DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL
2025-2026

Class : XII

PHYSICAL EDUCATION

Under the Guidance of

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सचिव (शिक्षा)

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Date : 07/11/2025

MESSAGE

The Directorate of Education remains steadfast in its vision to achieve excellence in the academic domain and its commitment to develop meaningful, engaging, and child-friendly learning content.

Each year, the Directorate carefully reviews and updates the Support Material to ensure alignment with the latest CBSE guidelines and emerging academic developments.

The Support Material provides comprehensive academic support through well-structured practice questions and exercises that strengthen conceptual understanding and exam readiness and aims to nurture students' critical thinking, analytical abilities, and problem-solving skills. Through such sustained efforts, the Directorate of Education continues to guide students towards academic excellence and holistic growth.

This Support Material is intended to bridge classroom learning and examination preparation, enabling students to consolidate knowledge through systematic practice. It has been thoughtfully designed for students, with the belief that its effective use will strengthen their understanding and support them in achieving their learning goals with confidence.

I appreciate the dedication and collaborative effort of all those involved in the development of this material and extend my best wishes to all students —may this Support Material serve as an essential academic aid, enhancing students' confidence and preparedness for examinations.

Best Wishes.

(Pandurang K. Pole)

VEDITHA REDDY, IAS
Director, Education & Sports

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DE-5/228/Exam/Message/S.M/2018/
402
dated - 09/05/25

MESSAGE

Education is the cornerstone of a progressive society, and providing students with the right learning resources is essential for their academic and personal growth. Keeping this in mind, the Directorate of Education, GNCT of Delhi, develops comprehensive Support Material every year for various subjects of Classes IX to XII.

The support material serves as an additional study resource to supplement textbooks by offering clear and easy-to-understand explanation of complex topics. Our dedicated team of expert faculty members has meticulously reviewed and updated this material, aligning it with the latest CBSE syllabus, question paper pattern and assessment guidelines. Our effort is to simplify difficult concepts and make them more accessible to students, helping them save time and effort with ready references for effective preparation.

As Ruskin Bond beautifully said, "Education must inspire the spirit of inquiry, Creativity and Joy" True learning goes beyond memorisation-it encourages curiosity, fosters creativity, and makes the learning process meaningful and enjoyable.

In alignment with the vision of NEP 2020, the CBSE framework now places emphases on competency-based assessments for 50% of the evaluation, highlighting the need for students to develop critical thinking and problem-solving skills. The Support Material is designed to help students analyse concepts deeply, think innovatively, and apply their knowledge affectively, ensuring they are well-prepared not only for exams but also for real-life challenges.

I appreciate the dedicated efforts of the entire team of subject experts in developing this valuable learning resource. I am confident that both teachers and students will make the best use of these material to enhance learning and academic success.

Wishing all students great success in their exam and a bright, fulfilling future ahead.

Veditha

(VEDITHA REDDY, IAS)

Dr. RITA SHARMA
Additional Director of Education
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D.O. No. DE.5/228/Exam/Message/SM/2018/570
Dated: .. ***02/07/2025***

MESSAGE

"Children are not things to be molded, but are people to be unfolded." - Jess Lair

In line with this insightful quote, the Directorate of Education, Delhi, has always made persistent efforts to nurture and unfold the inherent potential within each student. This support material is a testimony to this commitment.

The support material serves as a comprehensive tool to facilitate a deeper understanding of the curriculum. It is crafted to help students not only grasp essential concepts but also apply them effectively in their examinations. We believe that the thoughtful and intelligent utilization of these resources will significantly enhance the learning experience and academic performance of our students.

Our expert faculty members have dedicated themselves to the support material to reflect the latest CBSE guidelines and changes. This continuous effort aims to empower students with innovative approaches, fostering their problem-solving skills and critical thinking abilities.

I extend my heartfelt congratulations to the entire team for their invaluable contribution to creating a highly beneficial and practical support material. Their commitment to excellence ensures that our students are well-prepared to meet the challenges of the CBSE examinations and beyond.

Wishing you all success and fulfilment in your educational journey.

(Dr. Rita Sharma)

DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL
2025-2026

PHYSICAL EDUCATION

Class : XII

NOT FOR SALE

PUBLISHED BY : DELHI BUREAU OF TEXTBOOKS

भारत का संविधान

भाग 4क

नागरिकों के मूल कर्तव्य

अनुच्छेद 51 क

मूल कर्तव्य - भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह -

(क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;

(ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;

(ग) भारत की संप्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण बनाए रखे;

(घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;

(ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभावों से परे हो, ऐसी प्रथाओं का त्याग करे जो महिलाओं के सम्मान के विरुद्ध हों;

(च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;

(छ) प्राकृतिक पर्यावरण की, जिसके अंतर्गत वन, झील, नदी और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणिमात्र के प्रति दयाभाव रखे;

(ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;

(झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;

(ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत् प्रयास करे, जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई ऊँचाइयों को छू सके; और

(ट) यदि माता-पिता या संरक्षक है, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य को शिक्षा के अवसर प्रदान करे।

Constitution of India

Part IV A (Article 51 A)

Fundamental Duties

It shall be the duty of every citizen of India —

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wildlife and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

*(k) who is a parent or guardian, to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

Note: The Article 51A containing Fundamental Duties was inserted by the Constitution (42nd Amendment) Act, 1976 (with effect from 3 January 1977).

*(k) was inserted by the Constitution (86th Amendment) Act, 2002 (with effect from 1 April 2010).

भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक [1][**संपूर्ण प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य**] बनाने के लिए, तथा उसके समस्त नागरिकों को :

सामाजिक, आर्थिक और राजनैतिक **न्याय,**

विचार, अभिव्यक्ति, विश्वास, धर्म

और उपासना की **स्वतंत्रता,**

प्रतिष्ठा और अवसर की **समता**

प्राप्त कराने के लिए,

तथा उन **सब में**

व्यक्ति की गरिमा और [2][**राष्ट्र की एकता और अखंडता**] सुनिश्चित करने वाली **बंधुता**

बढ़ाने के लिए

दृढ़संकल्प होकर **अपनी इस संविधान सभा में** आज तारीख 26 नवंबर, 1949 ई. को **एतद्द्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।**

---

1. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977 से) "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बयालीसवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977 से) "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

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1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

Class XII

Physical Education

Under the guidance of

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Member, Core Academic Unit

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Directorate of Education, Govt. of NCT of Delhi

Online Classes Link of Physical Education- XII

Unit (1): Planning in Sports (Part-A)

Link: https://youtu.be/oejN4ujbOQ0

Unit (1): Planning in Sports (Part-B)

Link: https://youtu.be/HFF3UIlH254

Unit (2): Sports and Nutrition (Part-A)

Link: https://youtu.be/zrzP2Pkz2oM

Unit (2): Sports and Nutrition (Part-B)

Link: https://youtu.be/TQcUmeCllB4

Unit (3): Yoga as Preventive Measures for Lifestyle diseases (Part A)

Link: https://youtu.be/ohxP-HOwq5Y

Unit (3):Yoga as Preventive Measures for Lifestyle diseases (Part B)

Link: https://youtu.be/hc6tHVPgYTA

Unit (4): Physical Education and Sports for CWSN

Link: https://youtu.be/hjt09tBns-g

Unit (5): Children and Women in Sports

Link: https://youtu.be/pt6jhOM2bAg

Unit (6): Test and Measurement in Sports

Link: https://youtu.be/66hH4rtoqts

Unit (7): Physiology and Injuries in Sports (Part-A)

Link: https://youtu.be/fkW7fm0MLuA

Unit (7): Physiology and Injuries in Sports (Part-B)

Link: https://youtu.be/S8LKgJ6tIMM

Unit (8): Biomechanics and Sports

Link: https://youtu.be/BcKXaRe3WIA

Unit (9): Psychology and Sports

Link: https://youtu.be/tgxgYxUi7ZI

Unit (10): Training in Sports

Link: https://youtu.be/zT96r-kxbMQ

Session 2025-2026
Annual Syllabus Class XII
Subject: Physical Education (Code: 048)
COURSE CONTENT

Theory **Max. Marks 70**

Unit (I) Management of Sporting Events

- Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)
- Various Committees & their Responsibilities (pre: during & post)
- Fixtures and their Procedures of Knock-Out (Bye & Seeding) & League (Staircase, Cyclic, Tabular Method) and Combination tournaments
- Intramural & Extramural tournaments - Meaning, Objectives & Its Significance
- Community sports program (Sports Day, Health Run, Run for Fun, Run for Specific Cause & Run for Unity)

Unit (II) Children & Women in Sports

- Exercise guidelines of WHO for different age groups
- Common Postural Deformities- Knock Knees, Bow Legs, Flat Foot, Round Shoulders, Lordosis, Kyphosis, and Scoliosis and their respective corrective measures
- Women's participation in Sports-Physical, Psychological, and social benefits.
- Special consideration (Menarche & Menstrual Dysfunction)
- Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)

Unit (III) Yoga as Preventive measures for Lifestyle Disease

- **Obesity:** Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsyasana, Halasana, Pachimottansana, Ardha-Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama

- **Diabetes:** Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana, Bhujangasana, Shalabhasana, Dhanurasana, Supta-Vajrasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gomukhasana, Yogmudra, Ushtrasana, Kapalabhati
- **Asthma:** Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottanasana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana, Matsyaasana, Anuloma-Viloma
- **Hypertension:** Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana, Uttan Mandukasana, Vakrasana, Bhujangasana, Makrasana, Shavasana, Nadi-shodhanapranayam, Sitlipranayam
- **Back Pain and Arthritis:** Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottanasana, Ardh-Chakrasana, Ushtrasana, Vakrasana, Sarala Maysyendrsana, Bhujangasana, Gomukhasana, Bhadrasana, Makrasana, Nadi-Shodhana pranayama

Unit (IV) Physical Education & Sports for CWSN (Children with Special Needs -Divyang)

- Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)
- Concept of Classification and Divisioning in Sports.
- Concept of Inclusion in sports, its need, and Implementation
- Advantages of Physical Activities for children with special needs
- Strategies to make Physical Activities assessable for children with special needs

Unit (V) Sports & Nutrition

- Concept of balance diet and nutrition
- Macro and Micro Nutrients: Food sources & functions
- Nutritive & Non-Nutritive Components of Diet
- Eating for Weight control- A Healthy Weight, The Pitfalls of Dieting, Food Intolerance, & Food Myths

- Importance of Diet in Sports-Pre, During and Post competition Requirements

Unit (VI) Test & Measurement in Sports

- Fitness Test- SAI Khelo India Fitness Test in school:
  - Age group 5-8 years class 1 -3: BMI, Flamingo Balance Test, Plate Tapping Test
  - Age group 9-18 years class 4-12: BMI, 50mt Speed test, 600mt Run/Walk. Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls)
- Measurement of Cardio-Vascular Fitness:

$$\text{Harvard Step Test} = \frac{\text{Duration of the Exercise in Seconds} \times 100}{5.5 \times \text{Pulse count of 1-1.5 Min (after Exercise)}}$$

- Computing Basal Metabolic Rate (BMR)
- Rikli & Jones - Senior Citizen Fitness Test

  I. Chair Stand Test for lower body strength

  II. Arm Curl Test for upper body strength

  III. Chair Sit & Reach Test for lower body flexibility

  IV. Back Scratch Test for upper body flexibility

  V. Eight Foot Up & Go Test for agility

  VI. Six Minute Walk Test for Aerobic Endurance
- Johnsen - Methney Test of Motor Educability: (Front Roll, Back Roll, Jumping Half-Turn, Jumping full turn)

Unit (VII) Physiology & Injuries in Sports

- Physiological factors determining components of physical fitness
- Effect of exercise on Muscular System
- Effect of exercise on Cardio-Respiratory System
- Physiological changes due to aging
- Sports injuries: Classification

Soft Tissue Injuries: Abrasion, Contusion, Laceration, Incision, Sprain & Strain;

Bone & Joint Injuries: Dislocation and Fracture

Fractures - Green Stick, Comminuted, Transverse, Oblique & Impacted

Unit (VIII) Biomechanics & Sports

- Newton's law of Motion & its application in sports
- Types of Levers and their application in Sports
- Equilibrium - Dynamic & Static and Centre of Gravity and its application in sports
- Friction & Sports
- Projectile in Sports

Unit (IX) Psychology & Sports

- Personality; its definition & types (Jung Classification & Big Five Theory)
- Motivation, its type & techniques.
- Exercise Adherence: Reasons, Benefits & Strategies for enhancing it
- Meaning, Concept & Types of Aggressions in Sports
- Psychological Attributes in Sports - Self Esteem, Mental Imagery, Self Talk, Goal Setting

Unit (X) Training in Sports

- Concept of Talent Identification and Talent Development in Sports
- Introduction to Sports Training Cycle - Micro, Meso, Macro Cycle.
- Types & Method to Develop- Strength, Endurance, and Speed
- Types & Method to Develop - Flexibility and Coordinative Ability
- Circuit Training -Introduction & its importance

Practical

Practical No.	Practical Content
Practical (I)	• Physical Fitness Test: SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)** Test for CWSN (any 4 items out of 27 items. One item from each component: Aerobic Function. Body Composition. Muscular strength & Endurance, Range of Motion or Flexibility)

Practical (II)	• Proficiency in Games and Sports (Skill of any one IOA recognised Sport/Game of Choice)****CWSN (Children With Special Needs - Divyang): Bocce/Boccia , Sitting Volleyball, Wheel Chair Basketball, Unified Badminton, Unified Football, Blind Cricket, Goalball, Floorball, Wheel Chair Races and Throws, or any other Sport/Game of choice.
Practical (III)	• Yogic Practices**Children With Special Needs can also opt any one Sport/Game from the list as alternative to Yogic Practices. However, the Sport/Game must be different from Test - "Proficiency in Games and Sports'

Note:

- Record File shall include:
- **Practical-1:** Fitness tests administration.
- **Practical-2:** Procedure for Asanas, Benefits & Contraindication for any two Asanas for each lifestyle disease.
- **Practical-3:** Anyone one IOA recognised Sport/Game of choice. Labelled diagram of Field &Equipment. Also mention its Rules, Terminologies & Skills.

UNIT - 1

Management of Sporting Events

UNIT - 1
Management of Sporting Events

Key Points :-

1.1 Functions of Sports Events Management (Planning, Organising, Staffing, Directing & Controlling)
1.2 Various Committees and their Responsibilities (pre; during and post)
1.3 Fixtures and their procedures- Knock-Out (Bye and Seeding), League (Staircase, Cyclic, Tabular method) and Combination tournaments.
1.4 Intramural and Extramural tournaments - Meaning, Objectives and its Significance
1.5 Community Sports Program (Sports Day, Health Run, Run for Fun, Run for Specifi Cause & Run for Unity)

1.1 Functions of Sports Event Management

Sport event managers deal with a plethora of issues related to planning, organising, staffing, directing and controlling sport events. Their areas of responsibility can be very broad or Specific depending on factors like the level of sports event, length of sport event, size of sport event and many more.

- **Planning**
  - **Meaning of Planning:**

    Planning is the process of thinking about the steps required to achieve goal/aim.
  - **Planning Process → Setting Objectives → Develop the Plan → Implementing the Plan → Follow-up Action.**
  - According to Harre, "Planning is a process to achieve objectives by solving the problem & making it easier to complete the task."
  - Planning is the first and most important step of sports event management because success or failure of any event mainly depends on its effective planning implementation,and execution of the plan.
- **Organising**

  Organising refers to the process through which various works/ responsibilities related to a event/ programme are specified, Classified and then assigned to various people and committees.

- **Organising process of sport event management-**
  (I) Identification and division of work.
  (ii) Formation of various departments/committees.
  (iii) Assignment of duties to concern departments/committees.
  (iv) Establishing reporting relations between all departments/ committees.

- **Staffing**
  Staffing refers to the process of appointing /Filling /hiring /Selecting eligible person by evaluating their skills & knowledge for specific post/job.

  Staffing Process of sports event management-
  (I) Estimating the manpower required
  (ii) Selection and recruitment of suitable candidates
  (iii) Placement, orientation, training and development of Manpower

- **Directing**
  Directing refers to instructing, guiding, communicating and inspiring human workforce to achieve a particular objective.

  Directing Process of Sports Event Management
  (I) **Supervision of subordinates**, it refer to monitor the progress of routine work of one's subordinates and guiding them properly.
  (ii) **Communication**, it refer to instructing subordinates regarding what to do, how to do, and when to do various things.
  (iii) **Leadership**, it refer to influencing subordinates to make them do work what the leader wants them to do.
  (iv) **Motivation**, it refer to the process which excites people to work for attainment of desired objective.

- **Controlling**
  Controlling refer to ensuring that all activities are performed as per the plans.

  Controlling Process of Sports Event Management
  (I) Setting performance standards.
  (ii) Measurement of actual performance.
  (iii) Comparison of actual performance with desired standards
  (iv) Analysing deviation
  (v) Taking corrective actions as per requirement

Multiple Choice Question (1 Marks)

Q.1. Which is not the objective of Planning.

(A) To reduce pressure
(B) To have good control over activities
(C) To minimise the chances of mistake
(D) **To improve the personal relation among the staff.**

Q 2 Aim of Planning is.....

(A) Complete the work
(B) Coordinate the event
(C) **To make successful event**
(D) Enjoyment

Q.3. To avoid the careless mistake under pressure and to achieve the goal, which of them should be more valuable.

(A) **Planning** (B) Staffing
(C) Supervision (D) Budgeting

Q.4. Selection of the most suitable person for a particular task is known as_____.

(A) Directing (B) Controlling
(C) **Staffing** (D) Organising

Q.5. What is planning? write any two objective of Planning

(1+2=3)

Ans. "Planning is a process to achieve objectives by solving the problems & making it easier to complete the task."

Objectives of planning are as follows:

1. To create good coordination,
2. To keep good control over all activities,
3. To reduce unnecessary pressure immediately,
4. To minimize the chances of mistake,
5. To avoid wastage of money, time & resources,
6. To utilize the resources effectively and economically,
7. To improve the effectiveness of the organization,
8. To increase the creativity,
9. To enhance the sports performance,
10. Helps in decision making,

(write any two objectives)

Q.6. Write the importance of directing process in management of sports event.

Ans. Importance of directing process in sport event management-

The importance of directing in sporting events can be understood from the following points:

- Positive direction/instructions motivates employees to give their best.
- Effective direction creates a harmonious relation between various departments and groups.
- Employees often resist to any kind of change in the organization, though changes are necessary for the growth of the organization. A manager through motivation, proper communication and leadership can make the employees understand and adjust themself according to the change without any conflict between the management and employees.
- Direction also defining the duties and responsibilities of every subordinate clearly thereby avoiding wastage duplication of efforts, etc. and utilizing the resources of men, machine, materials, and money in the maximum possible way. It helps in reducing costs and increasing profits.

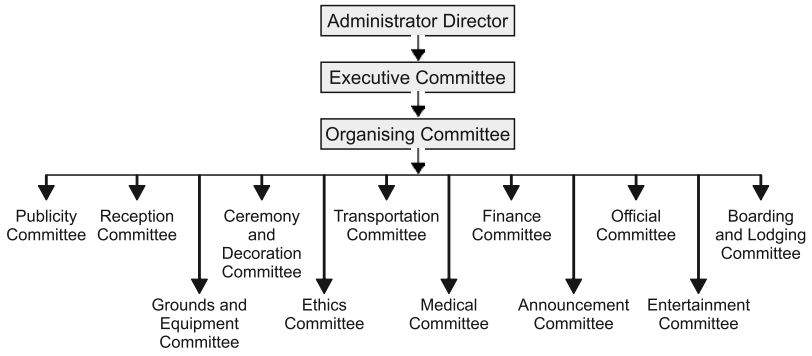
Q.7. Define organising & its importance.

