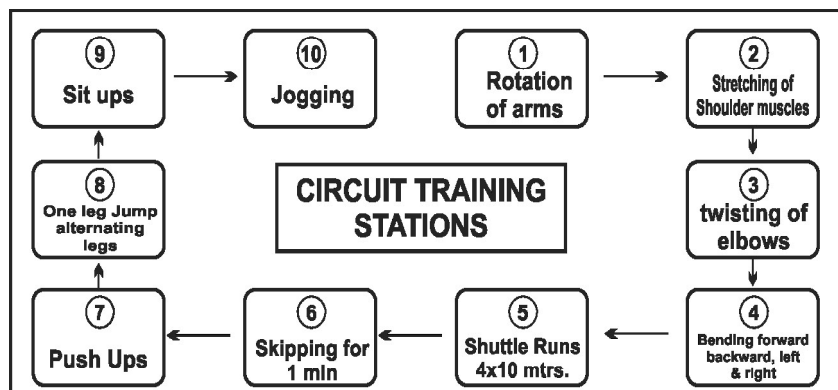
Q.6. Write the advantages of circuit training?

Ans. **Advantages of Circuit Training**

1. Circuit training can be performed indoors or outdoors. In rainy season, this training can be done in rooms.
2. The equipments for exercises can be provided easily.
3. It is easy to learn. A trainee can learn to train himself.
4. The trainee gains good result in a short period.
5. It is an interesting method of training.
6. It does not require long duration to perform exercises.
7. A number of athletes can do circuit training according to the stations at the same time.

Q.7. What is circuit Training? Make one training session of 8 stations for student of general fitness.

Ans. Circuit training is that kind of training method, in which various exercises will be done in certain quantity with apparatus and without apparatus. Its aims are to improve strength and muscle capacity.



Q.8. How to Increase the Load in Circuit Training.

Following points are important to increase the load in Circuit Training :

1. Number of repetitions can be increased per exercise.

-
2. Frequency can be increased.
 3. Additional load can be increased.
 4. Interval between exercises can be reduced.
 5. Number of rounds in circle can be increased.

Long Answer type question (5 Marks)

Q.1. What are the methods to develop/improve flexibility? Explain

Or

What is the difference between ballistic method and post isometric method?

Ans. To maintain flexibility in games and sports stretching exercises should be done. By following methods, one can improve their flexibility.

- **Stretch & hold method** - We stretch our joint to maximum limit and hold it for a few seconds before returning to the initial phase. The holding period must be not more than 3 to 8 sec. The method is also used for improving passive flexibility.
- **Ballistic Method** - In this method the stretching exercises are done in a swing, so this is called the ballistic method. A proper warm-up should be done before these exercises. Due to stretching of the muscle can be done in a rhythm.
- **Post - Isometric Method** - This method is based on the principle of proprioceptive neuromuscular facilitation means, If a muscle is contracted maximally for a few seconds, then often the contracted maximally for a few second. Then after the contraction it remains in a static position for a few seconds for 6-7 seconds and gives very low resistance to that stretch. The duration of the stretch should be increased up to 8-10 second and repeated 4-8 times for each muscle group.

Q.2. What are the methods for developing strength?

Or

Write the difference between isometric, isotonic and Isokinetic exercises.

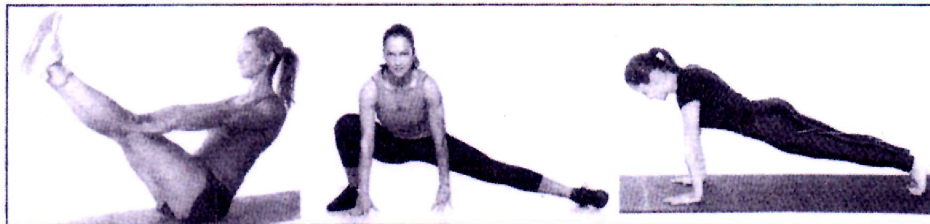
Ans. **Strength** - is the capacity of the whole body or of any of its parts to exert force.

There are two types of strength - Dynamic & static strength

Following mention methods are used to improve strength.

1. **Isometric Exercise** : The word isometric is comprised of 2 words “iso “same” and “metric “length”. Means when we do these exercises work done cannot be observed. These exercises require less time and equipments and can be carried out anywhere. These exercises are useful for maintaining strength in case of injury.

Eg. Archery, weight lifting, gymnastic are the examples of isometric movements.



Work done = Force X Distance moved

but distance moved is 0, therefore work done is zero.

2. **Isotonic Exercises** :- “Iso” Means ‘same’ and ‘tonic’ means tone.

In these types of exercise when we do movements it can be observed directly. The length of muscles can be seen and

called eccentric Contraction and concentric contraction accordingly. Ex. When we throw a ball, jump, run, weight training, these type of contraction occurs. These Type of exercise is widely seen in games & sports. We can do these exercise with equipment or without equipment. These increase and length of th muscles and are good for conditioning in sports.



3. **Iso-Kinetic Exercises** -- “Iso” - ‘Same’ “and’ kinetic - motion’. These exercises were introduced by j.j. perrine in 1968. These exercise are done by specially design machine and are combination of isotonic and Iso-metric exercises. These exercises develop strength of muscles. These type of movements are usually not applied in games and sports except water sports, skating, climbing, running etc.



Q.3. What are coordinative abilities in sports? Describe the type of coordinative abilities?

Ans. Coordinative abilities are those abilities which stabilized and generalized pattern of motor control. These abilities help the sportsman to do a group of movements with better quality and effect.

Coordinative abilities primarily depend upon the central nervous system. In sports, the coordinative abilities are under :-

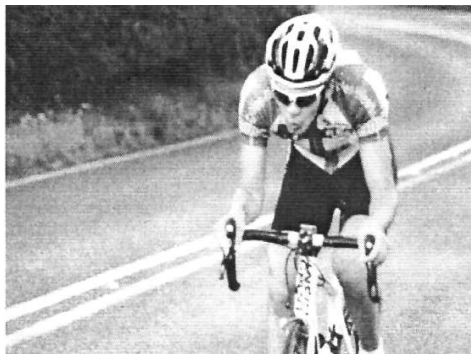
1. Differential ability
 2. Orientation ability
 3. Coupling ability
 4. Reaction ability
 5. Balance ability
 6. Rhythm ability
 7. Adaptation ability
- **Orientation ability** :- It is ability of a person to adjust himself as per the time and condition of place. This ability has difference importance in each game. Ex. Play ground.
 - **Coupling ability** :- it is the ability of a player to move his physical organs in order to do his activities. For example. Coordinative between hands and eyes, feet and eyes etc. Ex. in volleyball the smasher smashes the ball according to the lift of the ball and blockers coordinating the movements of his hands head and feet.

Methods to improvement of coordinatin abilities :-

1. Practicing physical exercise.
2. Correct and conscious movement
3. Additional means to improve motor sense
4. Variation in exercises
5. Degree of difficulty

Q.4. Differentiate between the continuous method and interval method? Describe its advantages.

Ans. **1. Continuous Method :-** in this type of method, the exercise is done for a long duration without taking rest. We do the exercise for a long duration. So the intensity of work is low. The heart rate during the exercise for a sportsman should be between 140-160 beats per minutes. For fast continuous method the heart rate of an athlete should be increased about 175 - 180. Min. Its duration of exercise should be more than 30 minutes. Ex. running walking, cycling, cross-country race etc.



Advantages :

1. Doing work continuously in spite of being tired strengthens the will to work.
2. According to this method increases the red blood cells in muscles.
3. In this method the working efficiency of heart and lungs gets enhanced.
4. In this method Glycogen in muscles and liver gets increased.
5. Player develop self discipline and self confidence. Apart from this their will power also gets enhanced.

-
2. **Interval Method :-** This method is very effective for developing endurance for track runners. Intervals are given to the athlete in between the repetition for recovery. The recovery period for athlete varies from person to person. The heart should go up to 18 beat/ min. and when the heart rate comes down to 120-130 beats/ min again the repetition/ work starts. The training load should be given again after checking the heart rate of the athlete.

Ex. Middle distance race, foot ball, hockey etc.

Advantages :-

1. if an athlete perform these exercise in proper way then it will help to improve the working capacity in short time.
2. This method has a positive effect on both respiratory system and circulatory system.
3. The trainer can observe a players easily. The player in short time can enhance his endurance.
4. The player comes to learn about the effect of his training.
5. If the player mistake in executing the coach/ trainer can give him useful suggestion during recovery time. Thus, the players morale may be boosted.

Q.5. What is High Altitude Training? Explain the impact of it on a Athlete.

Ans. At high altitude the availability of oxygen to the body is less than at sea level. By training at high altitude athletes aim to allow their bodies to produce extra red blood cells to transport oxygen in an attempt to met the oxygen deficiently.

Impact on a Athlete –

At high altitudes athletes may experience sun burns, snow blindness. In fact, exposure to higher altitude may also result in functional disorder as mountain or altitude sickness like

symptoms of serve headache, nausea and vomiting, coughing and swelling in the hands & feet. To complicate matters more, dehydration can be a series problem at high altitude. On the other hand, while adoption to altitude will improve a runner's oxygen transport function. The increased oxygen transportation from the red blood cells means your body will optimize the amount of available oxygen. The increase of RBC helps improve your VO_2 max. But VO_2 max levels are lower at high altitude than at sea level.