Ans. Organising is necessary for smooth functioning of an event. The importance of organising in sport event can be understood from the following points:

- Organising helps in systematic classification of duties among the workforce. This helps to reduce workload and improves productivity as workers have to perform a specific work on a regular basis, according to their competency.
- Organising defines the work relationships between various deparment/committees and people. This removes confusion and chaos, in getting orders and instructions.
- Organising ensures the best possible utilization of resource. This is because duties are assigned to the specific employees which avoid overlapping and duplication of work.

- Organising process helps to make and adopt necessary changes in the hierarchy and relationship between various departments and posts.
- Delegation of authority reduce the unnecessary workload on employees, as a result they get time to explore new ideas to perform well. Hence, organising also encourages creativity.
- Organising process helps to maintain order, removes confusion regarding work and responsibility, and frames an ideal environment where all the members can work as a team.

1.2. Various Committees and their Responsibilities (Pre; During & Post Tournament)



Responsibilities of Committees

ADMINISTRATIVE DIRECTOR

↓

Executive Committee

Pre-Tournament Responsibilities	During-Tournament Responsibilities	Post-Tournament Responsibilities
– Organizing committee	– Publicity committee	– Publicity committee
– Publicity committee	– Organizing committee	– Marking committee
– Marking committee	– Marketing committee	– Finance committee
– Finance committee	– Transport committee	– Transport committee
– Transport committee	– Food and accommodation committee	– Committee for officials and Ground
– Food and accomm-Odation committee	– Grand and equipment committee	– Equipment committee
– Committee for officials	– Programme committee	– Programme committee
– Ground and equipment committee	– First Aid committee	– First Aid committee
– First Aid committee	– Decoration committee	– Prize distribution committee
		– Organizing committee

MCQ (1 Marks)

Q.1 Match the following

Ans.

(a)	Technical committee	(i)	To provide shifting facility
(b)	Finance committee	(ii)	To resolve dispute
(c)	Transport commitee	(iii)	To deals with money and expenditure
(d)	First aid committe	(iv)	To provide medical facility.

(A) **A–II, B–III, C–I, D–IV** ✓

(B) A–III, B–II, C–I, D–IV

(C) A–II, B–III, C–IV, D–I

(D) A–IV, B–III, C–I, D–II

Q.2 Out of them which is not the task of organising committee

Ans. (A) To Draw fixture

(B) To Select referee pannel for match

(C) To conduct the matches

(D) **To pre decide the winners** ✓

Q.3 What are the responsibilities of Publicity Committee? (2)

Ans. The responsibilities of Publicity Committee: This Committee provide information of competition in advance to all the players, coaches and teams. This committee will ues different mediums of mass media like T.V., Radio, Newspaper, Internet for advertizing the games. This committee would make sure to ensure high spectator and viewership.

Q.4 Write the functions of Transport Committee. (2)

Ans. Transport Committee: This Committee supervise the transportation, means to ensure swift movement of players and officials to Playing venue and their accommodation venue.

Q.5 Write down the role of the various committees post tournament (3)

Ans. The following are the role of the various committees after a tournament.

Publicity Committee: Give reports to media provide information of expenditure to organizing committee. Performance of Players, Records, other important information.

Finance Committee: Mantain a report of the total expenditure and budget for the tournament.

Transport Committee: Provide information regarding the proper use of vehicles after the end of the tournment.

Food and accommodation Committee: Repair work for any damage at accommodation site and providing information of report of players, officals regarding lodging & boarding 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 teams to organizing committee and distributing certificates to all participants and officials with thanks.

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

Prize Distribution Committee: Co-ordinating with decoration ceremony committee 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.6. Write down the role of the various committees before a tournament (Pre-tournament). (5)

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 tournment and assings tasks and responsibilities to them.

Publicity Committee :-

Spread information about the players / teams / officals / event prior to the tournament, by T.V., Radio, Newspapers, poster etc.

Marketing Committee :-

Purchasing all equipments and other items required for the tournament and ensuring their quality & quantity.

Finance Committee :-

Prepares budget and estimates possible expenditure during the tournament.

Transport Committee :-

Ensures proper transport facilities for the tournament for all the concerned persons those directly or indirectly participating in the event.

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 Engage qualified officials for tournament in required numbers.

Ground and Equipment Committee:-

Prepares the ground for the tournament few days prior to the tournament To arrange scientific equipments and well marked grounds (courts, halls, rings etc.) for tournament.

Programme Committee:-

To prepare the whole programme of reception, ceremony, decoration, prize distribution of the tournament. Keeps the records of the participating teams and prepares fixture.

First Aid Committee:-

To arrange qualified doctors, other helpers and maintain proper first aid kits for all possible situations and conditions of the tournament.

Programme Committee:-

Focus on the problems of the participating teams, athletes, official & try to solve it

First Aid Committee:-

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

Q.7 Write down the role of the various committees during a tournament. **(5)**

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.

Marketing Committee :-

Proper provision of all equipments will be required, during the tournament.

Transport Committee :-

Ensuring proper transportation of athletes between accommodation sites, stadium/playing sites, training centres etc.

Food and Accommodation Committee :-

Providing food to all officials and athetes during the tournament as their demand of work and also managing the proper accommadation site.

Committee for officials :-

Make proper arrangements for needs to of the officials during a tournment.

Ground and Equipment Committee :-

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

Programme Committee :-

Focus on the problems of the participating teams, athletes, official & try to solve it

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 of all the ceremony– opening, closing, prize distribution etc is proper during the tournament.

Announcement Committee :-

Announce important information like the particiapaints of the next match, time, court and date from the stage.

Practice Questions

Q.1. Enlist all committees to organise a sports Tournament. (2)

Q.2. Write the function of any two committees before the tournament. (1x2)

Q.3. Write two function of reception & ceremony decoration committees. (2)

Q.4. Describe the contribution of Tournament Programme Committee. (2)

Q.5. Write down the responsibilities of any three committees before Tournament. (1x3)

Q.6. Write down the responsibilities of organising committees, official committees and Ground & Equipments committees. (1x3)

Q.7. Describe the responsibilities of any three committees after the tournament. (1x3)

Q.8. Elucidate the functions of first aid committee, boarding & lodging committee and Prize distribution committee during the sports events. (1x3)

Q.9. Enlist various committee during the tournament. Explain the responsibilities of any four committee. (1+4)

Q.10. Write down responsibilities of any five committees before the tournament. (1x5)

1.3 Fixtures and its Procedures

- Knock-Out (Bye and Seeding)
- League (Staircase, Cyclic, Tabular method)
- Combination tournaments

Fixture-Fixture is the process of arranging the participating teams in systematic order in various group or at specific position. It includes all the essential information of the event/tournament like day, date, Venue & time of the match of the participating team.

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

Types of Tournament

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

C. Combination Tournament- Tournament in which initial round of tournament are played on particular basis (knock-out or league) and rest of the tournament played on another particular basis.

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

Method of Deciding the Winner in League Tournament

1. **Canadian Method-** Points are provided for each win, or draw or loss. The team whoever credit maximum points is declared winner.

   Winner = 2 point, Draw=1 point. Loss=0 point.

2. **British Method-** The winning team receives two points, the runner-up receives one point, and the losing team receives zero points.

$$\text{Percentage of points} = \frac{\text{Total points Obtained}}{\text{Total Possible Points}}$$

3. **American Method-** Divide the number of games won by the total number of games played.

$$\text{Percentage} = \frac{\text{Matches Won}}{\text{Match Played}} \times 100$$

Procedure to Draw Fixture for Knockout Tournament

Step 1. Divide the total number of teams into two halves ,if total number of teams are more then 16 then divide 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. of teams are more than 16, the byes of upper half and lower half will be Placed Separately.

Step 7. In case of seeding or special seeding we calculate the byes by deducting total no. of seeding from the total no. of teams.

Formula No. 1 : Total No. of Matches = Total No. of Team-1.

Total No. of Matches = **N - 1**

Formula No. 2 : Total no. of Rounds

To calculate total no. of rounds, multiply 2 with 2 continuously (2x2x2....) until the multiplication value reaches equal to or just more than the total no. of teams, than count the repetition of digit 2 multiplication which will be equal to total no of rounds.

Formula No. 3: Total no. of Byes = Next Power of 2 - Total no. of Teams Total no. of Byes = $\mathbf{2^n - N}$

Formula No. 4 Division of Upper Half & Lower Half

If total no. of teams are even (e.g. 2,4,6,8....) then

$$\text{Teams in Upper Half} = \frac{\text{Total no. of Teams}}{2} = \frac{N}{2}$$

$$\text{Teams in Lower Half} = \frac{\text{Total no. of Teams}}{2} = \frac{N}{2}$$

If Total no. of teams are odd (e.g. 3,5,7,9....) then

$$\text{Teams in Upper Half} = \frac{\text{Total no. of Teams} + 1}{2} = \frac{N + 1}{2}$$

$$\text{Teams in Lower Half} = \frac{\text{Total no. of Teams} - 1}{2} = \frac{N - 1}{2}$$

Formula No. 5 Division of Byes in Upper Half & Lower Half

If total no. of byes are even (e.g. 2,4,6,8....) then

$$\text{Byes in Upper Half} = \frac{\text{Total no. of Byes}}{2}$$

$$\text{Byes in Lower Half} = \frac{\text{Total no. of Byes}}{2}$$

If total no. of byes are odd (e.g. 1,3,5,7....) then

$$\text{Byes in Upper Half} = \frac{\text{Total no. of Bye} - 1}{2}$$

$$\text{Byes in Lower Half} = \frac{\text{Total no. of Bye} + 1}{2}$$

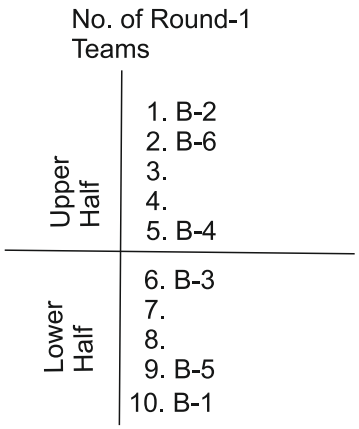
Formula No. 6 : To divide the total no.of teams in quarters then divide the total no. of team by 4 & follow the given table.

4) Total no.of team (Q

R

Qsr	Quarter-1	Quarter-2	Quarter-3	Quarter-4
If R=O	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 to 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 bye besides bye no. 3

8th bye near to bye no. 4 then

9th bye near bye no. 5 and so on.

Seeding placement will follow the same sequence as bye

- **Seeding**

  It is a procedure by which good team (Last Year Position holder teams) are placed in Fixtures in such a way that stronger teams do not compete each other at the very beginning of a tournament.

Seeding method is only possible when we have the Standard (ranking) of teams well known before the tournamenr/event.

Example:- No. (1)

Draw a fixture on knock out basis for 11 teams by giving Seeding to 2 teams.

Solution : Total no. of matches = Total no of team -1 = 11-1 = 10

Total no. of round = 2x2x2x2 = Rounds

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

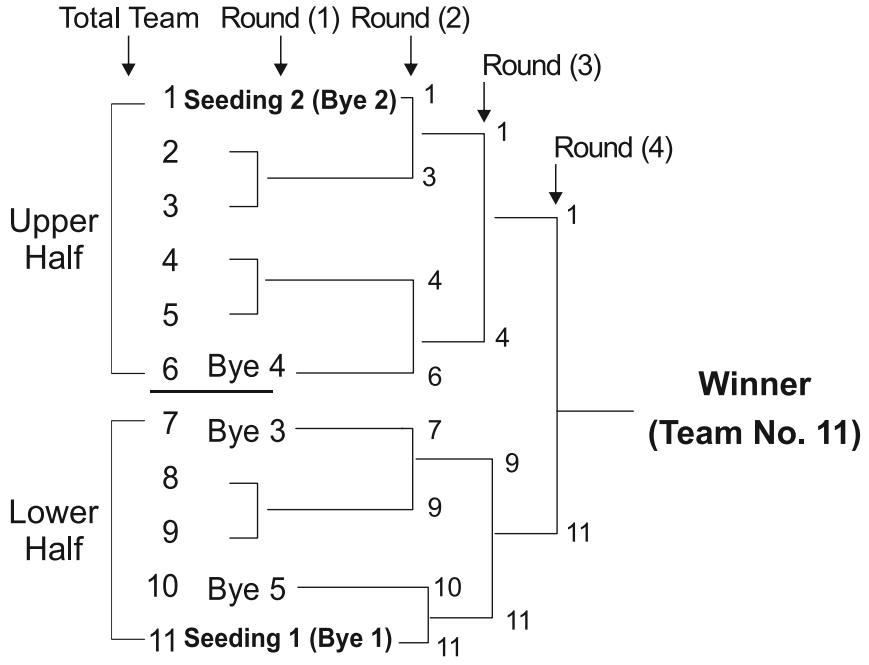
$$\text{Team in Upper Half} = \frac{N+1}{2} = \frac{11+1}{2} = \frac{12}{2} = 6$$

$$\text{Team in Lower Half} = \frac{N-1}{2} = \frac{11-1}{2} = \frac{10}{2} = 5$$

Total no. of Byes = $2^n - N = 2^4 - 11 = 16 - 11 = 5$

$$\text{Byes in Upper Half} = \frac{\text{Total Byes} - 1}{2} = \frac{5-1}{2} = \frac{4}{2} = 2$$

$$\text{Byes in Lower Half} = \frac{\text{Total Byes} + 1}{2} = \frac{5+1}{2} = \frac{6}{2} = 3$$



Example No. (2)

Draw the fixture of 13 teams on the basis of knock-out tournament.

Solution: Total no. of Matches = Total no. of teams - 1

= 13 - 1 = **12 matches**

Total no. of Round = 2x2x2x2 = 2^4

(Digit 2 repeats four time) so, Total no. of rounds = 4

Total no. of Bye = next power of 2 - total no. of teams

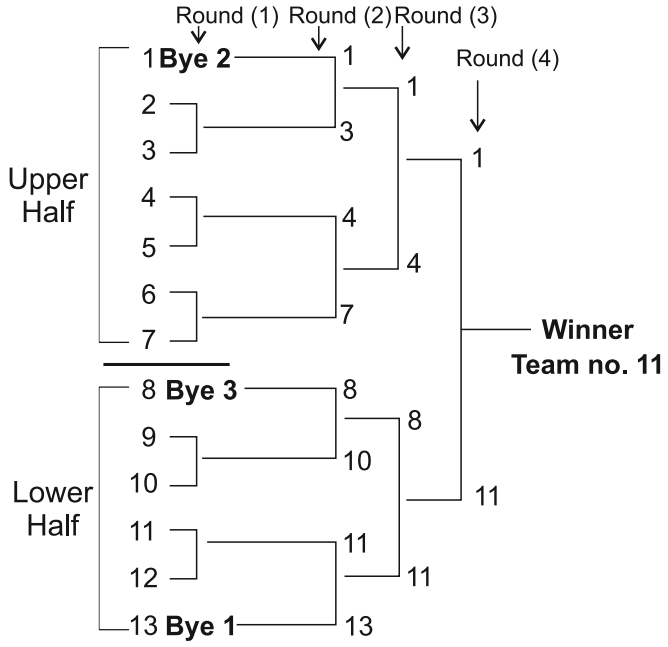
= 2^n - N = 16 - 13 = 03

No. of teams in Upper Half (Runners-up) = $\frac{N+1}{2} = \frac{13+1}{2} = 07$

No. of teams in Lower Half (Winner) = $\frac{N-1}{2} = \frac{13-1}{2} = 06$

No. of Bye in Upper Half = $\frac{\text{Total Bye} - 1}{2} = \frac{3-1}{2} = \frac{2}{2} = 1$

No. of Byes in Lower Half = $\frac{\text{Total Bye} + 1}{2} = \frac{3+1}{2} = \frac{4}{2} = 2$



Example No. (3)

Draw the fixture of 24 teams on the basis of knockout tournament

Solution: Total no. of Matches = Total no. of teams - 1 = 24-1 = 23.

Total no. of Rounds = 2x2x2x2x2

i.e. Digit 2 report 5 times

So total no. of Rounds = 5

Total team in Upper Half = $\frac{\text{Total no. of teams}}{2} = \frac{24}{2} = 12$

Total team in Lower Half = $\frac{\text{Total no. of teams}}{2} = \frac{24}{2} = 12$

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

Teams in each quarter: $4\overline{)24}(\ 6$ (Q=6)

$\underline{24}$

0 (R=0)

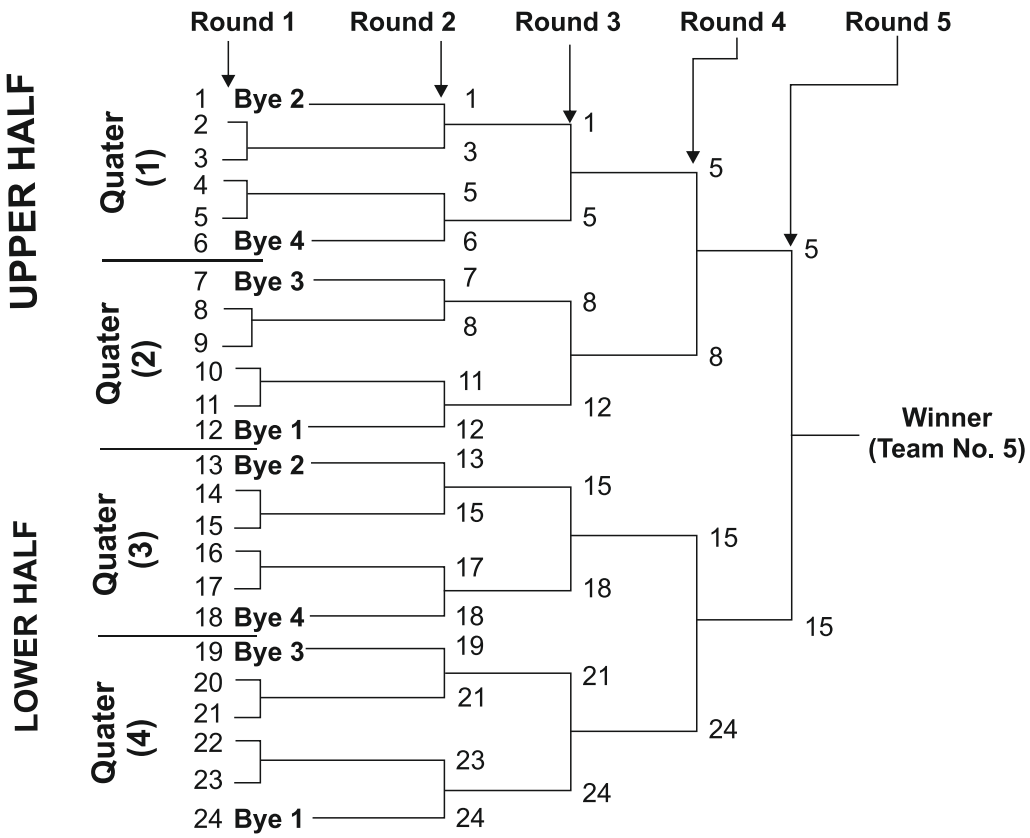
Total No. of Bye = Next power of two - Total no. of team

$= 2^n - N \quad = 2^5 - 24$

$= 32 - 24 = 08$ Byes

Bye in Upper Half = $\frac{8}{2} = 4$ Byes

Bye in Lower Half = $\frac{8}{2} = 4$ Byes


Round 1
Round 2
Round 3
Round 4
Round 5
UPPER HALF
LOWER HALF
Quater (1)
Quater (2)
Quater (3)
Quater (4)
1 Bye 2
2
3
4
5
6 Bye 4
7 Bye 3
8
9
10
11
12 Bye 1
13 Bye 2
14
15
16
17
18 Bye 4
19 Bye 3
20
21
22
23
24 Bye 1
1
3
5
6
7
8
11
12
13
15
17
18
19
21
23
24
1
5
8
12
15
18
21
24
5
15
Winner
(Team No. 5)

Procedure to draw the fixture for League Tournament

Staircase Method

Total no. of Matches

$$= \frac{\text{Total no. of Teams (Total no. of Teams - 1)}}{2}$$

$$\text{Total no. of Matches} = \frac{N (N - 1)}{2}$$

Take team no. 1 and arrange its all match then take team no.2 arrange its all matches then team no. 3 then 4 & so on.

e.g. Total no. of Teams = 5

1 - 2			
1 - 3	2 - 3		
1 - 4	2 - 4	3 - 4	
1 - 5	2 - 5	3 - 5	4 - 5

Cyclic Method

In Single League

Total no. of Matches $= \frac{N (N - 1)}{2}$

In Double League

Total no. of Matches $= N (N - 1)$

Total no. of Round

(If even) Total no. Teams - 1 = N - 1
(If odd) Total no. of Teams = N

Pairs of Teams

If total no. of teams are even its pair can be made.

e.g. Total no. of Teams = 4

1st round	2nd round	3rd round
4 - 1	3 - 1	2 - 1
3 - 2	2 - 4	4 - 3

Note : Rotate teams in clock wise Direction in each round.