Tips for high Altitude–

1. Take it easy on a day one
2. Take a walk give your body time to adjust before taking on a full work out.
3. Altitude is very dehydrating. Drink lots of water & juices.
4. Avoid alcohol
5. Avoid sleeping pills but to get a good night's sleep.

Practise Questions

1 Marks questions

- Q.1. What is training?
- Q.2. Write down the types of strength with name.
- Q.3. Write down the types of endurance with name.
- Q.4. How many types of flexibility. Name them.

3 Marks question

- Q.1. Draw the exercises of circuit training method with examples.
- Q.2. Give the suggestions to improve flexibility.
- Q.3. Write the impact beneficial Impact of high altitude training on athletes?
- Q.4. Write the negative impact of high altitude training.

-
- Q.5. Draw a circuit training station for long distance runner?
 - Q.6. Write the objectives of circuit training method for sports persons.
 - Q.7. Explain the objectives of high altitude training.
 - Q.8. Why high altitude training is important for the endurance athletes?
 - Q.9. Explain the contribution of circuit training methods for sports?

Long Answer type questions (5 marks)

- Q.1. What is speed? Explain the method of developing speed?
- Q.2. Describe the various types of coordinations ability?
- Q.3. Explain in brief about circuit training & prepare lostation programmes for speed athlete?
- Q.4. Define circuit training. Write its advantages of circuit training?
- Q.5. What do you mean by high altitude training? Elaborate the impact of high altitude training on athletes who improve the muscles in such training?

Typology For Question Paper

A	B	C	D	E	F	G	H	I	J	K	L	M	N
		UNIT1	UNIT2	UNIT3	UNIT4	UNIT5	UNIT6	UNIT7	UNIT8	UNIT9	UNIT10	UNIT11	total
REMEMBERING MARKS 20	V.S.A.		1(Q2)								1(Q1)		
	S.A.					3(Q12)							20
	L.A.							5(Q20)	5(Q21)			5(Q22)	
UNDERSTANDING MARKS 07	V.S.A.									1(Q3)			
	S.A.							3(Q13)	3(Q14)				7
	L.A.												
APPLICATION MARKS 18	V.S.A.		1(Q8)	1(Q7)	1(Q4)			1(Q5)			1(Q6)		
	S.A.		3(Q15)										18
	L.A.						5(Q23)				5(Q24)		
HOTS MARKS 18	V.S.A.				1(Q9)						1(Q10)		
	S.A.			3(Q16)						3(Q17)			18
	L.A.				5(Q25)							5(Q26)	
CREATIVE MARKS 07	V.S.A.							1(Q11)					
	S.A.	3(Q19)								3(Q18)			7
	L.A.												
TOTAL		3	5	4	7	3	5	10	8	7	8	10	70

01 Mark-11 Questions, 03 Marks-08 Questions & 05 Marks-07 Questions.

* Abbreviation used: V.S.A.- Very Small Answer, S.A.-Small Answer & L.A.-Long Answer.

#The details under Columns A, B & N will remain unchanged. However, the weightage given to various units as shown above may not remain the same.

\$The question paper shall compulsorily include 01 Value Based Question.

Classes XI & XII

Points	A		B		C		D		E	
	60 M (In Sec)	100 M (In Sec)	Long Jump (In M)	Standing Broad Jump (In M)	Vertical Jump (In M)	Push-ups (In no.s)	Bent Knee Sit-ups (In no.s)	Overhead Backward Basketball Throw with both the Hands (In M)		Shot Put 7.260 kgs (In M)
10	07.50	12.00	05.50	02.50	40	40	45	16.00	07.50	09.00
9	07.70	12.30	05.20	02.35	38	38	42	15.50	07.00	09.20
8	08.00	12.70	04.90	02.15	35	35	38	14.50	06.50	09.50
7	08.30	13.10	04.60	01.95	32	32	34	13.50	06.00	09.80
6	08.60	13.60	04.30	01.75	28	29	30	12.50	05.50	10.10
5	08.90	14.20	04.00	01.50	25	25	25	11.50	05.00	10.50
4	09.30	15.00	03.80	01.25	23	21	22	10.50	04.50	11.00
3	09.70	15.50	03.60	01.00	20	17	19	09.50	04.00	11.50
2	10.10	16.50	03.30	0.80	18	14	15	08.50	03.50	12.20
1	10.50	17.50	03.30	0.60	16	10	10	07.50	03.00	13.00

- Each student will have to choose five items for test of choice.
- One item for test must be chosen from 'A'; one from 'B'; one from 'C'; one from 'D' and test item number 'E' is compulsory for all.