But if the total no. of teams are odd then add one teams as bye then their pair can be made.

e.g. Total no. of Teams = 5

1st round	2nd round	3rd round	4th round	5th round
5 - B	4 - B	3 - B	2 - B	1 - B
4 - 1	3 - 5	2 - 4	1 - 3	5 - 2
3 - 2	2 - 1	1 - 5	5 - 4	4 - 3

Note : Rotate teams in clock wise Direction in each round.

Example No. (1)

Draw the fixture of 10 teams with the Staircase method of league tournament.

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

Example No. (2)

Draw the fixture of 9 teams with the Cyclic method of league tournament.

Total Number of Teams = 9

Total Number of Matches = $\frac{N(N-1)}{2} = \frac{9(9-1)}{2} = \frac{9\times8}{2} = \frac{72}{2} = 36$

Total Number of Rounds = 9

Fixture

1st round	2nd round	3rd round	4th round	5th round
9 - B	8 - B	7 - B	6 - B	5 - B
8 - 1	7 - 9	6 - 8	5 - 7	4 - 6
7 - 2	6 - 1	5 - 9	4 - 8	3 - 7
6 - 3	5 - 2	4 - 1	3 - 9	2 - 8
5 - 4	4 - 3	3 - 2	2 - 1	1 - 9

6th round	7th round	8th round	9th round
4 - B	3 - B	2 - B	1 - B
3 - 5	2 - 4	1 - 3	9 - 2
2 - 6	1 - 5	9 - 4	8 - 3
1 - 7	9 - 6	8 - 5	7 - 4
9 - 8	8 - 7	7 - 6	6 - 5

Example No -3

Draw the fixture of 8 teams with the tabular method of league tournament.

Total no. of Round = N-1 = 8-1 = 7 Round

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

Note: Alphabets (A to H) = teams, numbers (1 to 7) = rounds

ROUND (1)	ROUND (2)	ROUND (3)	ROUND (4)	ROUND (5)	ROUND (6)	ROUND(7)
A Vs B	A Vs C	A Vs D	A Vs E	A Vs F	A Vs G	A Vs H
C Vs G	B Vs H	B Vs C	B Vs D	G Vs E	B Vs F	B Vs G
D Vs F	D Vs G	E Vs G	C Vs H	C Vs D	C Vs E	C Vs F
E Vs H	E Vs F	F Vs H	F Vs G	G Vs H	D Vs H	D Vs E

S.No.	Teams	Match played	Matches Won	Matches Lost	Matches Drawn	Total Points	Ranking g
1	A	7	5	2	0	25	1(Q)
2	B	7	2	3	2	19	VI
3	C	7	2	2	3	16	IV(Q)
4	D	7	2	4	1	13	VII
5	E	7	3	2	2	21	III(Q)
6	F	7	4	2	1	23	II(Q)
7	G	7	1	4	2	11	VIII
8	H	7	3	3	1	18	V

Note: Winner = 5 points, Draw = 3 points , Losing = 0 point.

British Method-

Total no of Team = 8 A team. Played-7

No. of wins - 5 , Draw-0 , Loss-2

Total Points Earned (TP) = No. of won Matches × 2 + NO. of Draw × 1-5 × 2 =10

Possible Points (PP) - A Team Played × 2 = 7 × 2 = 14

Percentage (%)-TP/PP × 100 = 10/14 × 100 = 71.4%

American Method-

Total no. of Team = 8

A Team Played-7

No. of Wins-5

Draw-0

Loss-2

Percentage (%) : $\frac{\text{win Matches}}{\text{Total Matches Played}} \times 100 = \frac{5}{7} \times 100 = 71.4\ \%$

Example No -4

Draw the fixture of 7 teams with the tabular method of league tournament.

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

Example No -5

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 or league) and rest on the other particular basis.

Fixture :- Make the groups of equal teams i.e. 20 /4=5 (makes 4 group each group has equal 5 teams.)

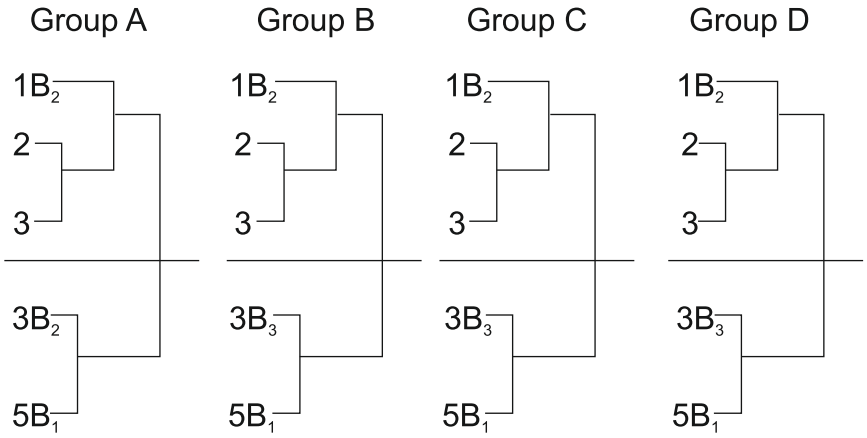
Group (A)- 1, 2, 3, 4, 5

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

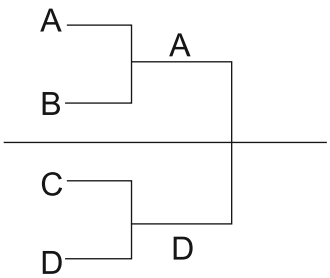
Group (C) 1, 2, 3, 4, 5

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

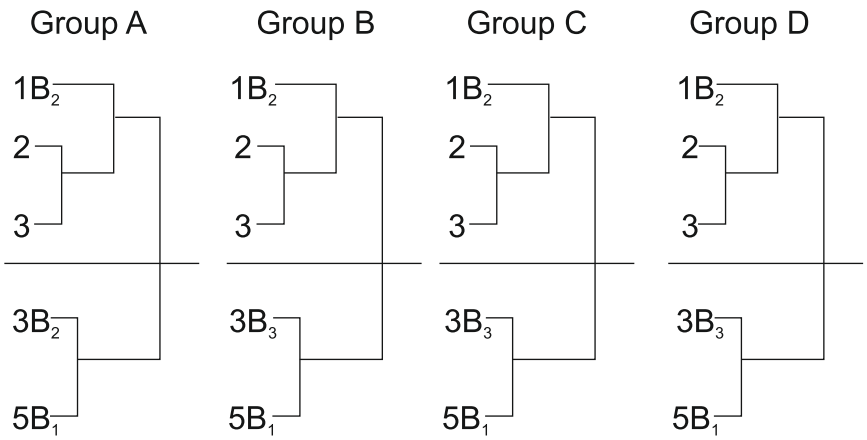
Knock out cum knock out



Group winner (A, B, C, D)



Knock out cum league



League cum league

Group A	Group B	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

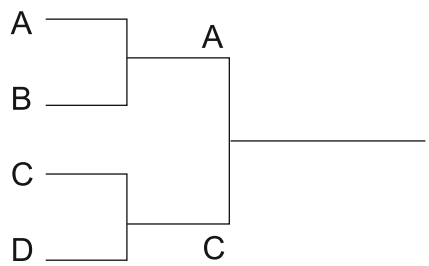
Group winner = A, B, C, D

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 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 just like A = A, B, C, D



Multiple Choice Questions MCQ (1 Marks)

Q.1 Total number of matches for knock out tournament is decided as—

(A) **(N – 1)** (B) $(N^2 - 1)$

(C) $(N \times n - 1)$ (D) $\left(\frac{N\,(N\,-1)}{2}\right)$

Q.2 To calculate Total No. of matches for league Tounament (single league) —

(A) $\frac{N\,(N\,-1)}{2}$ (B) $\left(\frac{N^2 - 1}{2}\right)$

(C) $(N^2 - 1)$ (D) $(N - 1)^2$

Q.3 How many bye will be given for 21 teams on the knock out basis.

(A) **11** (B) 16

(C) 14 (D) 17

Q.4 In the placement of Byes, IV Bye is given to whom.

(A) 1st Team of Lower Half

(B) 1st Team of Upper Half

(C) Last Team of Lower Half

(D) **Last Team of Upper Half**

Q.5 To calculate the total no of team in upper half for knock out tournament when total no of teams are odd, which formula is used.

(A) $\frac{N\,+1}{2}$ (B) N – 1

(C) $\frac{N^2 + 1}{2}$ (D) $\frac{(N + 1)^2}{2}$

Q.6 Match the following :

(A) Seeding	(1) Number of Matches
(B) Bye	(2) No Match in first Round
(C) Cyclic	(3) Total numbers of Teams are not in Power of 2
(D) $N\left(\frac{N-1}{2}\right)$	(4) League Tournament

(a) A-1, B-2, C-3, D-4 (b) **A-2, B-3, C-4, D-1**

(c) A-3, B-4, C-1, D-2 (d) A-4, B-1, C-2, D-3

Short Answer Types Question (3 Marks)

Q.1 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

Q.2 Draw the fixture of 13 teams on the basis of knock-out tournament.

Ans. Total no. of Matches = Total no. of teams - 1

= 13 - 1 = **12 matches**

Total no. of Round = 2x2x2x2

(Digit 2 repeats four time) so, Total no. of rounds = 4

Total no. of Bye = next power of 2 - total no. of teams

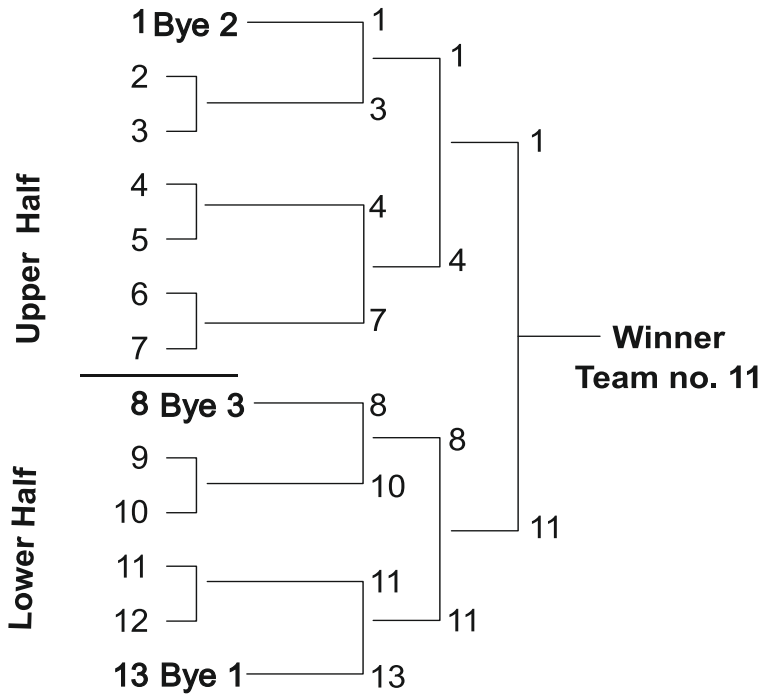
$= 2^n - N = 16 - 13 = 03$

No. of teams in Upper Half = $\frac{N + 1}{2} = \frac{13+1}{2} = 07$

No. of teams in Lower Half = $\frac{N - 1}{2} = \frac{13-1}{2} = 06$

No. of Bye in Upper Half = $\frac{\text{Total Bye} - 1}{2} = \frac{3-1}{2} = \frac{2}{2} = 1$

No. of Byes in Lower Half = $\frac{\text{Total Bye} + 1}{2} = \frac{3+1}{2} = \frac{4}{2} = 2$



Q.3 Draw a fixture on knock out basic for 11 teams by giving Seeding to 2 teams.

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

Total no. of round = 2x2x2x2 = Rounds

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

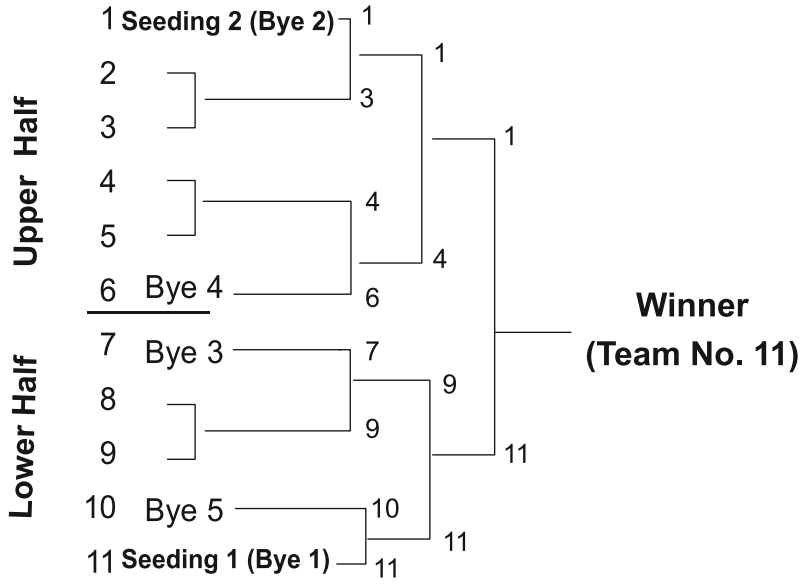
$$\text{Team in Upper Half} = \frac{N+1}{2} = \frac{11+1}{2} = \frac{12}{2} = 6$$

$$\text{Team in Lower Half} = \frac{N-1}{2} = \frac{11-1}{2} = \frac{10}{2} = 5$$

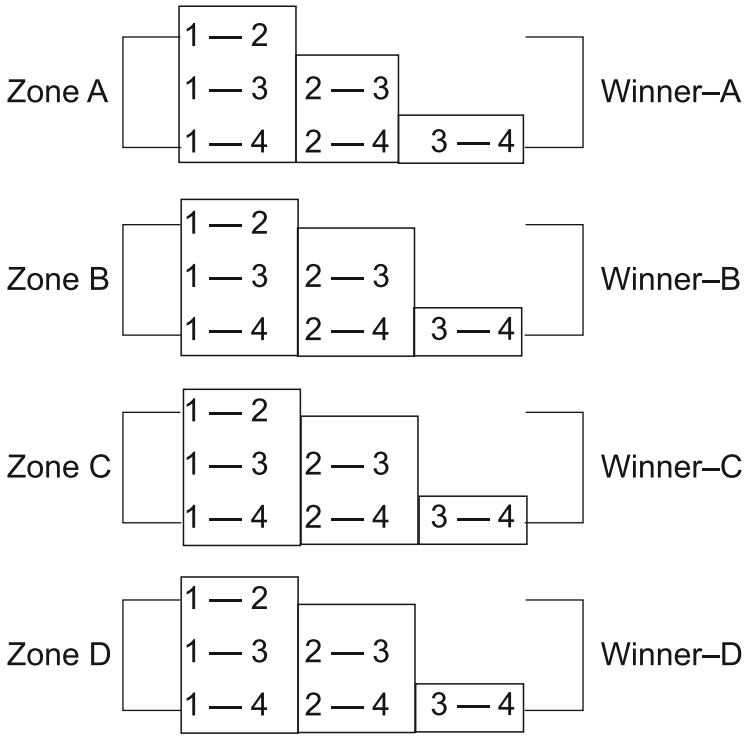
Total of byes = $2^n - N = 2^4 - 11 = 16 - 11 = 5$

$$\text{Byes in Upper Half} = \frac{\text{Total Byes} - 1}{2} = \frac{5-1}{2} = \frac{4}{2} = 2$$

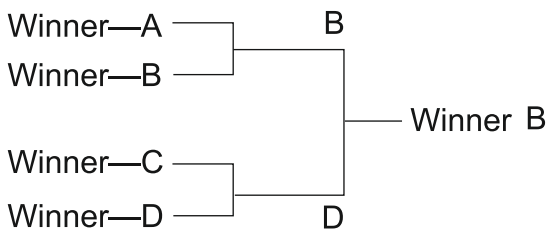
$$\text{Byes in Lower Half} = \frac{\text{Total Byes} + 1}{2} = \frac{5+1}{2} = \frac{6}{2} = 3$$



Q.4 Draw a fixture for Combination Tournament on the basis of League cum Knock out for 16 teams



Inter-(group or Zonal Tournament on Knock-out basis



Practice Questions

Q.1. Draw the fixture for 08 teams on the basis of know-out tournament. **(2)**

Q.2. Draw the fixture for 5 teams on the basis of League tournament with cyclic method. **(3)**

Q.3. Draw the fixture of 09 teams on the basis of league tournament with tabular method. **(3)**

Q.4. Draw the fixture of 20 teams on the basis of combination tournament with league cum knock out with tabular method. **(5)**

Q.5. Draw the fixture for 27 teams on the basis knock out tournament. **(5)**

MCQ's

Q.6. Match list -1 with list - 2 and select the correct answer from the code given below. **1**

List -1	List -2
1. Seeding	(A) League Tournament
2. Extramurals	(B) Control Dispute
3. Cyclic	(C) Performance Basis
4. Expert / Technical Committee	(D) Among the Schools

Code				
	1	2	3	4
(a)	**C**	**D**	**A**	**B**
(b)	A	B	C	D
(c)	B	C	D	A
(d)	D	A	B	C

Q.7. Match list -1 with list - 2 and select the correct answer from the code given below. 1

List -1	List -2
1. N - 1	(A) Once in a Year
2. Sports Day	(B) Within the School
3. Intramural	(C) No. of Matches in League Tournament
4. $N\left(\frac{N-1}{2}\right)$	(D) No. of Matches in Knock out Tournament

Code				
	1	2	3	4
(a)	A	B	C	D
(b)	**D**	**A**	**B**	**C**
(c)	B	C	D	A
(d)	C	D	A	B

Q.8. Given below one the two statements labelled Assertion (A) & Reason (R)

Assertion (A): Seeding is the procedure of shifting position of good teams to avoid matches in starting of a tournament.

Reason (R): It is done to keep the interest of spectators alive till Final of a tournament.

(A) Both (A) and (R) are true and (R) is correct explanation of (A)

(B) Both (A) and (R) are true and (R) is not correct explanation of (A)

(C) (A) is true & but (R) is false

(D) (A) is false & (R) is true

Q.9. Given below one the two statements labelled assertion (A) and Reason (R)

Assertion (A): sports management involving organising, administration & supervising the total tournament.

Reason (R): well begin is half done.

(A) Both (A) & (R) are true & (R) is correct explanation of (A)

(B) Both (A) & (R) are true & (R) is not correct explanation of (A)

(C) (A) is correct but (R) is not correct

(D) (A) is not correct but (R) is correct

1.4. Intramural and Extramural - Meaning, Objectives and its Significance

The meaning of the word 'intramural' is "within the walls". In context of sports, it refers to a tournament conducted with the walls of a single institution/ school/ community. Intramural competitions/tournament are conducted within players of one institution.

Objectives of Intramural

1. To encourage mass participation in sports in an institution.
2. To focus on all-round development of children.
3. To develop values like fair play, respect, friendship through sports.
4. To provide first opportunity to compete in a controlled environment.
5. To focus on fitness, wellness and health aspects of children.