Classes XI & XII

Points	A		B			C		D		E
	60 M (In Sec)	100 M (In Sec)	Long Jump (In M)	Standing Broad Jump (In M)	Vertical Jump (In M)	Modified Bent Knee Push-ups (In no.s)	Bent Knee Sit-ups (In no.s)	Overhead Backward Basketball Throw with both the Hands (In M)	Shot Put 04.00 kgs (In M)	Shuttle Run 4 × 10 M (In Sec)
10	9.0	14.0	4.0	2.00	28	25	30	12.00	07.50	10.50
9	9.2	14.3	3.7	1.85	26	23	27	11.50	07.00	10.70
8	9.5	14.7	3.4	1.65	23	20	24	10.50	06.50	11.00
7	9.8	15.1	3.1	1.45	20	18	21	09.50	06.00	11.30
6	10.2	15.6	2.8	1.25	17	16	19	08.50	05.50	11.60
5	10.6	16.2	2.5	1.00	15	14	15	07.00	05.00	12.00
4	11.0	17.0	2.2	0.80	13	12	12	06.00	04.50	12.40
3	11.5	17.5	1.9	0.60	10	10	10	05.00	04.00	12.80
2	12.0	18.5	1.6	0.50	08	07	07	04.00	03.50	13.50
1	12.5	19.2	1.3	0.40	06	04	04	03.50	03.00	14.50

- Each student will have to choose five items for test of choice.
- One item for test must be chosen from 'A'; one from 'B'; one from 'C'; one from 'D' and test item number 'E' is compulsory for all.

Physical Education (Sample Questions Paper)

Time allowed : 3 hours

M.M. 70

General Instructions:

- * Q.1 to Q.11 (20 to 30 words & 1 mark each)
- * Q.12 to Q.19 (80 to 90 words & 3 marks each)
- * Q.20 to Q.26. (150 to 200 words & 5) marks each)

1. What is the relation between Asanas & Obesity.
 $\frac{1}{2} + \frac{1}{2} = 1$
2. Write importance of cardio-vascular system in sports.
 $\frac{1}{2} + \frac{1}{2} = 1$
3. Write down the impact of high altitude on our training methods.
4. What is A.S.D. and S.P.D. $\frac{1}{2} + \frac{1}{2} = 1$
5. Write down the causes of high blood pressure.
 $\frac{1}{2} + \frac{1}{2} = 1$
6. Name of any two common postural deformities.
 $\frac{1}{2} + \frac{1}{2} = 1$
7. Name any specific run to organized for a specific purpose.
8. Define Hard Tissues injuries? 1
9. Classify the flexibility. 1
10. Explain the effect of menstrual dysfunction in women.
 $\frac{1}{2} + \frac{1}{2} = 1$
11. What do you mean by sports nutrition. 1
12. Define first aid? Write down the first-aid treatment of soft tissue injuries. $1 + 2 = 3$

-
13. What do you mean by nutrients in food? Explain any two nutrients work in body. 3
14. Explain the application of Newton's laws of motion in the field of sports & games. 3
15. "Ageing population can be fit only by regular exercises" comment on above cited statement. 3
16. What is skin fold caliper? Calculate the fat % of a male with triceps & calf are 12 mm & 9 mm & a female with triceps & calf are 11 mm 8 mm respectively. $1 + 1 + 1 = 3$
17. Prepare a fixture of 11 teams on the basis of knock out tournament. 3
18. Make one circuit training programme of 9 (nine) stations for players for general motor fitness without equipments. 3
19. Tajamul Islam, an eight yrs, old girl, from kashmir scripted history by winning gold medal at world kick- Boxing Championship, 2016 of under-eight yrs players in Italy. This young talent was spotted and nurtured by Army good will school Bandipora. Initially she had some limitations but she convinced her father for support & got training under army personnl. She won nation kick-Boxing Championship, 2015 at Talkatora Stadium, Delhi, and now has become role-model for Indian girls to work hard and make their dreams come true.

On the basis of above passage, answer the following questions.

1. What value are shown by Tajamul Islam's parents, regarding her sports participation?
2. What values are shown by her to win laurel's for her country?
3. What lesson do you learn from the above passage.

$$1 \times 3 = 3$$

-
20. Explain the contribution of physical exercises for children with special needs. 5
 21. Discuss the procedure for administering & objectives of Rikli and Jones Sr. Citizen fitness test. 5
 22. Elucide the big five personality theory. 5
 23. "Friction is a necessary evil". Justify your answer with suitable examples from sports & game? 5
 24. What is Female Athlete Triad? Write its causes & treatment remedies? 5
 25. Elucidate the causes of bad posture. 5
 26. "In modern life style. Yoga is as preventive measures" Discuss in detail? 5

Physical Education (Sample Questions Paper)

Time allowed : 3 hours

M.M. 70

General Instructions:

- (i) The questions paper consists of 26 questions.
- (ii) All questions are compulsory
- (iii) Answer to questions carrying 1 marks should be in approximately 10-20 words.
- (iv) Answer to question carrying 3 marks should be in approximately 30-50 words.
- (iv) Answer to questions carrying 5 marks should be in approximately 75-100 words.

- Q. 1. What are the combination tournament. 1
Ans. In these types of tournament initial round are played on the basis of specific types i.e. knock out or league and rest of rounds these tournaments are following types.
- 1. Knock out cum knock out.
 - 2. League cum league
 - 3. Knock out cum league
 - 4. League cancum knock out
- Q.2. What do you mean by food supplements. 1
Ans. Food supplements are the supplements taken to meet the requirement of essential nutrients which we do not get from our daily diet.
- Q. 3. Write down the Reasons for Back pain. 1
Ans. This pair results from living in passive way, such as staying in front of hours of computer, bad habits related to healthy, lack of physical activity or lack of exercise.
- Q.4. Name the deformity for which horse riding can be used as corrective measure.

-
- Ans. Knock knees
- Q. 5. Mention types of disability. 1
- Ans. - Mental disability physical
- Physical disability
- Cognitive disability
- Intellectual disability
sensory disability
- Q. 6. What is the female athlete triad? 1
- Ans. Female athlete triad is a syndrome in which osteoporosis and amenorrhoea, Eating disorder effect adversely on the body.
- Q.7. Explain the procedure for connecting standing broad jump? 1
- Ans. 1. The subject stands behind the starting line with feet apart
2. He jumps as far as possible by bending knees and swinging arms to take off for the broad jump in the forward direction.
3. The distance between the starting line and the landing point provides the score of the test.
- Q.8. Why does involvement in regular exercise delay the onset of fatigue? 1
- Ans. Yes involvement in regular exercise delay the onset of fatigue.
- Q.9. What is abrasion? 1
- Ans. Abrasion is a superficial (not deep) injury of skin or mucous membranes which is caused by rubbing or scraping hard surfaces.
- Q.10. What is dynamic friction? 1
- Ans. Dynamic friction is the friction which acts between two surfaces in which one is actually moving over the other it may be of two type 1. Sliding friction 2. Rolling friction.
- Q.11. "Pace races means running the whole distance of a race at a constant speed" which are the races included in pace races? 1
- Ans. 800 M Race
- Q.12. Which types of food/diet taken by player during the competition. 3
- Ans. During any sports event and competition loss fluids from the

body is a major concern. Hence, during an event.

- (i) Take small sips of water and other fluids to keep the body rehydrated.
- (ii) For events that last longer than 3-4 hours energy bars can be consumed as concentrated sources to carbohydrates.
- (iii) Take lemon water can also be consumed to maintain sodium and calcium balance in the body during the competition.

Q.13. Write down the role of the three committees after a tournament.

Ans. Role of the committees before a tournament

- 1. **Organizing committee:** Responsible for organizing and smooth running of the tournament. It instructs other committee one month prior to the tournament and assigns tasks and responsibilities to them.
- 2. **Publicity committee:** Telecast information about the tournament 3 or 4 weeks prior to the tournament.
- 3. **Marketing committee:** Purchasing all equipments and other items required for the tournament and ensuring their quality.

Q.14. Elaborate the various types of disorders/ problems related to menstrual dysfunction? 3

Ans. **Absence of menstrual periods:** This problem may be due to eating disorder, excessive exercise schedule, extreme level of stress osteoporosis and medications etc.

Premenstrual syndrome: Many girls may have symptoms such as ache, backaches, sore breasts, headaches, constipation, depression etc. these symptoms may be faced by female before their menstruation.

Irregular menstrual period: The regular menstrual cycle for a female is 28 days. However, it vary from 21 to 35 days.

Q.15. What is the soft tissue injuries? Explain any two. 3

Ans. Soft tissue injuries are the most common injury in sports soft tissue refer to tissues that connect support or surround other structures and organs of the body.

Types of soft tissue injury

- 1. Contusion

-
- | | |
|-------------|---------------|
| 2. Strain | 5. Laceration |
| 3. Sprain | 6. Incision |
| 4. Abrasion | |

Sprain: Sprain is a stretched or torn ligament. Ligaments are tissues that connect bones at a joint falling twisting or getting hit can all cause a sprain. Ankle and wrist sprain are common symptoms include pain, swelling, bruising and being unable to move joint.

Strain: is a stretched or torn muscle or tendon. Tendons are tissues that connect muscle to bone. Twisting or pulling these tissues can cause a strain. Back and hamstring muscle strains are common. Strain people can be played symptoms- Pain muscle spasms, swelling and unable to move.