6. To promote curricular integration through sports.
7. To help childrens to develop personality (first stage of leadership, control of emotions, corporation etc.)

Significance of Intramural

1. Selection for extramural
2. Group cohesion
3. Professional experience
4. Health
5. Recreation
6. Mass participation

Extramural - Meaning, Objectives and its Significance

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 Extramural

1. To achieve high performance at highest level of the tournament,
2. To develop the feeling of integration with other institutions,
3. To provide opportunities for choosing a career in sports,
4. To promote social, cultural, economic development through sports

Significance of Extramural

1. Help in the personality development of the students,
2. Develop the leadership qualities of the students,
3. Understand the Rules and Regulations of various games,

4. To control the level of aggression in an individual,

5. To develop the sense of competitiveness,

6. To improve the standard of Sports.

Multiple choice Question / MCQ (1 Marks)

Q.1 Intramural Tournaments are those Tournaments which are organised.

(a) With in the boundary wall of institute

(b) Out side the boundary wall of institute

(c) Interzonal level

(d) At national level

Q.2 Which is not the objectives of Intramural Tournament.

(a) To Provide Recreation

(b) To help in over all development

(c) To achieve high performance

(d) To provide opportunity to Learn a variety of games & skill.

Q.2 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.

Practice Question

Very Short Answer Type Question (2 Marks)

Q.1. Briefly explain the objectives of intramural tournaments.(2)

Q.2 Write down the significances of the extramural tournament. (2)

Short Answer Type Question (3 Marks)

Q.1 Differentiate between Intramural & extramural Tournament. (1.5 +1.5)

Q.2 What is Intramural Tournament? Describe significances for school children. (1+2)

Long Answer Type Question (5 Marks)

Q.1 Discuss the objectives of Intramural & Extramural Tournament (2½ + 2½)

Q.2 What is extramural Tournament? Explain these significances be detail. (1+4)

1.5 Community Sports Program (Sports Day , Health Run, Run for Fun, Run for Specific Cause and Run for Unity)

Community Sports Program

It is a society-based practice of connecting and engaging people with opportunities to participate in sports, exercise and fitness activities. Community sports can serve as a backbone for developing health promotion initiatives within community members ranging from school children, adults, elders and various other socially vulnerable populations. Community Sports are conducted for wide variety of purposes, by involving citizens and public residing in a society. Community sports provide opportunities for conducting sporting events frequently depending on the purpose like the community awareness programs, social campaigns, talent search, recreational opportunities and may more.

Sports Day

It is one of the important programs that feature in the annual calendar of most residentials areas, community, schools. It is an event not only to showcase abilities and powers of children and youth in the sports field but also a great opportunity for community members to meet, greet and interact with each other. It also reflects the organizational strength of the society members and various other organizing institutions. To celebrate Sports day the focus should not only be participation of talented athletes, but displaying a wide variety of skills among its members. Major focus should be maximum engagement and involvement of community members and other stakeholders.

Importance of sports day: (i) The leadership and ethic values are developed among the Students.

(ii) Recreation is being provided to students.

(iii) Participation makes students fit and healthy.

(iv) Children learn co-operation, unity, respect for each other.

Health Run

Such kind of run is generally conducted for the purpose of improving the health standards in society and creating awareness about the importance of physical activities for maintaining good health or for raising charity. In this run, the purpose of the runners is not to win, but to participate in the events. To get its full impact, a large number of registrations are required. There is no age bar for participants; it is not a professional race so there is no need to run a long distance. Such a run can be conducted by

NGOs or health departments to spread awareness about health-related issues.

Advantages of Health Run:

1. Helps in respiratory system.
2. Less chance of heart ailment.
3. Helps to reduce obesity.
4. Increase flexibilities and endurance.
5. Reduces stress and provide recreation.

Run for Fun

The purpose of this run is to spread the message of staying fit and healthy among the masses. Sometimes such races may be conducted to raise funds for a specific purpose. In schools such races attract children and their parents. These are friendly races and may be conducted for any age group. However, the physical education teacher must be careful and plan meticulously to avoid any kind of accident or mishap. Age, mobility, types of movement involved should be taken care of.

Examples Races for Fun

Lemon and spoon race, sack race, three-legged race, parent and child race, teacher and child race, banana race, road running etc.

Run for Specific Cause

This event is generally conducted to spread awareness about social issues like cleanliness, promoting green environment etc. The purpose of such events is to spread awareness among the masses for a definite cause or to generate charity.

Example, the specific cause may be cancer, AIDS, gender inequality etc.

Run for Unity

In such type of run the purpose is to promote the feeling of integrity and brotherhood in community, state, nation or among different religions. Such events help to develop bonding and a sense of togetherness among people

Multiple Choice Question /MCQ (1 Marks)

Q.1. Match the following

(a)	Run for fun	(i)	Organised once in year
(b)	Health Run	(ii)	To provide the sense to work jointly
(c)	Sports Day	(iii)	To Promote sense of physical, mental, social & emotional well being
(d)	Run for unity	(iv)	To provide enjoyment

(a) A-I, B-II, C-III, D-IV

(b) A-II, B-I, C-IV, D-III

(c) A-IV, B-I 1 i, C-I, D-II

(d) A-IV, B-III, C-II, D-I

Practice Questions

Very Answer Type Question (2 Marks)

Q.1 Explain the meaning of Community sports programs.

Q.2 Write a short note on sports day.

Short Answer Type Question (3 Marks)

Q.1 Health run are very beneficial for health justify.

Q.2 Write very short note on run for fun & run for specific cause

Long Answer Type Question (5Marks)

Q.1 Define Community Sports Program. Describe any five Specific sports programme.

UNIT - 2

Children and Women in Sports

UNIT - 2
Children and Women in Sports

Key Points :-

2.1. Exercise guidelines of WHO for different age groups.

2.2 Common postural deformities-knock knees, flat foot, round shoulders, Lordosis, Kyphosis, Scoliosis, and bow legs and their respective corrective measures.

2.3 Women's participation in Sports - Physical, Psychological, and social benefits.

2.4 Special consideration (menarche and menstrual dysfunction)

2.5 Female athlete triad (osteoporosis, amenorrhea, eating disorders).

2.1 World Health Organisation (WHO) has developed certain guidelines - Global Recommendations on Physical Activity for Health - with the overall aim of providing national and regional level policy makers with guidance on the frequency, duration, intensity, type and total amount of physical activity needed for the prevention of Non-Communicable Diseases or Lifestyle Diseases

1. Recommendations for Children Under 5 Years of Age

The following guidelines are recommended for healthy children aged Under 5 years, irrespective of gender, race, ethnicity, cultural background, and the socio-economic status of the family. These are also relevant for children with different abilities. Children with a medical condition or disability should consult with health professionals before undertaking these activities.

Age	Sedentary Behaviour	Physical Activity	Sleep
Less than 1 year	Not be restrained for more than 1 hour act a time. Encourage reading and storytelling when sedentary. Screen time is not recommended.	Physically active several times a day through interactive floor-based play including 30 minutes of tommy time.	14-17 hours (0-3 months of age). 12-16 hours (4-11 months of age) of good quality-sleep, including naps.
1-2 years	Not restrained for more than 1 hour at a time or sit for extended periods of time. No screen time for 1-year olds. For 2 years, sedentary screen time should be no more than 1 hour. Encourage reading and storytelling.	At least 180 minutes in a variety of types of physical activities including moderate-to vigorous- intensity physical activity, spread throughout the day.	11-14 hours of' good quality sleep, including naps, with regular sleep and wake-up times.
3-4 years	Not restrained for more than 1 hour at a time or sit for extended periods of time. Sedentary screen time should be no more than 1 hour; less is better. Encourage reading and storytelling.	At least 180 minutes in a variety of types of physical activities at any intensity, of which at least 60 minutes is moderate to vigorous intensity physical activity, spread throughout the day.	10-13 hours of good quality sleep, which may include a nap, with regular sleep and wake-up times.

2. **Children and Youth 5-17 Years**

These recommendations are relevant to healthy children and youth between 5 to 17 of age irrespective of gender, race, ethnicity or socio-economic status.

Intensity	Moderate to Vigorous
Volume/ Duration	At least one hour in a day; more than 60 minutes will provide additional health benefits.
Frequency	One session of 1 hour or two sessions of 30 minutes each.
Types of Activities	Aerobic, basic exercises for strengthening of muscles, Fundamental activities (Jumping, running, throwing, turning, twisting etc.)
Benefits	Regular exercise helps to develop Musculo-skeletal system (Bones, muscles and joints), cardiovascular system (heart and lungs) neuromuscular system (coordination, movement control, motor learning) and maintain healthy body composition. Physical activities also help to develop psychological (control over emotions, anxiety, depression, and manage stress) and sociological aspects (interaction, integration, leadership), result in healthy behaviour (avoidance of tobacco, alcohol, drugs) and promote academic performance.
Activities	Play, Games, Sports, recreation, physical education, unplanned to planned exercises with or within family, school and Community.

2.3 Adults 18-64 Years

These recommendations are relevant to healthy adults aged between 18 to 64 irrespective of gender, race, ethnicity or socio-economic status. Adults/youth with disabilities may follow these recommendations with adjustment as per capacity or limitations. An adult having any medical condition should follow the advice of medical official

Intensity or	Moderate to Vigorous,
Types of Activities	Muscular strengthening (strength) and Aerobic physical activities
Aerobic activities	150 to 300 minutes per week with moderate intensity or 75 to 150 minutes per week with vigorous intensity; One aerobic activity bout should be at least 10 minutes
Muscle strengthening activities	Activities involving major muscles two or more days in a week
Benefits	Regular physical activity helps to lower the risk of all causes of mortality, (For example heart diseases, blood pressure, stroke, Type 2 diabetes, metabolic syndrome, colon and breast cancers and depression) hip or vertebral fractures, and to develop higher level of cardiorespiratory muscular fitness and maintain healthy weight with healthy body composition and bone health. It towers the risk of Non Communicable Diseases and depression.
Activities	Physical activities (walking jogging, swimming, weight training, dancing etc.), occupational work, household work (car wash, gardening, etc.) Games, Sports, recreation, transportation (walking, cycling), planned exercises with or within family and community.

4. Older Adults 65 Years and Above

These recommendations are relevant to healthy older adults aged above 65 years, irrespective of gender, race, ethnicity or socio-economic status. These recommendations are also relevant for individuals suffering from chronic Non-Communicable Discases conditions. Adults, youth with disabilities may follow these recommendations with adjustment as per capacity or limitations

Intensity	Moderate to Vigorous.
Types of Activities	Muscular strengthening (strength and Aerobic physical activities and Balance enhancing exercises.
Aerobic activities	150 to 300 minutes per week with moderate intensity or 75 to 150 minutes per week with vigorous intensity; One aerobic activity bout should be at least 10 minutes
Muscles strengthening activities	Activities involving major muscles involved activity, two or more days in a week
Balance-enhancing Activities	Older adults, with poor mobility, should perform physical activity to enhance balance and prevent falls on 3 or more days per week,
Benefits	Regular physical activity helps to lower the risk of all causes of mortality. (For example, heart disease, blood pressure, stroke, Type 2 diabetes, metabolic syndrome, colon and breast cancers and depression) hip or vertebral fractures, and to develop higher level of cardiorespiratory muscular fitness and maintain healthy-weight with healthy body composition and bone health. It lowers the risk of Non-Communicable Diseases, depression and cognitive decline,
Activities	Physical activities (walking jogging, swimming, weight training, dancing etc.), occupational work, household work (car wash, gardening, etc.) Games. Sports, recreation, transportation (walking, cycling), planned exercises with or within family and / community.

Objective Type Questions (1 Marks)

I. Tick the correct options

Q1. Minimum duration of activity should be_____per week at vigorous intensity in adults above 65 years of age.

(a) 60-75 minutes **(b) 75 to 150 minutes**

(c) 300 minutes (d) 450 minutes

Q2. Rate at which the activity is being performed is known as _

(a) Volume **(b) Intensity**

(c) Type of Activity (d) Frequency

Q3. Sedentary time for 3-4 years old should not be more than _____ minute

(A) 15 minute (B) 30 minute

(C) 45 minute **(D) 60 minute**

Q4. Given below are the two statements labeled Assertion (A) and Reason (R).

Assertion- Physical activities should be done in progressive manner.

Reason- Regular physical activities help to lower the risk of all causes of mortality.

In the context of the above two statements, which one of the following is correct?

A. Both (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true, but (R) is not the correct explanation of (A).

C. (A) is true, but (R) is false.

D. (A) is false, but (R) is true

Short Answers Questions (3 Marks)

Q1. Suggest some physical activities for 1 to 2 years of children.

OR

Enlist the physical activities for the children of 1 to 2 years of age

1. The child should not be involved in any sedentary activity for more than one hour.
2. Once they learn to sit and stand child should be encourage to undertake fundamental physical activities like walking, running, jumping, catching, throwing, leaping etc.
3. For this children sedentary screen time like involvement with computer games watching TV or video is not recommended
4. Engagement in reading and storytelling should not be more than one hour.

Q2. Enlist or suggest physical activities for the children of 3 to 4 years of age

1. Children should spend at least 180 minutes in a variety of types of physical activities at any intensity, of which at least one hour is spent in moderate to vigorous intensity physical activity.
2. We can include light activities such as standing up, moving around, rolling and playing, as well as more energetic activities like skipping, hopping, running and jumping. Active play, such as using a climbing frame, riding a bicycle, playing in water, chasing games and ball games.
3. Sedentary time should not be more than one hour, and during this period engagement in reading and storytelling should be encouraged.

Q3. What are the advantages of physical exercises for children and Youth of 5 to17 years of age

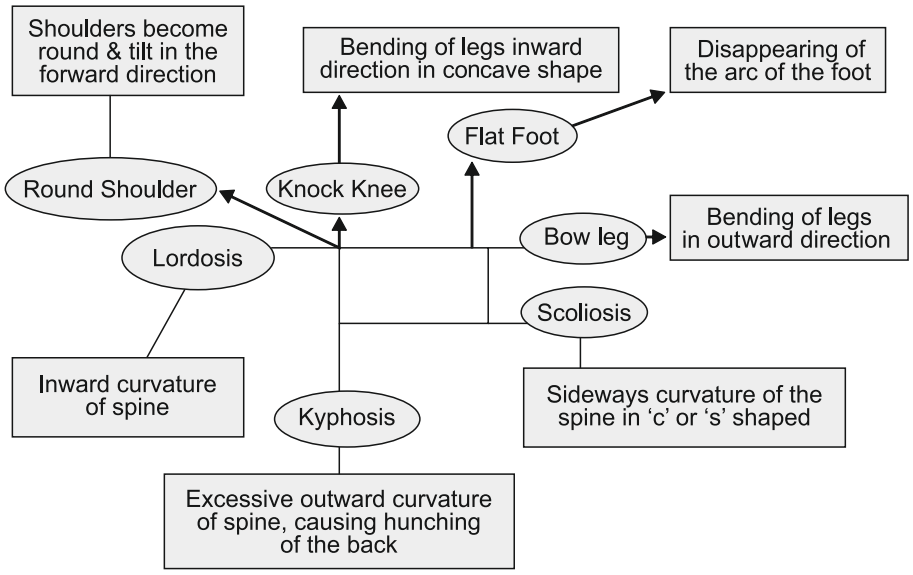
1. Regular exercise helps to develop Musculo-skeletal system (Bones, muscles and joints)

2. cardiovascular system (heart and lunges), neuromuscular system (coordination, movement control, motor learning) and maintain healthy body composition.

3. Physical activities also help to develop psychological (control over emotions, anxiety, depression, and manage stress) and sociological aspects (interaction, integration, leadership), result in healthy behavior (avoidance of tobacco, alcohol, drugs) and promote academic performance.

2.1 Common Postural Deformities and their Corrective Measures

Postural Deformity is the malformation of any components of body part or joint of the body.



Multiple Choice Question (1 Mark)

Q.1 Deformity means

(A) The malformation of any component of the body

(B) The malfunction of body's organs

(C) The malfunction of joints of the body

(D) De-spaped of muscles

Q.2 Lordosis deformity is

(A) Lateral curvature of the spine

(B) Arch of sole of feet

(C) Abnormal backward curvature of the thorasic region of the spine

(D) Aggravated lower curvature of the lumber region

Q.3 Scoliosis is postural deformity where the person's body position becomes

(A) Lateral curvature of the spine

(B) Arch of sole of feet

(C) Wide gap between the knees

(D) A side way curvature of the spine

Q.4 What are the causes of "flat foot"?

(A) Weak muscles of the foot

(B) Improper shoes or carry heavy weight

(C) Healthly muscles of the body

(D) Both (a) & (b)

Q.5 Match List-A with List-B & select the correct answer from the code.

List - A	List - B
1. Round shoulder	a. Abdomen is ahead of body
2. Scoliosis	b. Sideways curvature of the spine
3. Lordosis	c. Forward rounding of upper back
4. Kyphosis	d. Forward bending of shoulder

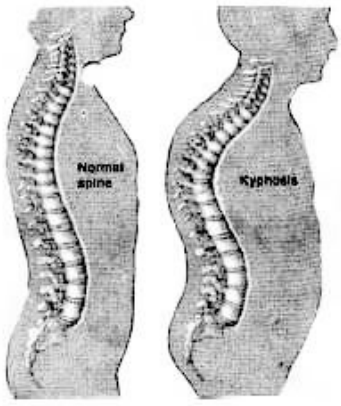
Code

	1	2	3	4
(A)	**d**	**b**	**a**	**c**
(B)	a	d	c	b
(C)	c	a	b	d
(D)	b	c	d	a

Q.6 Explain the symptoms & corrective measures of kyphosis. **(3)**

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.



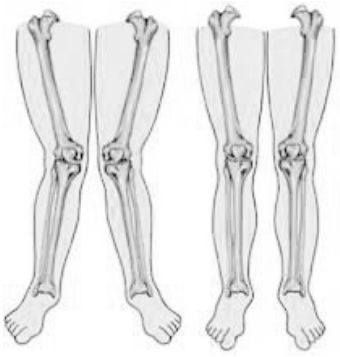
Corrective Measures:- In order to cure kyphosis such types of exercises are suggested, those increase the length of the pectorals and provide strength to the thoracic region muscles.
such as:

- Back stroke swimming
- Chakrasana
- Bhujangasana
- Dhanurasana
- Reverse bending on the swiss ball
- Reverse butterfly
- Pillow back extension
- Marjaryasana (cat pose)
- Adhomukha svanasana (Downword dog pose)
- Ustrasana (Camel pose)
- Half wheel pose (Ardh chakrasana)

Q.7 Mention the symptoms, causes & corrective measures of knock knee. (3)

Ans. Symptoms :

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



Causes :-

- Obesity
- Deficiency of vitamin D
- Rickets in bones
- Early age walk or standing
- Malnutrition
- Enlargement of medial ligament of both knees quickly as compare to lateral ligament.
- Lifting heavy load for long time.

Corrective measures :

- Horse riding
- Padmasana
- 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 of football

Q.8 Discuss the symptoms, causes & corrective measures of flat feet.

Ans. Symptoms :

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

Causes

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



Corrective measures :-

- Writing with toes
- Walking or running on the standing position
- Jumping on toe
- Wearing proper shoes
- Pick the pebble with help of feet

- Walking on toes
- Tadasana
- Vajra-asana
- Ball under the feet game
- Wear the shoe with hankey inside the mid part of the feet

Q.9 Descibe the symptoms, causes & corrective measuring of scoliosis.



Ans. Scoliosis

Postural adaptation of the spine in lateral direction is called scoliosis. In fact, these are sideways curves and may be called scoliotic curves. Indeed these curves are identified as either convexity right or right convexity. A simple or single curve to the left or curve. Scoliotic Curve may be found in 'S' shape.

Causes of Scoliosis: Scoliosis may be due to many reasons but the main reasons are diseases-in the joints of bones, under-developed legs, infantile paralysis, rickets, carrying heavy loads on one shoulder, unhealthy conditions, like inadequate lighting arrangement, uncomfortable desks, partial deafness and wrong standing posture. It may be caused by congenited or acquired abnormalities of vertebrae, muscles or nerves.