Q.16. What are major muscles involved in Running jumping and throwing. 3

Ans. Muscles involved in **Running, Jumping and throwing**

Muscles	Functions
— Quadriceps muscles	— Extend leg and flexes thigh
— Hamstring muscles	— Flexes leg
— Gluteus maximus	— Extends and laterally rotates thigh
— Calf muscles	— Adducts foot
— Abdominal muscles	— Compress abdomen, depress ribs, flexes spine
— Upper arm muscles (Biceps) triceps	— Flexes arm
— Shoulder muscles (Deltoid muscle)	— Abducts arm
— Neck muscles	— Flex neck, bend head
— Hips Gluteus maximus,	— Extends and laterally rotates
— Hip flexors and extensors	— something
— Pectoral muscles	— Flex, extend and rotate upper arm.
— Back muscles- erector spinae	— Bends trunk backwards, Bring spinal column into erect position

Q.17. What are the types of aggression of sports.

3

Ans. Aggression may be defined as “a behavior where a person is likely to injure or harm the other person”. Positive aggression motivates the players to give their best performance, while negative aggression harmful for player and other.

Type of aggression

1. **Instrumental aggression** : Instrument aggression is evident in contact games and sports like boxing. Wrestling, judo, karate, kabaddi and kick boxing Aggression is indispensable in the field of sports.
2. **Hostile aggression** : Hostile aggression means forceful or destructive behavior it can some times lead to violent behavior. Hostile aggression is prohibited in the field of sports.

Q.18. Sudhir is a shot putter. His weight is 70 kg and height is 173 cm. He uses the perrior-o-Brien technique of shot put. His new whletic expert, physical educator advise tochange this technique to disco put. His new technique improve his performance from 1.9 mts more than his last best one.

(A) Which new technique did Sudhir adopt to improve his performance.

Ans. Disco put technique

(B) What qualities can be seen in the new physical education teacher?

Ans. Inspiring, helpful, dedicated and knowledge-able.

(C) What did you learn from the above passage?

Ans. From the above passage we learnt that sports performance can be improved by using proper biomechanical technique.

Q.19. Write three ways to improve self- esteem?

Ans. Self-esteem is mentas imagination of individual's attitude toward himself he self like respect, confidence, etc.

1. **Be Optimistic** : Thinking positively and keeping negative thoughts away can help individuals to develop an optimistic attitude. People should be aware of their strengths and virtues. Participating in sports helps to develop optimism and enhance self-esteem and body

-
- image thereby focusing away from negativity.
2. **Develop Positive Characteristics** : Every individual has both positive and negative qualities. Appreciating of self strengths, achievements, making efforts for improving the weaknesses have a positive impact on the self-esteem of an individual. For self development etc.
 3. **Change in Lifestyle** : A healthy lifestyle positively impacts the self-esteem of a person. An unhealthy and indisciplined lifestyle will have an adverse effect on the health of the person. Hence, it is advise-able to change the lifestyle in order to develop a positive self-esteem and body image. For example, to develop healthy eating habits, exercising regularly, meditating, sleeping enough, etc.

Q.20. Draw the fixture for 24 team on the basis of knockout tournament?

Ans. Total no matches = Total no of team – 1
 $\Rightarrow 24 - 1 = 23$
 Total No. Round = $2 \times 2 \times 2 \times 2 \times 2 = 32$
 i.e. Digit 2 Repeat 5 times = 2^5
 so that no round = 5 Round

$$\text{Total team in upper half} = \frac{24}{2} = 12 \text{ Teams}$$

$$\text{Total team in lower half} = \frac{24}{2} = 12 \text{ teams}$$

$$\begin{aligned} \text{Total No. bye} &= \text{Next power of two Total no of team} \\ &= 32 - 24 = 08 \text{ Byes} \end{aligned}$$

$$\text{Bye in Upper half} = \frac{8}{2} = 4 \text{ Byes}$$

$$\text{Bye in lower half} = \frac{8}{2} = 4 \text{ Byes}$$

Fig.

Q.21. What do you mean by asthma? Explain symptoms & reasons of asthma, and two asanas to cure it.

Ans. Asthma is a disease associated with the respiratory tract. In the inner wall of respiratory tracts, swelling occurs, which makes the tracts very sensitive and makes this process pungent with the touch of any effective thing.

These reactions cause contraction in the tubes. This reduces the amount of air in the lungs. Due to which it becomes difficult to breathe.

Symptoms : Common symptoms of asthma are coughing, heavy breathing, chest tightness, fatigue, pain in hands, feet, shoulders and back.

Reasons- Dust, smoke, air pollution, geneticism, pollen grains, animals skin, hair or feather etc. are the main reasons.

Sukhasana

Pre-Stage: Keep both feet in front and sit straight.

Method : Sukhasana is simply sitting in the normal form.

Keep the left foot folded under the right leg's thigh.

Fold right and place it under the shin.

Keep head, neck and waist straight. Keep both hands in the meditation position in the Anjali (palms stacked up in lap) posture.

We can use it for longer periods of meditation, with normal breathing.

One can change feet for sitting.

Benefits : 1. This posture can be used for a long time during meditation and study, etc.

2. Straightening the waist gives strength in the legs. Pain is removed and person can perform other postures like Ardha Padmasana and Padmasana.