Precautions:

- Balanced diet should be taken
- Studying should be avoided in sideways bending position.
- Avoid walking for the long time while carrying weight in one hand.

Remedies:

- Scoliosis can be remedied by doing the following exercises :
- Bending exercises should be done on the opposite side of the 'C' shaped curve.
- Hold the horizontal bar with hands and lift your body or heng some time.
- Hold the horizontal bar with your hands and swing your body to the left and right sides.
- Swim by using breaststroke technique.

Q.10 Discuss the symptoms, causes & corrective measures of bow legs?.

Ans. Bow legs: There is a wide Gap between the knees.

Symptoms :

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

Causes :

- Enlargement of lateral ligament 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 in bones
- Early age standing and walking.



Normal **Bow Legs**

Corrective measures :

- Walking (feet twisted inward)
- Use of walking callipers.
- Massage therapy.

- Use those exercise which strengthen the muscles surrounding the knees such as leg extension in laying position.
- Use yoga strap to bind the legs together then make cow face posture & forward bending are recommended.
- Pilate exercise such as roll up & ballerina arms are effective to tone legs.
- Garudasana, Ardh-Matsyendrasana

Practice Questions (3 Marks 80 to 90 words)

Q.1 What do you mean by hump back? Explain the causes of it. (1+2=3)

Q.2 Discuss the causes & corrective measures of scoliosis. (3)

Q.3 What is flat foot? write precautions for it. (1 ½ + 1 ½ = 3)

Q.4 What is postural deformities? write down about knock knees & bow legs. (1+1+1=3)

Q.5 Write any three symptoms & precaution of round shoulder. (1 ½ + 1 ½ = 3)

Q.6 Elaborate the factor and cause of postural deformities. (3)

Q.7 Suggest physical activities as corrective measures for postural deformities. (5)

Q.8 Describe the steps taken to protect the postural deformities. (5)

Q.9 Describe the symptoms, cause & corrective measures for kyphosis. (5)

2.3 Women participation in Sports - Physical, Psychological and Social benefits

There is a rich record of participation of women in sports in India. In the days of Mahabharata, Shakuntala, Madhuri, Kunti all chose physical activities as recreation. India runs programmes such as Khelo India scheme and National Sports Talent Search Scheme (NSTSS) to mainstream women's participation in sports in India Sports participation not only provides health benefits but also promotes overall development. Sport does not discriminate based on colour, caste, creed, sex, race etc. Women participation in sports helps them to stay fit and reduces chances of diseases. These are some physical benefits for women participation in sports. These benefits are as true for women as for their male counterparts.

Long Answer Questions (5 Marks)

Q1. What are the physical benefits of participation in sports for women ?

1. **Lifestyle Diseases-** Sports participation helps women to stay active which, in turn, reduces chances of lifestyle diseases such as Diabetes, high blood pressure, obesity etc. and enables them to live a healthy life.
2. **Bone Density-** There is a higher chance of osteoporosis in females than males. Sports help them to increase their bone density and have stronger bones
3. **Toned Muscles-** Regular exercise and participation in sports increases the muscle tone of women which helps them to stay strong.
4. **Cardiovascular System-**Regular exercise helps increase the number of capillaries, helping them in the intake of oxygen. This enables women to participate in sports for a longer period without getting fatigued.
5. **Obesity-**Obesity is one lifestyle disease which is found in every part of the world.

   Most of India's population is also suffering from this disease. Women has more chances of being obese than men, regular participation in sports helps them to stay in shape and stay fit.

Q2. What are the psychological benefits of participation in sports for women?

Psychological Benefits Participation in sports has a great impact on women psychologically as it gives them confidence and enhance their self-esteem. It gives them that sense of achievement

Some of the psychological benefits of participation in sports are:

1. **Stress Management-** Any physical activity releases a lot of hormones in our body which helps us to stay happy and reduce stress levels. Sportspersons, men and women, who participate in sports can manage their stress better than those who don't participate in the sports.
2. **Control Emotions-** Women, like their male counterparts, who participate in sports are well equipped to manage their emotions as they face difficult situations in the game which take a toll on them, and regular participation makes **them** emotionally stronger.
3. **Confidence-** Every small win increases the confidence of the winner. Thus, when a woman participates in sports and wins, it gives not just her, but other women sportspersons a sense of achievement and really boosts their confidence. This renewed confidence in themselves they bring to all areas of their life.
3. **Self - Esteem-** Sports help women to realise their self-worth and when they achieve or even participate in sports, they get a boost in their self-image and that helps them to realise their own worth, which is very important for an individual.
4. **Leadership** -One of the best qualities about sports is that it inculcates or brings out the leadership skills or qualities of an individual. Those women, or men, who participate in sports are able to lead people even outside the sports as well.

Q3. Explain about the social Benefits of participation in sports for women.

Women participation in sports helps them to be more open towards society as it helps them to communicate with others and helps them to bond with their teammates and other officials. Some of the social benefits of sports are as follows

Coordination- Sport helps in increasing and improving the coordination between team players and women who participate in sports learn the skill of working in coordination with others.

Communication- Communication is an integral part of sports as players must communicate with each other while playing. It helps women participants to be more vocal and expressive.

Inter-relationships -A sport is not played in isolation, it's a team effort, whether it is inside the team or as supporting staff, the player must maintain her relationship with everyone in the team. Women participants learn to maintain their relationships and respect each other whether it is on the field or off the field.

Cooperation -Women learn to cooperate with each other when they are playing on the field. This becomes a part of their life also as they learn to work and cooperate with others in total harmony and peace.

Objective Type Question (1 Marks)

Tick the correct options

Q1. Sports is an important tool for social empowerment for women as it develops the following:

(a) Aggression

(b) Isolation

(c) Stress

(d) Leadership

Q2. Psychological benefits of women participation in sports includes:

(a) Cooperation

(b) Emotional Control

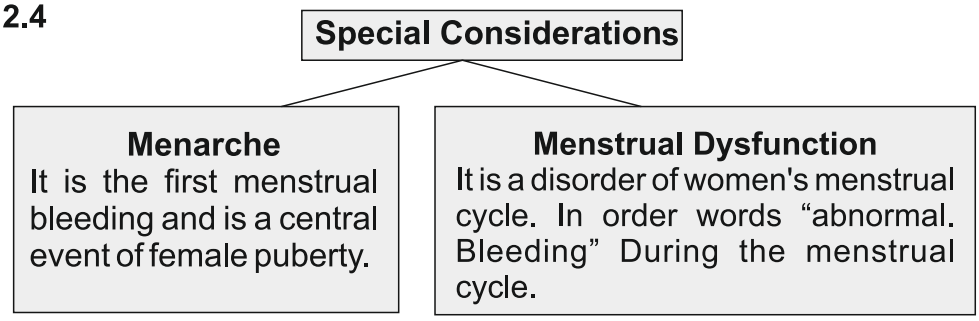
(c) Physical Fitness

(d) Communication

Q3. Identify the following and match the pictures to their names. Mention their games in the blank.

A.		1. SAKSHI MALIK	
B.		2. P.V. SINDHU	
C.		3. MARY KOM	
D.		4. HIMA DAS	
E.		5. SAIKHOM MIRABAI CHANU	
F.		6. SAINA NEHWAL	

2.4



Multiple Choice Questions MCQ (1 Marks)

Q.1 Menarche is the_____

(A) Very first menstrual bleeding in girls
(B) Last menstrual bleeding in girls.
(C) Irregular bleeding in girls.
(D) Regular bleeding in girls.

Q.2 The average menstrual cycle consists of _____days.

(A) 10-15 days (B) 15-25 days
(C) 21-35 days (D) 05-10 days

Q.3 Define menstrual dysfunction

(A) Irregular menstrual bleeding
(B) Delay of menstrual Cycle
(C) Lack of Haemoglobin
(D) Extra amount of Haemoglobin

Q4. Match the following:

a. Menarche 1. Irregular menstrual bleeding
b. Menstrual cycle 2. Very first menstrual bleeding
c. Menstrual dysfunction 3. 21-35 days

(A) a-1, b-2, c-3, (B) a-3, b-2, c-1
(C) a-2, b-3, c-1 (D) a-1, b-3, c-2

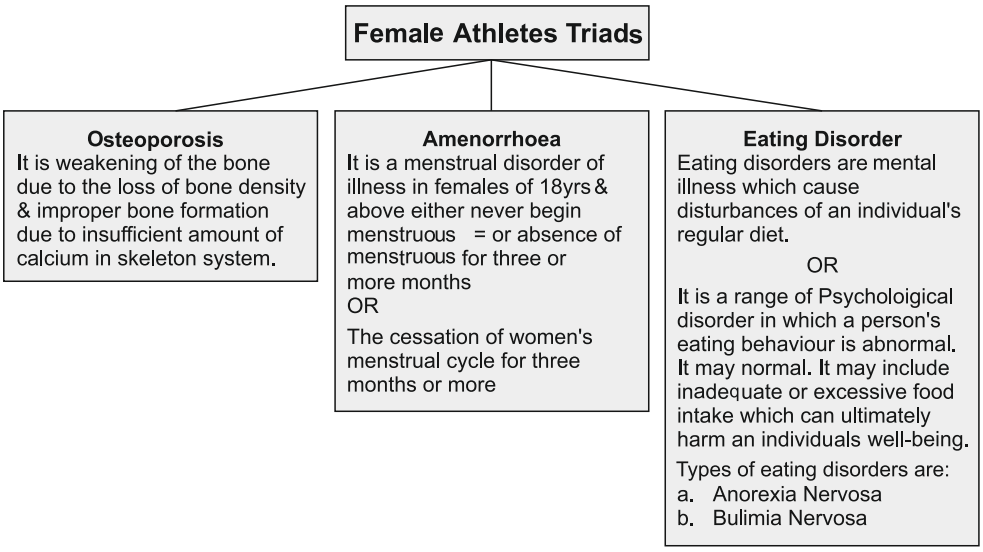
Practice Questions

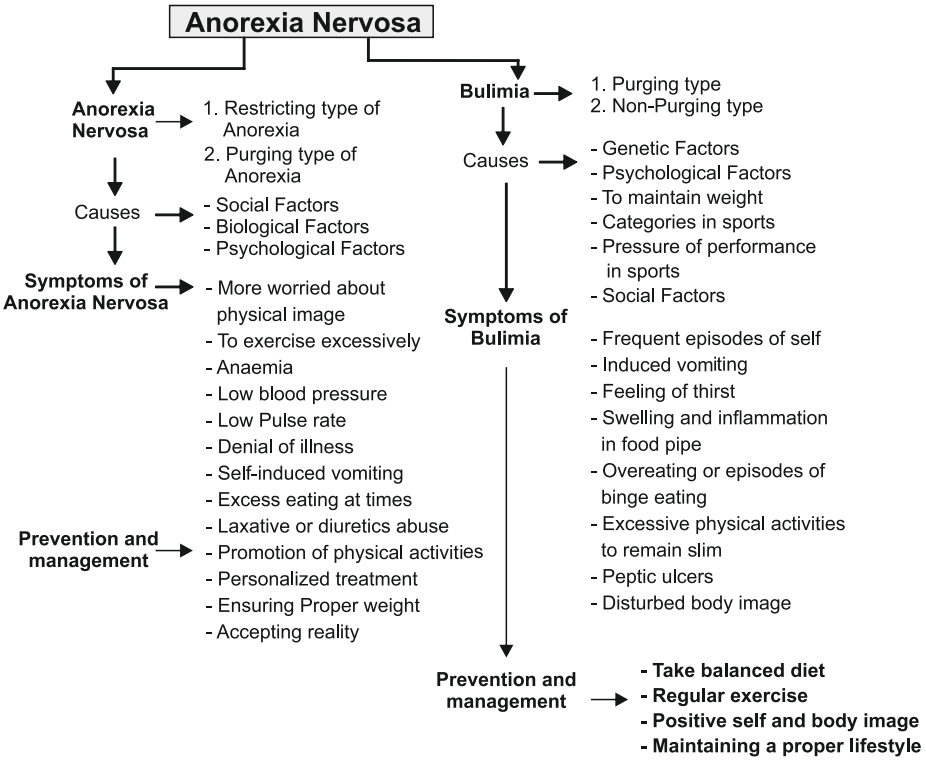
Q.1 Discuss the concept of menarche. (2)

Q.2 Write down the concept of menstrual cycle. (2)

Q.3 Define menstrual dysfunction. Elaborate the various types of problems related to menstrual dysfunction. (1+2=3)

2.5 Female Athletes Triad





Multiple Choice Question—1 Mark

Q.1 Osteoporosis means:

(A) Insufficient calcium in bone
(B) Low bone density
(C) Both A & B
(D) None of the above

Q.2 Anorexia nervosa is a

(A) Mental disorder illness
(B) Wrong perception
(C) Normal diet related diseases
(D) Serious disease

Q.3 Amenorrhoea is caused by

(A) Hormonal imbalance, irregularity in diet

(B) Harmonal Imbalance in reproductive system

(C) Hormonal imbalance & irregular in menstrual cycle

(D) Hormonal balance and regular in menstrual period

Q.4 Bullimia Nervosa is an

(A) Eating disorder

(B) Eating disability

(C) Eating of balance diet

(D) Eating of habits

Q.5 What are the causes and risk factors of osteoporosis? (2)

Ans. Osteoporosis is a skeletal disorder which refers as to the decreased bone material contens. There are various factors, which lead to osteoporosis, these are :-

- **Insufficient calcium in diet :-** The main cause of osteoporosis is intake of insufficient calcium in diet.
- **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 necessary for absorption of calcium in our body.
- **Eating disorder :-** Eating disorder like anorexia and bulimia etc. may also cause osteoporosis because there can be less amount of calcium
- **Bad Eating Habits :-** Intake of Caffeine, Alcohol, tobacco, smoking may lead to osteoporosis. These products have a negative effect on Bone Density.

Q.6 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 and medications etc.
- **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.
- **Abnormal Cramps :-** These cramps are caused by a chemical in the body that makes the muscles in the uterus contract.
- **Heavy or prolonged peroid :-** It is common for a girl's menstrual period to be heavier on some days than others.
- **Irregular menstrual period :-** The regular menstrual cycle for a female is 28 days. However, it may vary from 21 to 35 days.
- **Delay in the first menstrual period.**

Q.7 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 syndrome of three interrelated conditions.

Osteoporosis : It is a skelton disorder which refers as to the decreased bone material contents.

- Insufficient calcium in diet,
- Amenorrhoea,
- Eating disorder,
- Bad eating habits,

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 months and more.

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

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

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

There are two types of eating disorder:

- Anorexia Nervosa
- Bulimia Nervosa

Q.8 What do mean by Anorexia Nervosa what are its causes, symptoms and preventions?

Anorexia Nervosa: This is a psycho-physical condition. It is characterised by lack of appetite and associated with the subconscious desire to remain slim. Such feeling usually develops in young women or adolescence 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 of skin integrity and many even cause menstruation to stop. It puts great stress on the heart and increases the risk of heart attack 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:

- **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.
- **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 of their children's physical appearance which may lead to anorexia.
- **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

- **Significant underweight:** The individual having anorexia will not be able to maintain BMI and will lose weight significantly.
- **Anaemia:** Anorexia may be one of the leading causes of‘anaemia. This leads to tiredness in an individual.
- **Low pulse rate:** The individual having anorexia will have low heart rate.
- **Low blood pressure:** Anorexia may lead to low blood pressure.

- **Decrease in body temperature:** Law 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.
- **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.
- **Denial of illness:** An individual suffering from anorexia has the tendency to deny the facts related to the disorder.
- **Self-induced vomiting:** An individual suffering from anorexia will go the washroom frequently and induce vomit, especially after meal.
- **Excess eating at times.** An individual suffering from anorexia will eat-excessively and when he Is unable to digest the food, they will induce vomit.
- **Laxative or derelict abuse.** An individual suffering from anorexia will use diuretics and drain out fluids from his/her body to remain slim. Individuals also use laxatives or artificial sweeteners.

Prevention and Management of Anorexia

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

- People should be encouraged to inculcate a positive self-esteem and body image.
- Body sizes should not be criticized and students should not be taught to be preoccupied with their weight.
- 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.

- 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.9 **What is Bulimia? What are its causes symptoms and Prevention?**

Bulimia is affecting adolescence 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.

- **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.
- **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,
- **To maintain weight categories in sports:** Sports persons taking part in sports like Judo, wrestling, weight lifting etc. which have different weight categories are more likely to suffer from this eating disorder.
- **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.
- **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 encourage 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 Management of Bulimia :

- There is no fixed cure for Bulimia. This disorder may be prevented up to some extent by following:-
- Individuals should take a balanced diet and follow healthy eating habits.
- A proper regimen of exercise should be followed regularly to maintain a healthy lifestyle.
- 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

Q.1 Given below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Eating disorders are mental illness.

Reason (R) : It is often accomplished by less control on eating habits.

From the above Statement choose the correct option from below.

(A) Both statement are true and statement (B) is the Correct explanation of statement (A)

(B) Both statement are true and statement (B) is the not correct explanation of statement (A)

(C) (A) is the true, But (B) is false

(D) (A) is the false, But (B) is true

Q.2 Which Athletes are at high risk in developing eating disorder?

(A) Weightlifter

(B) Boxer

(C) Synchronised Swimmers

(D) All of above

Q.3 What are eating disorders? Name some: (2)

Q.4 What are the symptoms of female athlete triad? (2)

Q.5 What you do means by Osteoporosis? (2)

Q.6 What you do mean by female athlete triad? (3)

Q.7 Write down a short note on eating disorders. (3)

Q.8 How to recognize & prevent female athlete triad? (3)

Q.9 Discuss in detail about female athlete triad. (5)

Q.10 Explain various factors which usually lead to osteoporosis among women athlete. Explain the treatment also. (5)

Q.11 Match List-A with List-B & select the correct answer from the code.

List - A	List - B
1. Round shoulder	a. Eating disorder
2. Menarche	b. Loss bone material
3. Osteoporosis	c. First menstrual Bleeding
4. Anorexia nervosa	d. Posture deformity

Code

	1	2	3	4
(A)	a	b	c	d
(B)	**c**	**d**	**a**	**b**
(C)	d	a	b	c
(D)	b	c	d	a

Q.12 Match List-A with List-B & select the correct answer

List - A	List - B
1. Adolescence	a. Postural Deformity
2. Kyphosis	b. Running
3. Big Muscles	c. 21 - 35 years
4. Menstrual cycle	d. 13 to 19 years

Code

	1	2	3	4
(A)	a	b	c	d
(B)	c	d	a	b
(C)	**d**	**a**	**b**	**c**
(D)	b	c	d	a

Q.13 Given below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Children have postural deformities due to lack of exerciser exercise.

Reason (R) : Girls have more eating disorder than boys.

(A) Both (A) and (R) are true and (R) is correct explanation of (A)

(B) Both (A) and (R) are true but (R) is not correct explanation of (A)

(C) (A) is true, but (R) is false

(D) (A) is false, but (R) is true

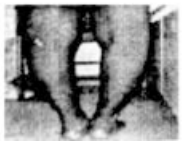
Q.14 Match list - A with list -B & select correct answer



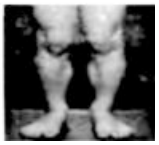
(A)_____



(B)_____



(C)_____



(D)_____

Q.15 Sunil is a student of class VI & he has flat foot so he cannot run fast. During the recent medical check-up at school he was advised to practice exercises & shoes. Based on this case answer the following question

(i) The physical education teacher at the school has asked Sunil to perform

(A) Walk on heels (B) Walk on toes from toes

(C) Pebble collection **(D) All the above**

(ii) Which one exercise is not help to correct flat foot

(A) Horse riding (B) Rope climbing

(C) Toes up & down (D) Heels up & down

(iii) **Sunil is also suffering from round shoulder for which he is advised to**

(A) Chakrasana (B) Shavasana

(C) Walking with clippers (D) None of above

Concise

1. **Knock knees (Genu valgum)-** It is the condition in which knees bend inward and touch or knock against one other. Even when ankles are apart.

2. **Bow Legs (Genu Varum):** It is the condition in which legs curve outward at the knees while the feet and ankles touch

3. **Flat foot (Pes Planus)-** It is the condition in which arch in the foot don't develop/flat feet is a complex postural deformity of the feet where there is no arches to the feet

4. **Round Shoulder-** Round shoulder is a condition in which shoulders bend forward when they sit / stand and shoulders are curved

5. **Kyphosis-** An Increased front to back curve of the upper spine of kyphosis is an exaggerated curvature of spine

6. **Lordosis-** The Increment in the curve of lumbar region of spine internally, e.g. in forward direction

7. **Scoliosis-** Lateral bending of spine from its midline in "C" curve & "S" curve

8. **Menarche-** Is the first menstrual period in a female adolescent.

9. **Menstrual Dysfunction-** Menstrual dysfunction is a disorder or irregular menstrual bleeding during the menstrual cycle

10. **Osteoporosis-** It is bone related disease in which reduction in bone density /Mass

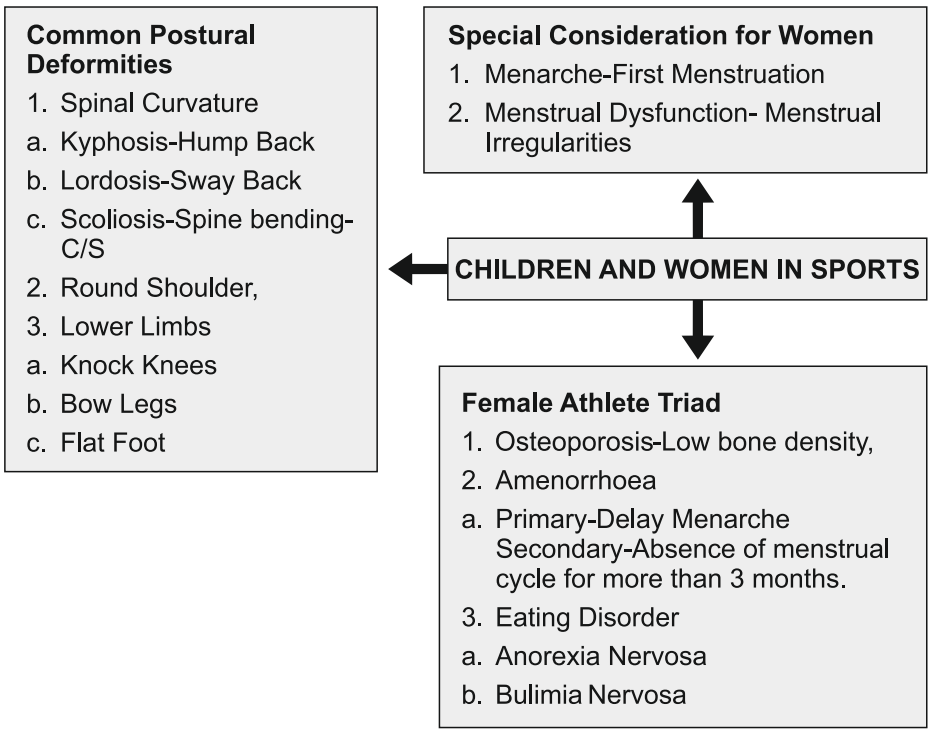
11. **Amenorrhea-** It is a menstrual disorder / illness in females in which females of 18 years or above either never begin menstruating or their absence of menstruation for 3 months or more.

12. **Eating disorder-** People begin to eat more than normal or very small disorder.

13. **Anorexia nervosa-** It is a food addiction disorder in which people reduce their food than the normal diet. They used it to reduce their body weight.

14. **Bulimia-** It is an eating disorder in which people take excessive eating than normal eating. It is a distorted body image and an obsessive desire to lose weight, in which bouts of extreme overeating are followed by fasting or self-induced vomiting or purging

Mind Mapping



UNIT - 3

Yoga as Preventive Measures For Lifestyle Diseases

UNIT - 3

Yoga as Preventive Measure For Lifestyle Disease

3.1 **Obesity:** Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.

3.2 **Diabetes:** Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana,Bhujang asana, Shalabhasana, Dhanurasana, Supta-vajarasa, Paschimottanasana, Ardha -Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.

3.3 **Asthma:** Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana Matsyaasana, Anuloma - Viloma.

3.4 **Hypertension:** Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana, UttanMandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadishodhanapranayam, Sitlipranayam.

3.5 **Back Pain and Arthritis:** Procedure, Benefits & Contraindications of Tadasan, Urdhawahastootansana, Ardh-Chakrasana, Ushtrasana, Vakrasana, Sarala Maysyendrsana, Bhujandgasana, Gomukhasana, Bhadrasana, Makarasana, NadiShodhana pranayama.

3.1 Obesity

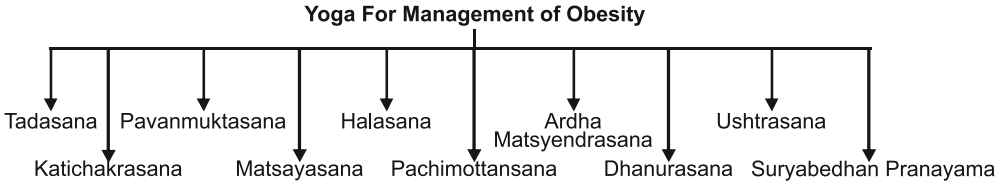
Obesity can be defined as abnormal or excessive fat accumulation in the body that presents a risk to health. obesity is considered to be one of the major factor for a number of chronic diseases such as- diabetes, cardiovascular diseases, cancer, arthritis etc.

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. If a person is having BMI 30 he/she would be considered as obese. 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.

There are many causes of obesity such as overeating, Lack of physical exercise, thyroid. Geneties, diet high in carbohydrate frequency of eating, medications, psychological factors, social issues. hormons changes (pregnency, Menopaus)

To correct obesity, these Yogasanas should be done.



1. Tadasana: This asana is the base or mother of all asanas, from which the other asanas emerge.Tada means a tree. Thus, Tadasana is a pose where one stands firm and erect as a tree.



Procedure

(i) Stand straight with both feet together, the heels and toes should touch each other, Keeping the front part of the feet on the floor lift the toe (back part of feet) in the upward direction.

(ii) Tighten the knees, contract the hips and pull up the muscles at the back of the thighs:

(iii) Keep the stomach in, chest forward, spine erect and the neck straight.

(iv) Distribute the weight of the body evenly on both the toes.

(v) Place the arms by the side of the thighs.

Benefits

(i) It strengthens the vertebral column and heart.

(ii) It cures indigestion

(iii) Remove Lethagy from body.

(iv) Strengthens the arms and legs.

(v) It reduces the problem of flat feet.

(vi) It develops and activates the nerves of the entire body.

(vii) This is the best exercise to increase the height.

(viii) It is also good for regulating the menstrual cycle in women.

Contraindications

(i) People suffering from headache, insomnia and low blood pressure should avoid this asana.

(ii) The patient of varicose vein should avoid this asana.

(iii) Pregnant women should avoid this asana.

2. Katichakrasana: Katichakrasana is a simple standing pose with a spinal twist. The name comes from the Sanskrit words-kati, which means 'waist' whereas chakra, means 'wheel' or 'circular rotation'; and asana, means'pose' or 'posture.'

Procedure

(I) Stand up straight with your feet together, spine erect and shoulder straight.

(ii) Keep your legs apart from each other and stretch your hands to the front, palms facing each other.

(iii) Your hands should be in line with the shoulders.

(iv) First inhale and then while exhaling twist from the waist to the right and look back over the right.



(v) Keep your breath out and stay in this position as long as possible.

(vi) Inhale and slowly come back to the center.

(vii) Exhale and twist from the waist to the left and look back over the left (keep your breath out).

(viii) Stay in this final posture as long as possible and then come back to the center and relax.

(ix) This is the complete cycle of this posture.(x) Practice can be repeated 10 to 20 times or even more than that as per the convenience.

Benefits : Regular practice of Katichakrasana has following benefits—

(i) Provides relief in constipation.

(ii) Strengthens and improves the flexibility of the spine and waist.

(iii) Good for arm and leg muscles.

(iv) Opens up the neck and shoulders and strengthens the abdominal muscles and lower back.

(v) Beneficial for those with sedentary or deskbound jobs.

(vi) Helps to relive back pain.

Contraindications

(I) Don't practice this asana in case of recent surgery of abdomen or spine.

(ii) Don't practice this asana if you are suffering from hernia, slip disc or any abdominal inflammation.

(iii) This asana should be avoided during pregnancy.

(3) **Pavan Muktasana :** The word Pavan Muktasana is a combination of the words 'pavana' which means‘winds’, ‘mukta’ which means 'to relieve or release’ and 'asana’ which means ‘posture’. As the name suggests,Pavan Muktasana helps to release abbominal gas and ease digestive disorders.

Procedure



(i) Lie down on your back with your feet together and hands by the side of your thighs.

(ii) Do not tighten your body just feel relaxed in this position.

(iii) Inhale and raise your left leg, exhale and bring your -left knee towards your chest and press the thigh on your abdomen with clasped hands.

(iv) Breathe in again and as you exhale, lift your head and chest off the floor and touch your chin to your left knee.

(v) Hold in there, as you take deep, long breaths in and out.

(vi) Try to be in this posture as long as possible.

(vii) Inhale and bring back your chest and head on the floor then exhale.

(viii) Inhale and lift your leg up straight along the knee then exhale and bring the leg back on the floor and rest in the supine position.

(ix) Repeat the same procedure with the other right leg also.

(x) Now sit straight and your finger should hold the big finger of your leg.

Benefits : Regular practice of Pavan Muktasana has following benefits-

(i) It stretches the neck and back.

(ii) It relieves constipation.

(iii) It strengthens the lower back muscles and loosens the spinal vertebrae.

(iv) It improves the process of digestion.

(v) Blood circulation is increased to all the internal organs.

(vi) The pressure on the abdomen releases any trapped gases in the large intestine.

(vii) The abdominal muscles are tensed and the internal organs are compressed which increases the blood circulation and stimulates the nerves, increasing the efficiency of the internal organs.

(viii) It helps to burn extra fat around the thighs, buttocks, and abdominal area.

Contraindications

(I) This asana must be avoided by those who had an abdominal surgery recently.

(ii) People suffering from hernia or piles must avoid this asana.

(iii) This asana must be avoided by those who are suffering from heart problems, hyperacidity, high blood pressure, slip disc.

(4) **Matsyasana :** Matsyasana is a reclining back-bending asana. The name is derived form the Sanskrit word 'matsya' which means 'fish' and 'asana' which means 'pose.'

Procedure

(i) Lie flat on your back with knees straight, legs and feet together.

(ii) Place your hands on side of your body and palms beneath your hips such that the palms are facing the ground.



(iii) Cross your legs such that your feet cross each other.

(iv) Inhale and lift your chest and head away from the floor. Exhale deeply as you raise your head and torso till you are sitting halfway up.

(v) The weight of your body should be supported by your forearms and elbows and not your head.

(vi) Breath normally as you hold this breath until your are uncomfortable.

(vii) Exhale and release yourself from the position by gently-lowering your torso and your head to the ground.

Benefits : Regular practice of Matsyasana has following benefits-

(I) It increases the blood supply to spine and makes it supple and flexible.

(ii) It helps to cure respiratory disorders like Asthma and Bronchitis.

(iii) It provide relief from constipation.

(iv) It provide relief from neck pain.

(v) It makes the lungs strong.

(vi) It beneficial in curing impotency.

(viii) It cures stiffness of the body.

(ix) It also helps in the reduction of thigh and belly fat.

(x) It also helps in relieving tension in shoulders.

(xi) It improves the posture.

Contraindications

(I) People with High/Low Blood Pressure should not perform Matsyasana.

(ii) People with serious back and neck injuries should also not practice this asana.

(iii) People suffering from insomnia should not perform this asana.

(5) **Halasana :** The name comes from the Sanskrit words 'hala' which means 'plow and 'asana' which means'posture' or 'seat'. This pose is also named as plow pose.

Procedure



(i) Lie on a clean surface and join the legs together. Raise your legs to make an 90 degrees angle.

(ii) Thrust the palms, raise the waist and legs, bending forwards curving the back and resting the legs on the floor above head.

(iii) Try to place the big toe on the floor and keep the legs straight.

(iv) Balance the whole weight on the shoulder blade, shift both the hands. over the head, join the fingers and hold the head with it and relax the elbows on the floor.

(v) Try to remain in the position as per your capacity.

(vi) Then release the fingers above the head, pressing the palms on the floor taking back thumb toe gently bring the body and legs to the floor.

Benefits : Regular practice of Halasana has following benefits-

(i) Helps to avoid disease like diabetes, obesity, constipation, stomach disorder, Blood pressure, and menstrual disorders.

(ii) It makes your backbone elastic and flexible.

(iii) Halasana helps to reduce both belly and body fat.

(iv) It improves memory power.

Contraindications

(i) Those having neck pain, spondylosis, and high blood pressure should not practice this yoga pose.

(ii) Pregnant ladies should not try this asana.

(6) **Paschimottasana :** 'Pashim' means 'back' and 'uttana means 'stretching'. This asana covers the stretching of the whole body from head to it is called as paschimotasana.

Procedure

(i) Sit up with the legs stretched out straight in front of you on the floor.

(ii) Keep the spine erect and toes flexed towards you.

(iii) Bring your respiration to normal.

(iv) Breathing in, slowly raise your both the arms straight above your head and stretch up.

(v) Slowly breathe out and bend forward from the hip joint, chin moving toward the toes keeping the spine erect.



(vi) Place your hands on your legs, wherever they reach, without putting much effort.

(vii) If possible hold your toes and pull on them to help you go forward.

(viii) Stay in this position as long as possible.

(ix) After the exertion limit reached inhale and raise up stretching up your arms straight above your head.

(x) Breathe out and bring your arms down placing the palms on the ground.

Benefits : Regular practice of Paschimottasana has following benefits-

(i) It is much useful asana for increasing height.

(ii) It improves working of liver, kidneys, uterus and ovaries,

(iii) It reduces obesity by reducing the abdomen fat.

(iv) It is beneficial for strengthening spine and back.

(v) It tones the arms and activates the spinal nerves.

(vi) It stretches and strengthens the calf and thigh muscles.

(vii) It improves the circulation and tones the abdominal and pelvic organs.

(viii) It stretches the whole spine specifically lower back, hamstring and hips.

Contraindications

(i) Person suffering from back problem and diarrhea should avoid this asana.

(ii) Avoid this asana in case of any recent surgery.

7. **Ardha Matsyendrasana :** This asana is named after Yogi Matsyendranath. The name is taken from the Sanskrit words 'ardha' which rieans 'half', 'matsya' which means 'fish', 'Indra' which stands for a king, and 'asana' which means 'posture'.

Procedure

(i) Kneel down with your legs together, resting on your heels.

(ii) Then sit to the right of your feet.

(iii) Lift your left leg over your right, placing the foot against the outside of the right knee. Bring your right heel in close to your buttocks. Keep the spine erect.



(iv) Stretch your arms out to the sides at shoulder level, and twist around to the left.

(v) Now bring the right arm down on the outside of the left knee and hold the left foot in the right hand, placing your left hand on the floor behind you.

(vi) Exhaling, twist as far as possible to the left. Look over the left shoulder.

Benefits : Regular practice of Ardha Matsyendrasana has following Benefits-

(i) It energizes and stretches the backbone.

(ii) It increases the flexibility of hips and spine .

(iii) It cleans the internal organs, removes the wastes and improves digestion.

(iv) It relieves fatigue, sciatica, backache and menstrual discomfort.

(v) It opens the neck, hips and shoulders.

(vi) It releases excess toxins and heat from tissues and organs.

(vii) It helps to cure slipped disc problem.

(viii) It stimulate pancreas and control diabetes.

(ix) It helps to regulate the secretion of both adrenalin and bile.

(x) It helps to relieve stress and tension in the back.

(xi) It also helps to open up the chest and increase the supply of oxygen to the lungs.

Contraindications

(i) This asana must be avoided during pregnancy and menstruation.

(ii) This asana must be avoided if the person has back pain.

(8) **Dhanurasana :** The name “Dhanurasana” comes from the Sanskrit words ‘Dhanura' which means ‘bow’and ‘asana’ which means ‘posture’ or ‘pose’.

Procedure

(i) Lie down on your stomach with your feet slightly apart, almost parallel to your hips, and place your arms on the side of your body.



(ii) Slowly, fold your knees up and hold your ankles with your hands.

(iii) Breathe in and lift your chest off the ground and pull your legs up and stretch it out. You should feel the stretch on your arms and thighs.

(iv) Hold the-pose for 12-15 seconds, paying attention to your breath as you take long, deep ones.

(v) Slowly bring your'chest and legs back to the ground, release your hold on the ankles, and relax with your hands on the side.

Benefits : Regular practice of Dhanurasana has following benefits-

(i) It strengthens the back and the abdomen.

(ii) It keeps you active and energetic.

(iii) It helps to improve stomach disorders.

(iv) Helps in reducing fat around belly area.

(v) It is beneficial in improving reproductive system and menstrual disorders.

(vi) Helps to regulate the pancreas and control diabetes.

(vii) Helps alleviate hunchback.

Contraindications

(i) People suffering from high blood pressure, back pain, headache, migraine or abdomen surgery should not practice Dhanurasana.

(ii) Ladies should not practice this during pregnancy and in periods.

(iii) People who have recently undergone abdominal, heart or brain surgeries, should not practice this asana.

(9) **Ushtrasana :** The name 'Ustrasana ' is derived from the Sanskrit words 'ustra' which means 'camel' and 'asana' which means 'pose' or 'posture.' This asana is also known as camel pose.

Procedure



(i) Stand on the knees. Keep the thighs fully straight. Keep the knees and feet together.

(ii) Lean in the backward direction. Slowly move more backward. Reach the right heel with the right hand, and the left heel with the left hand. Avoid straining the body.

(iii) Push the hips in the forward direction and then bend the head and the spine as backward and as far as possible without straining.

(iv) Relax the body and the muscles of the back and support the body weight equally on the legs and arms.

(v) Keep the arms in such a way that they anchor the shoulders to maintain the back arch. Stay in the same position for as long as you find it comfortable.

(vi) Then release the hands from the heels one by one and return to the starting position.

Benefits : Regular practice of Ustrasana has following benefits-

(I) It stretches the anterior muscles of the body.

(ii) It improves flexibility of the spine and strengthens it.

(iii) It improves digestion and reduces excess fat deposited on the stomach, neck and back.

(iv) It relaxes the lower back and helps to get rid of all kinds of back pain.

(v) Activates the brain cells and makes it function better by improving the blood circulation

Contraindications

(i) People suffering from severe back and neck injury, high or low blood pressure, migraine or other severe headache should not attempt this asana.

(ii) Those who had recently undergone any abdominal surgery should avoid this asana.

(10) **Suryabedhan Pranayama :** Suryabhedana pranayama is a yogic breathing technique in which only the right nostril is used for inhaling. The name comes from the Sangkrit words 'surya' which means 'sun':'bhedana' which means 'piercing', 'prana' which is life force energy and 'asana' which means 'pose'. In English, this asana is also known as right nostril breathing.

Procedure



(i) Sit in Padmasana, Siddhasana or Vajrasana.

(ii) Place the hands on the keens and keep your spine straight.

(iii) Raise your right hand slowly and place the middle and four finger on the forehead between the eyebrows.

(iv) With the help of the ring finger close the left nostril.

(v) Take a slow breath and fill your right nostril with air.

(vi) Hold your breath by closing both the nostrils.

(vii) Hold your breath as long as you don't feel suffocated or uncomfortable.