Precautions :- If there is any injury in the spinal cord, then do not sit for long.

If there is a problem with knee joints then do not do this asana.

Chakrasana

Pre stage: Lie down on the waist and make both legs straight.

Method :

1. Bend your knees so that the soles of your feet are on the floor.
2. Your hands must be placed behind your shoulders and fingers pointed towards your shoulders.
3. Then, press your feet and palms, and lift your entire body off the mat.
4. Hands and feet are half feet apart. Head hang gently between hands.
5. Make the body stretch towards the top so that it becomes circle shape.

Benefits

It affects the whole body, which gives flexibility in muscles and bones & increases blood circulation. Relieve waist pain. Increases the supply of oxygen in the lungs. The overall functioning of the body increases.

Precautions : Effort repeatedly before attaining perfection.

Q.22. What are the advantages of physical activities for children with special needs?

Ans. Children with special needs should be given an opportunity to participate in yoga, swimming, gymnastic and other age appropriate games and sports.

Advantages of physical activities for children with special needs.

Physical Benefits

1. By doing regular exercise, the muscles of the children with special needs gain proper shape and strength which is reflected in their muscular appearance.
2. Regular exercise influences development of bones, i.e., the length of bones increases which results in increase in height of children.
3. Body assumes correct posture.
4. The body weight remains controlled and so children

-
- look attractive.
 5. The texture of the skin improves.
 6. The body movements become well-coordinated and skilful.

Physiological Benefits

1. Muscles of various body organs become strong. Non-functioning muscle fibres become active which increases the density of muscles, thus making them strong.
2. The storage of glycogen increases in muscles and so anaerobic capacity of muscles, thus making them strong.
3. By doing regular exercise, the process of calcification increases in bones that increases the density of bones.
4. The stroke volume of heart increases. This means that the blood circulation increases i.e., the heart is capable of pumping more blood.
5. The capacity to do a physical activity for long period before getting exhausted increases gradually. Hence, endurance increases.
6. The capability of utilising oxygen during exhausting exercises increases. Hence, by doing regular exercise, the lungs become strong.
7. Exercises have positive effect on brain. It improves the structure and composition of brain that influences the nervous system and endocrine system. Exercises stimulate the hormones which improve the mental growth of children and make them happier, healthier and energetic.
8. Exercises strengthen our heart. The performance of heart muscles improves. They also regulate the blood pressure. Hence, the risk of heart diseases decline. Also, people who exercise regularly recover faster (i.e., their heart rate and blood pressure return to normal quickly) after any strenuous activity.
9. Neuro-muscular coordination increases. This eliminates

the unnecessary body movements and thus enables the body to perform a task with full concentration.

10. The digestive system improves. The food is digested properly and quickly.
11. By doing exercise, the sugar-level in the blood is maintained. This reduces the risk of diabetes in children.
12. Due to the development of immune-system the body becomes less prone to diseases. The immune system of body improves.

Hence, it is clear that there are numerous advantages of physical activities for children with special needs. Physical development mental development, development of right behaviour, improvement in attention level, improvement in interpersonal relationship and improvement in academic performance takes place by participating in physical activities.

Q.23. What factors cause postural deformities?

- Ans.
1. Congenital
 2. Weak Bones or muscles
 3. Faulty posture of Bad Habits
 4. Overstrain
 5. Excessive body weight
 6. Lack of exercise
 7. Disease or accidents
 8. Unsuitable clothing
 9. Lack of knowledge
 10. Unsuitable furniture

Explain any five cause postural deformities.

Q.24. Explain the procedure of conducting Barrow there item general motor ability test.

Ans. General motor fitness of an athlete refers to the ability to perform effectively in his/her sports it involves speed, agility power, coordination balance and reaction time. Harold morion Barrow in 1954 introduce three test items.

1. Standing Broad jump for measuring leg

Strength: This test measures the strength of legs in jumping horizontal distance.

Equipment

1. Floor or marked mat.
2. Measuring tape
3. Chalk for marking

Procedure:

1. The subject stand behind the starting line with feet apart.
2. He jumps as far as possible by bending knees and swinging arms to take off on the broad jump in the forward direction.
3. The distance between the starting line and the landing point provides the score for the test.
4. Three trials are given the best trial i.e. the maximum distance in metres and centimetres is used as the final score of the test.

2. **Zig-Zag Run:** It measures the agility and speed of an individual in this test the subject is required to complete the course in shortest possible time. Four cones are placed on the corner of 16 × 10 feet course and fifth cone in the centre.

Equipment: (1) stop watch, (2) marked cones (3) Non-slippery surface or 16 × 10 feet mat.

Procedure:

1. Subject is asked to stand at the starting position
2. After the signal given he begins the zig-zag run and take three complete circuits.
3. Timer starts the stop watch, the subject crosses the finish point after the third round the timer stops the stopwatch.
4. Time is recorded in seconds. Best time of three trials is taken into consideration.