(viii) Repeat the procedure as many times as you can.

Benefits : Regular practice of Suryabhedana pranayama has following benefits-

(i) It helps to remove embeded Kafa.

(ii) It helps to cure obesity.

(iii) It helps to increase the vitality of the body.

(iv) It helps to cure problems related to depression and lack of energy.

(v) It provides considerable relief from anxiety, depression and mental illness.

(vi) It helps in treating problems related to low blood pressure and infertility in women.

(vii) It increases the digestive fire.

(viii) It destroys all diseases that are caused by insufficiency of oxygen in the blood.

Contraindications :

(i) Those who had recently undergone abdominal, heart or brain surgery should avoid this asana.

(ii) Do not rush with the process, take it slow and gradually increase your pace.

Multiple Choice Questions (1 Marks)

Q.1. BMI of a obese person is :

(A) 19 to 25 (B) Less than 28

(C) **Greater than 30** (D) Less than 30

Q.2. Obesity means :

(A) Lessinsuline production (B) **Accumulation of fat**

(C) Burning of fat (D) Enlargyment of heart

Q.3. What is the excess percentage of the normal weight iscalled obese :

(A) 15% (B) **20%**

(C) 25% (D) 30%

Q.4. Which of the following Asana (posture) is not used for obsesity.

(A) Ardhmatssyendrasaana (B) Vajrasana

(C) **Shalabhasana** (D) Trikonasana

Q.5. Choose the Asana which is used for obesity :

(A) Sukhasana **(B) Pawanmukhasana**

(C) Vajrasana (D) Shalabhasana

Q.1. Define obesity Explain the procedure and Benefits/ contraindications of any two asana which helps to reduce obesity. (1+2+2 = 5)

Ans. Now a days obsesity has become a problem for the whole world. Obesity is a condition in which the amount of fat in the body increases 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.

(1) **Ardhmatsyendrasana : (Half Lord of the fishes pose)**
Procedure :

- Sit and keep both legs straight.
- 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.
- Kee Left 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, stretching improves flexibility and tones of muscles.
- Controls menstrual cycle in women and brings shine on face.
- Also controls secretion from pancrease gland.
- Reduces fat and helps in controlling obesity.
- This pose flexes the lower part of the body making the hip stronger and toned.
- Releases excess heat toxins from organs and tissues.

Contraindications :

- Avoid while suffering from severe back or neck pain.
- Avoid this pose completely, if having slip disc-problem.
- Those with internal organ issues may find this pose difficult and painful.
- it should be avoided while pregnancy.

(2) **Pavanmuktasana :**

Procedure:

- **Pre Stage :** Lie flat on your back and keep the legs straight.
- **Method :** Inhale slowly and lift the legs and bend the knees.
- Bring knee upwards to the chest till your thigh touches the stomach. Hug your knees and lock your fingers, touch your chin to the knee while exhaling. Repeat it with another leg.

Benefits :

- Strengthen the back and abdominal muscle, leg and hip.
- Intestine get massaged, also bring fresh blood to fower adbomen.
- Helps in spondolytis.
- Remove excess fat around the lower adbomen.
- Release excess heat, toxins from organs and tissues.

Contraindications:

- Avoid while suffering from severe back or neck pain.
- Avoid this pose completely, if having slip disc problem.
- Those with internal organs issues may find this pose difficult and painful.
- It should be avoided while pregenancy.

3.2 Diabetes

Diabetes is commonly known as metabolic dis order characterized by high blood sugar level over a prolonged period. Diabetes is due to either the pancreas not producing enougt insulin or the cell fo the body not responding properly ,to the insulin produced,. Due to diabetes the individual has fatigue, frequent urination, increased thirst and increased Hunger. It may cause blurred vision. Kidney failure, cardiovascular disease, loss of weight etc.

The main reason for diabetes in sedentary lifestyle. By doing bhujangasan, paschimottanasana, pavanmuktasana and ardh matsyandrasana, one can get rid of this disease.

Symptoms of Diabetes

- Fatigue
- Increased Thirst
- Increased Hungers
- Hungers
- Blurred Vision
- Kidney Failure

- Cardio vascular Discase
- Loss of Weight
- Frequent Urination

Causes of Diabetes

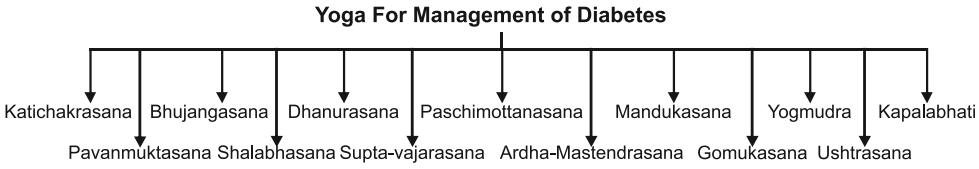
- Sedentary Lifestyle
- Disease
- Over weight
- Obesity
- Stress & Tension

Diabetes is a metabolic disorder in which the level of sugar in the blood rises from its normal reference value.

Types of Diabetes :

(A) Type I Diabetes : In that type of diabetes blood sugar level rises very high due to non secrartaion of insulin harmone by pancreas. In that of diabetes effected person, has to take artificial insulin through ingection.

(B) Type II Diabetes : In that type of diabetes blood sugar level rises but. not as such as high in type | diabetes. In that type of diabetes our pancreas secreating the insulin harmone but it may be unsufficient to control the blood“sugar level normal or body cell are not able to respond insulin properly.



(1) **Katichakrasana :** Katichakrasana is a simple standing pose with 4 spinal twist. The name comes from the Sanskrit words—.kati,; which means ‘waist’; whereas chakra, means ‘wheel’ or ‘circular rotation’; and asana, means ‘pose’ or 'posture.

Procedure



(i) Stand up straight with-your feet together, spine erect and shoulders ,straight.

(ii) Keep your legs apart from each other and stretch your hands to the front, palms facing each other.

(iii) Your hands should be in line with the shoulders.

(iv) First inhale and then while exhaling twist from the waist to the right and look back over the right.

(v) Keep your breath out and Stay in this position as long as possible.

(vi) Inhale and slowly come back to the center

(vii) Exhale and twist from the waist to the left and look back over the left(keep your breath out).

(viii) Stay in this final posture as long as possible and then come back to the center and relax.

(ix) This is the complete cycle of this posture.

(x) Practice can be repeated 10 to 20 times or even more than that as per the convenience.

Benefits : Regular practice of katichakrasana has following benefits-

(i) Provides relief in constipation.

(ii) Strengthens and improves the flexibility of the spine and waist.

(iii) Good for arm and leg muscles.

(iv) Opens up the neck and shoulders and strengthens the abdominal muscles and lower back.

(v) Beneficial for those with sedentary or deskbound jobs.

(vi) Helps to relive back pain.

Contraindications

(I) Don't practice this asana in case of recent surgery of abdomen or spine.

(ii) Don't practice this asana if you are suffering from hernia, slip disc or any abdominal inflammation.

(iii) This asana should be avoided during pregnancy.

2. **Pavan Muktasana :** The word Pavan Muktasana is a combination of the words ‘pavana' which means 'winds’, 'mukta' which means 'to relieve or release’ and ‘asana’ which means ‘posture’. As the name suggests, Pavan Muktasana helps to release abbominal gas and ease digestive disorders.

Procedure



(i) Lie down on your back with your feet together and hands by the side of your thighs.

(ii) Do not tighten your body just feel relaxed in this position.

(iii) Inhale and raise your left leg, exhale and bring your left knee towards your chest and press the thigh on your abdomen with clasped hands.

(iv) Breathe in again and as you exhale, lift your head and chest off the floor and touch your chin to your left knee.

(v) Hold-in there, as you take deep, long breaths in and out.

(vi) Try to bein this posture as long as possible.

(vii) Inhale and’ bring back your chest and head on the floor then exhale.

(viii) Inhale and lift your leg up straight along the knee then exhale and bring the leg back on the floor and rest in the supine position.

(ix) Repeat the same procedure with the other right leg al so.

(x) Now sit straight and your finger should hold the big finger of your leg.

Benefits : Regular practice of Pavan Muktasana has following benefits-

(i) It stretches the neck and back.

(ii) It relieves constipation.

(iii) It strengthens the lower back muscles and loosens the spinal vertebrae.

(iv) It improves the process of digestion.

(v) Blood circulation is increased to all the internal organs.

(vi) The pressure on the abdomen releases any trapped gases in the large intestine.

(vii) The abdominal muscles are tensed and the internal organs are compressed which increases the blood circulation and stimulates the nerves, increasing the efficiency of the internal organs.

(viii) It helps to burn extra fat around the thighs, buttocks, and abdominal area.

Contraindications

(i) This asana must be avoided by those who had an abdominal surgery recently.

(ii) People suffering from hernia or piles must avoid this asana.

(iii) This asana must be avoided by those who are suffering from heart problems, hyperacidity, high blood pressure, slip disc.

3. **Bhujangasana :** Bhujangasana is a simple ‘backward bending asana'. The word bhujangasana is a combination of two from sanskrit in which 'bhujanga’ means ‘snake’ and ‘asana’ means ‘posture’. Bhujangasana is the final stage when the cobra is ready to attack its prey by raising its hood, hence it is also known as ‘cobra pose’.



Procedure

(i) Lie down on the stomach by keeping your legs together.

(ii) Put your palms besides your shoulder and the head should rest on the ground.

(iii) With inhaling raise your head up to your navel region and try to see the roof.

(iv) Maintain the position as per your capacity with steadily inhaling and exhaling.

(v) Then come to the original position slowly with deep exhalation.

Benefits : Regular practice of Bhujangasana has following benefits-

(i) It stretches muscles in the shoulders, chest and abdominals and increases flexibility.

(ii) it relieves stress and fatigue and also elevates mood.

(iii) It helps to ease symptoms of asthma.

(iv) It improves digestion.

(v) It soothes sciatica.

(vi) It strengthens the spine, arms and shoulders.

(vii) It improves circulation of blood and oxygen, especially throughput the spinal and pelvic regions.

(viii) It opens the chest and helps to clear the passages of the heart and lungs.

(ix) It stimulates organs in the 'abdomen, like the kidneys.

(x) It firms and tones the butfocks.

(xi) It improves menstrual irregularities.

(xii) It decreases stiffness of the lower back.

Contraindications

(i) Pregnant ladies should avoid this asana.

(ii) The person suffering from sciatica, hernia, and slip-disc should not perform this asana.

(iii) It should also be avoided by those people who had abdominal injury in the recent past.

4. **Shalbhasana :** The name comes from the Sanskrit words, 'shalabh' which means 'locust' and 'asana' which means 'pose'.

Procedure

(i) Lie down in prostrate position and spread the thigh backwards.

(ii) Hold your fists and extend arms.

(iii) Keep your fists under the thigh and then raise your legs slowly as high as you can.

(iv) For best results hold this position for 2 or 3 minutes and then lower your legs slowly.

(v) Repeat the same action for 3 to 5 times.

Benefits : Regular practice of Shalbhasana has following benefits-



(i) It regulates metabolism and helps to lose weight.

(ii) It helps to regulate the acid-base balance in the body.

(iii) It stimulates the internal organs, as well as enhances the circulation of blood.

(iv) It also helps to reduce stress and tension.

(v) The arms, thighs, shoulders, legs, calf muscles, and hips are. strengthened through this asana.

(vi) The back is also toned and strengthened.

(vii) This asana also encourages a healthy posture.

Contraindications

(i) Pregnant women must avoid this asana at all costs.

(ii) Avoid this asana in case of any neck or spinal injury.

(iii) Avoid this asana in case of headache or a migraine.

5. **Dhanurasana :** The name “Dhanurasana” comes from the Sanskrit words 'Dhanura’ which means ‘bow’ and ‘asana' which means ‘posture or ‘pose’.

Procedure



(i) Lie down on your stomach with your feet slightly apart, almost parallel to your hips, and place your arms on the side of your body.

(ii) Slowly, fold your ‘knees up and hold your ankles withyour hands.

(iii) Breathe in and lift your chest off the ground and pull your legs up and stretch it out. You should feel the stretch on your arms and thighs.

(iv) Hold the pose for 12-15 seconds, paying attention to your breath as you take long, deep ones.

(v) Slowly bring your chest and legs back to the ground, release your hold on the ankles, and relax with your hands on the side.

Benefits : Regular practice of Dhanurasana has following benefits-

(i) It strengthens the back and the abdomen.

(ii) It keeps you active and energetic.

(iii) It helps to improve stomach disorders:

(iv) Helps in reducing fat around belly area.

(v) It is beneficial in improving reproductive system and menstrual disorders.

(vi) Helps to regulate the pancreas and control diabetes.

(vii) Helps alleviate hunchback

Contraindications

(i) People suffering from high blood pressure, back pain, headache, migraine or abdomen surgery should not practice Dhanurasana.

(ii) Ladies should not practice this during pregnancy and in periods.

(iii) People who have recently undergone abdominal, heart or brain surgeries, should not practice this asana.

6. **Supta-Vajarasana :** Supta vajrasana is an advanced variation of vajrasana. Derived from Sanskrit words,'supta' means 'reclining', 'vajra' means 'thunderbolt' and 'asana' means 'pose.' Supta vajrasana is also referred to as supine thunderbolt pose in English.

Procedure

(i) Sit comfortably in Vajrasana with palms on the floor beside the buttocks and fingers pointing to the front.



(ii) Now, slowly bend back, putting the proper forearm and also the elbow on the bottom so the left.

(iii) Then, slowly bring down your head to the ground while arching the back. Place your hands on the thighs and close the eyes and relax the body.

(iv) Breathe deeply and slowly within the final position.

(v) Release within the reverse order, inhaling and taking the support of the elbows and also the arms raise the top higher than the bottom.

(vi) Then shift the weight on the left arm and elbow by slippery the body, then slowly returning to the beginning position.

Benefits : Regular practice of Supta-Vajarasana has following benefits-

(i) It makes the spine flexible and tones spinal nerves.

(ii) It corrects round shoulders consequently improving body posture.

(iii) Delivers a high amount of the oxygen into the lungs preventing lung disorders.

(iv) Loosen up the legs.

(v) Provides relief in constipation and digestive ailments by massaging the abdominal organs.

(vi) Beneficial for those who suffer from lung ailments such as bronchitis and asthma.

Contraindications

(i) Pregnant women must avoid practicing this asana.

(ii) People suffering from sciatica, neck and knee problems, spine ailments, slipped disc should not practice this asana.

7. **Paschimottasana:** 'Pashim' means 'back' and 'uttana' means 'stretching'. This asana covers the stretching of the whole body from head to heels so it is called as paschimotasana.

Procedure



(i) Sit up with the legs stretched out straight in front of you on the floor.

(ii) Keep the spine erect and toes flexed towards you.

(iii) Bring your respiration to normal.

(iv) Breathing in, slowly raise your both the arms straight above your head and stretch up.

(v) Slowly breathe out and bend forward from the hip joint, chin moving toward the toes keeping the spine erect.

(vi) Place your hands on your legs, wherever they reach, without putting much effort.

(vii) If possible hold your toes and pull on them to help you go forward.

(viii) Stay in this position as long as possible.

(ix) After the exertion limit reached inhale and raise up stretching up your arms straight above your head.

(x) Breathe out and bring your arms down placing the palms on the ground.

Benefits: Regular practice of Paschimottasana has following benefits-

(I) It is much useful asana for increasing height.

(ii) It improves working of liver, kidneys, uterus and ovaries.

(iii) It reduces obesity by reducing the abdomen fat.

(iv) It is beneficial for strengthening spine and back.

(v) It tones the arms and activates the spinal nerves.

(vi) It stretches and strengthens the calf and thigh muscles.

(vii) It improves the circulation and tones the abdominal and pelvic organs.

(viii) It stretches the whole spine specifically lower back, hamstring and hips.

Contraindications

(i) Person suffering from back problem and diarrhea should avoid this asana.

(ii) Avoid this asana in case of any recent surgery.

8. **Ardha Matsyendrasana :** This asana is named after Yogi Matsyendranath. The name is taken from the Sanskrit words ‘ardha' which means ‘half’, 'matsya’ which means ‘fish’, ‘Indra’ which stards for a king, and 'asana' which means 'posture’.

Procedure

(i) Kneel down with your legs together, resting on your heels.

(ii) Then sit to-the right of your feet.

(iii) Lift your left leg over your right, placing the foot against the outside of the right knee. Bring your right heel in close to your buttocks. Keep the spine erect.

(iv) Stretch your arms ‘out to the sides at shoulder level, ‘and twist around to the left.



(v) Now bring the right arm down on the outside of the left knee and hold the left foot in the right hand, placing your left hand on the floor behind you.

(vi) Exhaling, twist as far as possible to the left. Look over the left shoulder.

Benefits : Regular practice of Ardha Matsyendrasana has following benefits-

(i) It energizes and stretches the backbone.

(ii) It increases the flexibility of hips and spine.

(iii) It cleans the internal organs, removes the wastes and improves digestion.

(iv) It relieves fatigue, sciatica, backache and menstrual discomfort.

(v) It opens the neck, hips and shoulders.

(vi) It releases excess toxins and heat from tissues and organs.

(vii) It helps to cure slipped disc problem.

(viii) It stimulate pancreas and control diabetes.

(ix) It helps to regulate the secretion of both adrenalin and bile.

(x) It helps to relieve stress and tension in the back.

(xi) It also helps to open up the chest and increase the supply of oxygen to the lungs.

Contraindications

(i) This asana must be avoided during pregnancy and menstruation.

(ii) This asana must be avoided if the person has back pain.

9. **Mandukasana :** Mandukasana can be split into two words, ie., “manduk” and “asana”. In Sanskrit, these words mean “frog” and “pose” respectively. This yoga pose is aptly named frog pose as our body resembles a frog when we practise it.

Procedure:



(i) Sit in a simple kneeling pose. Make fists with each hand. Ensure that thumbs are properly tucked behind fingers.

(ii) Position fists such that they lie on abdomen and are on either side of navel.

(iii) Exhale in a manner that allows you to stretch your abdominal muscles. Then bend forward slowly and beg into press your navel with your fists.

iv) Keep your back straight and look forward while you are bending forward.

(v) Now hold your breath for as long as you can maintain this pose.

(vi) Once you release this pose, you can inhale and slowly raise your body to a kneeling position. Bring your hands back to your sides and relax.

Benefits : Regular practice of Mandukasana has following benefits-

(i) It increases the quantity of insulin which helps to cure diabetes.

(ii) Cure the problems related to the stomach.

(iii) It is beneficial in cardiovascular diseases.

(iv) Useful for flexibility of thighs and legs.

(v) Reduces extra fat from thighs and hips.

(vi) It improves the functioning of the digestive system and excretory system.

(vii) It cures the pain of ankles, knees and back.

Contraindications

(i) Those suffering from abdominal injuries or back pain should not perform this asana.

(ii) Avoid this asana in case of knee injury.

10. **Gomukhasana :** The word Gomukhasana is a combination of sanskrit words in which 'Go' means ‘Cow', 'Mukha’ means ‘face’ and 'asana' meansposture. Gomukhusana is also known as Cow Face Pose because while performing this asana crossed legs look like the face of a cow. The knees look like the mouth, the shin looks like the side of a cow's face, and the feet look like the ears of a cow.

Procedure



(i) Sit with straight back and legs extended,

(ii) Keep both the feet together and place your palms on the hips.

(iii) Now fold your left leg and gently place it under the right buttock.

(iv) Bring your right leg over your left thigh.

(v) Stack both the knees closely over one another.

(vi) Now raise your left arm and bring it to the back over the shoulder. Keep the arm upwards, bend the elbow and palm facing outwards.

(vii) Stretch your right hand to the right, behind the back. Now, bend the elbow to reach the left hand. Try to grasp both hands with fingers interlocking behind the back.

(viii) Keep your spine straight and your head facing forward.

(ix) Stay in this pose as long as you are comfortable.

(x) Release your breath as you relax your hands and legs.