3. **Medicine Ball Put:** This test is conducted to check strength and explosive power of shoulders. It also measures the power, agility arm and shoulder girdle coordination speed and balance.

Equipment: 1. Medicine balls (6 kg for boys and 4 kg for girls)

2. Measuring tape 3. Open area for conducting the test.

Procedure:

1. The subject is asked to stand between the two restraining lines.

-
2. The subject holds the medicine ball in right hand and taken the position.
 3. He is asked to put the medicine ball straight down the course. The maximum distance in metres and centimetres of the three trials is the final score.

Q.25. Give the physiological differences between males and females.

Ans. 1. Cardiovascular System :

- (i) **Size of heart** : Males have larger hearts as compared to females. They also have better blood circulation and slower pulse rate as compared to females.
- (ii) **Stroke volume** : The amount of blood pumped out per beat from the left ventricle is termed as stroke volume. The amount of stroke volumes is more in males as compared to females.
- (iii) **Blood pressure** : Systolic and diastolic blood pressure in males is more as compared to females. In simple words, males have high blood pressure in comparison to females.
- (iv) **Oxygen carrying capacity** : Males have higher RBC count and haemoglobin level. Hence, they have more oxygen carrying capacity as compared to females.

2. **Respiratory System** : Males have bigger lungs than females so they have more oxygen carrying capacity than females. Males normally breath longer, deeper and slower as compared to females. That is why they have more capacity of oxygen intake. Since they have more oxygen in their body, male athletes have better endurance. They show better performance in long races.

3. **Muscular System** : Males have more muscle power due to their large muscle structure as compared to females. Due to muscular strength, they are able to lift heavy weight.

4. **Biological Activities** : Biological activities like menstruation occur in females and not in males. Such biological activities do not affect the body or sports performance of the female athletes directly but it is adviced not to take part in strenuous activities during that period.

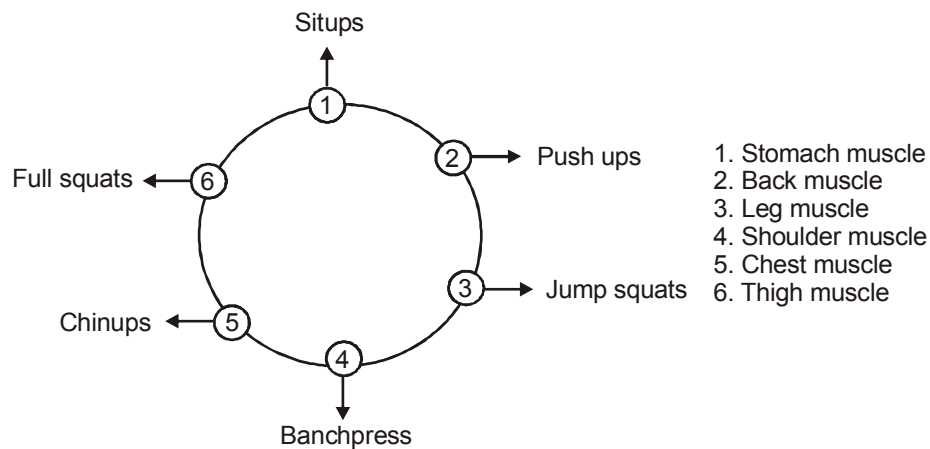
5. **Reaction Time** : Males react faster than females. For example,

in sprints male athletes are able to react faster on hearing the sound of pistol and run earlier than female athletes. This is because males have more muscular power as compared to females. Therefore, males take lesser time to react than females.

Q.26. Explain in brief about circuit training and prepare six station programmes.

Ans. Circuit training is a method of training conditioning or resistance training using multiple stations to complete a circuit. A circuit consists of 10-20 stations exercising according to the need and intensity of the training programme. Rest or recovery period between stations is controlled or limited. After completion of one circuit, next circuit is started after a fixed gap or recovery.

Circuit training can be done in gym. Using machine one after the other. It can also be done with the help of dumbbells, barbells, medicine balls, skipping rope, horizontal bar and hurdles etc. Circuit training is extremely useful for burning fat and developing endurance.



Circuit training station

Impact of circuit training:

- (i) It improves cardiovascular fitness through exercise such as jumping rope jogging etc.
- (ii) It improves general fitness by improving strength,

-
- flexibility and endurance.
- (iii) VO_2 max improves, this means that the body can take in more oxygen to be utilised by the muscles.
 - (v) Improves oxygen consumption by muscles.
 - (vi) Circuit training improves muscles strength. But it does not improve maximum strength or explosive strength. Some strength training exercises are push ups, dumbbells etc.
 - (vii) It improves muscular endurance. But circuit training alone cannot train a long distance runner for the top performance.