(xi) Repeat the same steps using opposite legs and hands.

(xii) After the pose, sit in a comfortable cross-legged posture.

Benefits : Regular practice of Gomukhasana has following benefits-

(i) Treats sciatica.

(ii) Treats high blood pressure.

(iii) Enhances sexual performance.

(iv) Cures stiff and frozen shoulders.

(v) Elongates spine and improves bad posture.

(vi) Reduces anxiety and stress.

(vii) Stimulates kidneys.

(viii) Strengthens the muscles of the back, hips, ankles, shoulders, thighs, inner armpits, triceps, and chest.

Contraindications

(I) People who are suffering from shoulder, knee or back pain should avoid practicing this asana.

(ii) In case of any recent surgery of knee, hip or shoulders, this asana should be avoided.

11. **Yogmudra :** Yoga mudras are symbolic gestures often practiced with the hands and fingers that facilitate the flow of energy in the subtle body and mind for optimal health. In other words, Yoga Mudra is the science of redirectinig energy flow in the entire body using hand gestures. Some of the commonly practiced yog mudras along..with their procedure and benefits have been mentioned below-

(a) **Gyan or Chin Mudra (Mudra of Knowledge) :** Gyan or Chin Mudra, is a very commonly practiced yoga mudra. This is one of the most extensively used mudras by yogis and the easiest to do. This mudra can be done anytime, and is usually performed with pranayamas and meditation, Procedure : Put your hands on your lap, palms facing upward. Join the tip of your thumb with that of the index finger, stretch out the other three fingers on each hand and hold that position.



Benefits of Gyan or Chin Mudra

(i) Improves concentration and enhances learning.

(ii) Helps to manage insomnia.

(iii) Eases tension and improves positive feelings.

(iv) Helps in depression.

(v) Improves brain health and focus.

(vi) Good in relieving headaches.

(vii) Good for managing diabetes with medicines and diet.

(b) **Vayu Mudra (Mudra of The Air Element) :** As the name says this mudra helps to balance the air element in the body. The air element is associated with the Vata dosha, this mudra helps in relieving different types of pains like arthritis, sciatica.

Procedure : Fold your index finger and touch the second phalanx bone with the tip of your thumb. Apply gentle pressure so that the tip of index finger should touch the base of the thumb. Straighten the other three fingers and keep them activated.

Benefits of Vayu Mudra



(i) Eliminates excess air/gas, bloating from the body.

(ii) Helps in easing constipation.

(iii) Helps with relief from cervical spondylosis.

(iv) Relieves discomfort from arthritis, gout, parkinson's disease and paralysis.

(v) Relieves chest pain.

(vi) Provides immunity against cold and cough.

(Vii) Works great for brittle, dry hair due to Vata Dosha.

(c) **Surya Mudra (Mudra of Fire Element) :** This is a very powerful mudra, the fire element is associated with the heat or metabolic functions in the body. Practicing this mudra helps to maintain the high body temperature and boosts metabolism. It is also called as 'Agni Vardhak Mudra' the mudra that increases Pitta fire.

Procedure : Bend your ring finger inward, placing the tip of it at the base of the thumb and touch the second phalanx bone with the thumb and press a little. Stretch out the other three fingers.



Benefits of Surya Mudra

(i) Helps in reducing the bad cholesterol.

(ii) Dissolves extra fat and promotes weight loss.

(iii) Improves metabolism and enhances strength.

(iv) Improves digestion.

(v) Enhances discipline and ambition.

(vi) Imparts Tejas or lustre to the skin.

(d) **Prana Mudra (Mudra of Life Force) :** This mudra helps in balancing life element in the body. When ever you are feeling exhausted and tired, this mudra can get you a long way. It strengthens the eyesight and vision. This powerful mudra works on increasing the vitality and life force and brings hope, enthusiasm and joy to the life.

Procedure : Touch the tip of ring and little finger with the tip of the thumb and keep the other two fingers (index and middle) extended.



Benefits of Prana Mudra



(i) Strengthens the immune system.

(ii) Improve the flow of vital forces in the body.

(iii) Good for high blood pressure.

(iv) Sharpens the vision, improves eyesight.

(v) Helps in proper blood circulation in body.

(vi) Relieves mental tension, anger, restlessness, frustration.

(vii) Soothes the digestion, relieves burning in stomach.

(e) **Prithvi Mudra (Mudra of Earth) :** As the name says this mudra increases the earth element in the body and decreases the fire element. Earth element is a vital component of nails, hair, skin, bones, and muscles in the body. Regular practice of Prithvi mudra can help repairing the tissues in the body and gives strength to the bones.

Procedure : Just join the tips of the ring finger and the thumb and keep the other three fingers straight and active.

Benefits of Prithvi Mudra

(i) Good for any kind of skin diseases and rashes like urticaria.

(ii) Strengthens the tissues in the body including brittle nails.

(iii) Helps with premature graying, hair fall

(iv) Promotes weight gain

(v) Helps to overcome fatigue

(vi) Gives strength to the bones and helpful in osteoporosis, osteomalacia, Arthritis

Contraindications

(I) These asanas should be avoided by those who are suffering from sciatica, uncontrolled high blood pressure, or any type of serious abdominal ailment.

(ii) These asanas should also be avoided by those who have any kind of knee or hip problems.

(iii) In case of back pain, avoid going too deep into the pose.

12. Ushtrasana : The name 'Ustrasana' is derived from the Sanskrit words ‘ustra’ which means ‘camel’ and‘asana’ which means 'pose' or ‘posture.’ This asana is also known as camel pose.

Procedure



(i) Stand on the knees. Keep the thighs fully straight. Keep the knees and feet together.

(ii) Lean in the backward direction. Slowly move more backward. Reach the right heel with the right hand, and the left heel With the lefthand. Avoid straining the body.

(iii) Push the: hips i in the forward direction and then bend nd the head and the spine as backward and as far as possible without straining.

(iv) Relax the body and the muscles of the back and support the body weight equally on the legs and arms.

(v) Keep the arms in such a way that they anchor the shoulders to maintain the back arch. Stay in the same position for as long as you find it comfortable.

(vi) Then release the hands from the heels one by one and return to the starting position.

Benefits : Regular practice of Ustrasana has following benefits-

(i) It stretches the anterior muscles of the body.

(ii) It improves flexibility of the spine and strengthens it.

(iii) It improves digestion and reduces excess fat deposited on the stomach, neck and back.

(iv) It relaxes the lower back and helps to get rid of all kinds of back pain.

(v) Activates the brain cells and makes it function better by improving the blood circulation.

Contraindications

(i) People suffering from severe back and neck injury, high or low blood pressure, migraine or other severe headache should not attempt this asana.

(ii) Those who had recently undergone any abdominal surgery should avoid this asana.

13. **Kapalbhati :** Kapalbhati pranayama is a yogic breathing practice that is considered as internal purification practice. The term is derived from the Sanskrit word, 'kapal' which means 'skull' and 'bhati' which means'to shine.

Procedure

(I) Sit comfortably with your spine erect. Place your hands on the knees with palms open to the sky.

(ii) Take a deep breath in and as you exhale, pull your stomach. Pull your navel in back towards the spine. Do as much as you comfortably can.

(iii) As you relax the navel and abdomen, the breath flows into your lungs automatically.



(iv) Take 20 such breaths to complete one round of Kapal Bhati ranayama.

(vi) After completing the round, relax with your eyes closed and observe the sensations in your body.

(vii) Do two more rounds of Kapal Bhati Pranayama.

Benefits : Regular practice of Kapalbhati has following benefits-

(i) It increases the metabolic rate and helps in weight loss.

(ii) Clears the nadis.

(iii) Stimulates abdominal organs and thus is extremely useful to those with diabetes.

(iv) Improves blood circulation and adds radiance to the face.

(v) Improves digestive tract functioning, absorption, and assimilation of nutrients.

(vi) Results in a trimmed down belly.

(vii) Energizes the nervous system and rejuvenates brain cells, (viii) Calms and uplifts the mind.

Contraindications

(i) Avoid practicing this breathing technique if you have an artificial pacemaker or stent, epilepsy, hernia, |backache due to slip disc, or have recently undergone abdominal surgery.

(ii) Women should not practice this asana during menstruation as it involves vigorous abdominal squeezes.

Multiple Choice Questions (1 Marks)

Q.1. Choose the asana for diabetes :

(A) Trikonasana (B) Vajrasana

(C) **Ardhmastsyendrasana** (D) Shalabhasana

Q.2. If pancreas not producing enough insuline. It may lead to : _____

(A) Migrane (B) Obesity

(C) **Diabetes** (D) Hypertension

Long Answer Type Question

Q.1. Define diabetes. Breifly explain any four asana which :helps to control diabetes.

Ans. Diabetes : Diabetes is commonly known as metabolic disorder characterized by high blood sugar level over a prolonged period. Diabetes is due to either the pancreas not producing enought insulin or the cell of the body not responding properly to the insulin procuced.

Following are the asanas to control diabetes :

1. Ardhyanatsyendra

Procedure:

- Sit and keep both legs straight
- Bending the knee of the 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 left knee closed to the chest.
- Exhale from the right nostril and turns towards left and touch the toe of the left leg from the right hand.
- Body and head moves towards the left.
- Repeat while changing the position of legs.

Benefits :

- Help nervous system and strengthen the back bone, stretching improves flexibility and tones the muscles.
- Controls Menstural cycle in women and brings shine on face.
- Also controls secration from pancreas gland.
- Reduces fat and helps in controlling obesity.
- This pose flexes the lower part of the body making the hip stronger and toned.

2. Paschimottanasana:

Procedure:

- Sit down with your legs stretching staight in front of you.
- Keep your head, neck and spine erect and stretch hands upwards with a deep breath. 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.

Benefits :

- By doing this, digestion improve.
- A sluggish liver is also taken care of Thyroid gland improves.
- Kidney function improves.
- Tones the ovaries which help to remove any disorder in connection with uterus.
- Therapeutic benefits : Relieves back ache, neck pain, stress, purifies blood, relieves constipations and addresses gynecological disorder.

Contraindications :

- Avoid if spinal problem
- Avoid if neck problem
- Do not do if having ulcer

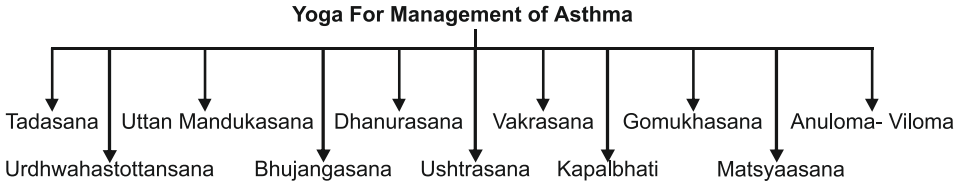
- Pregnant women should avoid.
- Avoid if having asthma
- Activate pancreas to produce insulin.
- Cure acidity, digestive problem, diabeties, blood pressure, hypertension, cervical spondylosis.
- Anyone with severe migraine should not try this.
- Avoid if having low or high blood pressure.
- Avoid if having slip disc problem.
- Avoid if suffering from spondolysis.
- Avoid if having internal organ problem.

3.3 Asthma

Asthma, a disease associated with the respiratory tract 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 breath.

Common symptoms of asthma are coughing, heavy breathing. chest tightness, fatigue, pain in hands, feet, shoulders and back. Reasons are dust, smoke, air pollution, pollengrains, animals skin, hair or feather etc. are the main reasons.



1. **Tadasana:** This asana is the base or mother of all asanas, from which the other asanas emerge. Tada means a tree. Thus, Tadasana is a pose where one stands firm and erect as a tree.

Procedure



(i) Stand straight with both feet together, the heels and toes should touch each other. Keeping the front part of the feet on the floor lift the toe (back part of feet) in the upward direction.

(ii) Tighten the knees, contract the hips and pull up the muscles at the back of the thighs.

(iii) Keep the stomach in, chest forward, spine erect and the neck straight.

(iv) Distribute the weight of the body evenly on both the toes,

(v) Place the arms by the side of the thighs.

Benefits

(i) It strengthens the vertebral column and heart.

(ii) It cures indigestion.

(iii) Remove lethargy from body.

(iv) Strengthens the arms and legs.

(v) It reduces the problem of flat feet,

(vi) It develops and activates the nerves of the entire body.

(vii) This is the best exercise to increase the height.

(viii) It is also good for regulating the menstrual cycle in women.

Contraindications

(i) People suffering from headache, insomnia and low blood pressure should avoid this asana.

(ii) The patient of varicose vein should avoid this asana.

(iii) Pregnant women should avoid this asana.

2. **Urdhwahastottansana :** Urdhwahastottansana is a standing asana and a key posture in Surya Namaskara (Sun Salutation). In this asana, the practitioner stands tall, as in tree pose (tadasana), with the hands raised over the head. The name for this asana comes from the Sanskrit words 'urdhva' which means'upward', 'hasta' which means 'hands' and 'asana' which means 'posture'. This asana is called upward salute or upward hands pose in english.

Procedure



(i) Stand erect with legs placed hip-wide apart.

(ii) Raise both hands up and interlock the fingers with palms turned upwards.

(iii) Inhale and stretch the hands up as much as possible. As you exhale, bend from the waist to the right side, without leaning forward or backward.

(iv) Keep hands stretched straight and align the posture.

(v) Hold the posture for 5-7 breaths. Breathe normally then slowly come back to the upright position. Repeat the procedure on the left.

(vi) Release the hands. This completes one full round.

Benefits : Regular practice of Urdhwahastottansana has following Benefits -

(I) It enhances and opens up the chest and reduce the waist size.

(ii) Extra flesh in hips and back gets reduce.

(iii) Increases the height.

(iv) Instantly cures constipation problem.

(v) Reduces the pain in the ribs.

(vi) This asana stretches both sides of the body, so it massages, loosens and exercises the sides of the ribcage and the waist

(vii) Improves blood circulation around the thoracic area and the heart

(viii) Beneficial for respiratory disorders, hypertension and heart problems

Contraindications

(i) This asana should be avoided in case of neck or shoulder pain.

(ii) This asana should be avoided during pregnancy.

(iii) Patient suffering from leg pain should skip this yoga pose.

3. **Uttan Mandukasana :** Here, 'uttana' refers to 'stretched up', 'manduka' means 'frog', and 'asana' refers to 'pose'. Since the final posture resembles an uptight frog, due to which this asana is named so.

Procedure



(i) Begin with sitting in Vajrasana keeping the toes joined.

(ii) Spread both the knees as wide as possible placing hands between the knees for support.

(iii) Inhale, raise your right arm and bend it at the elbow to place the right hand below the left shoulder.

(iv) Similarly, raise the left arm and bend it to place the left palm below the right shoulder.

(v) The left wrists are placed crossing over the right one behind the head. Hold the pose for 3-10 breaths expanding the chest fully and lengthening arching the spine.

(vi) Release by lifting the left arm followed by the right arm and lower them to the knees.

(vii) Bring your knees closer to sit in the initial pose.

Benefits : Regular practice of Uttan Mandukasana has following benefits-

(I) Stimulates thyroid and parathyroid glands

(ii) Preserves the youth by keeping spine elastic (Anti aging)

(iii) Improves blood circulation to brain

(iv) Cures constipation, indigestion, diabetes, visceroptosis, varicose veins and menstrual disorder

Contraindications

(i) Those who are having arthritis, hernia, and back problems shouldn't practice this yoga pose.

(ii) If there are problems in the knee or its adjoining area, skip to practice it.

(iii) It shouldn't be practice in case of pregnancy and menstruation.

(vi) This asana should not be practiced even if there is pain in the elbow.

(v) This posture should not be done if somebody is having severe pain in the shoulders.

4. **Bhujangasana:** bhujangasana is one of the best yoga poses for beginners as it is simple 'backward bending asana'. The word bhujangasana is a combination of the word 'bhujanga' (the Sanskrit word for snake) and asana meaning posture. Bhujangasana is the stretching yoga exercise of the front torso and the spine. Bhujangasana is the final stage when the cobra is ready to attack its prey by raising its hood; hence the name is cobra pose. Cobra pose is one of the most important back bending yoga asana, which has numerous health benefits Ranging from head to feet. The cobra posture and its variations are just like a boon to those who have back problem.

Procedure



(i) Lie down on the stomach by keeping your legs together. Make a-gap of 1-2 feet between the legs if somebody has backache.

(ii) Put your palms besides your shoulder and the head should rest on the ground.

(iii) With inhaling raise your head up to your navel region and try to see the roof.

(iv) Maintain the Position till 10 to 60 seconds with steadily inhaling and exhaling.

(v) Come to the original Position slowly with deep exhalation.

(vi) Repeat the Process for 3 to 5 times.

Benefits

(i) It stretches muscles in the shoulders, chest and abdomen.

(ii) It increases flexibility.

(iii) It relieves stress and fatigue.

(iv) It helps to ease symptoms of asthma.

(v) It improves digestion.

(vi) It soothes sciatica,

(vii) It strengthens the spine.

(viii) It improves circulation of blood and oxygen, especially throughout the spinal and Pelvic regions.

(ix) It opens the chest and helps to clear the passages of the heart and lungs.

(x) It stimulates organs in the abdomen, like the kidneys.

(xi) It invigorates the heart.

(xii) It firms and tones the buttocks.

(xiii) It elevates mood,

(xiv) It improves menstrual irregularities.

(xv) It strengthens the arms and shoulders.

(xi) It decreases stiffness of the lower back.

Contraindications

(i) Pregnant ladies should avoid this asana as it can be harmful for them and for their body.

(ii) The person suffering from sciatica, hernia, hypothyroidism, peptic ulcers and slip-disc should not perform this asana.

(iii) It must be avoided by the people also who have the abdominal injuries.

(iv) If the person has any serious physical problem, it is better to consult a yoga therapist or expert before performing bhujangasana.

5. Dhanurasana : The name “Dhanurasana” comes from the Sanskrit words ‘Dhanura’ which means 'bow' and ‘asana’ which means ‘posture’ or ‘pose’.

Procedure

(i) Lie down on your stomach with your feet slightly apart, almost parallel to your hips, and place your arms onthe side of your body.



(ii) Slowly, fold your. knees-up and hold your ankles with your hands.

(iii) Breathe in and lift your chest off the ground and pull your legs up and stretch it out. You should feel the stretch on your arms and thighs.

(iv) Hold the pose for 12-15 seconds, paying attention to your breath as you take long, deep ones.

(v) Slowly bring your chest and legs back to the ground, release your hold on the ankles, and relax with your hands on the side.

Benefits : Regular practice of Dhanurasana has following benefits-

(i) It strengthens the back and the abdomen.

(ii) It keeps you active and energetic.

(iii) It helps to improve stomach disorders.

(iv) Helps in reducing fat around belly area.

(v) It is beneficial in improving reproductive system and menstrual disorders.

(vi) Helps to regulate the pancreas and control diabetes.

(vii) Helps alleviate hunchback

Contraindications

(i) People suffering from high blood pressure, back pain, headache, migraine or abdomen surgery should not practice Dhanurasana.

(ii) Ladies should not practice this during pregnancy and in periods.

(iii) People who have recently undergone abdominal, heart or brain surgeries, should not practice this asana.

6. **Ushtrasana :** The name "Ustrasana" is derived from the Sanskrit words 'ustra' which means 'camel' and 'asana' which means 'pose' or 'posture.' This asana is also known as camel pose.



Procedure

(i) Stand on the knees. Keep the thighs fully straight. Keep the knees and feet together,

(ii) Lean in the backward direction. Slowly move more back ward. Reach the right heel with the right hand, and the left heel with the left hand. Avoid straining the body.

(iii) Push the hips in the forward direction and then bend the head and the spine as backward and as far as possible without straining.

(iv) Relax the body and the muscles of the back and support the body weight equally on the legs and arms.

(v) Keep the arms in such a way that they anchor the shoulders to you find it comfortable.

(vi) Then release the hands from the heels one by one and return to the starting position.

Benefits : Regular Practice of Ustrasana has following benefits-

(i) It stretches the anterior muscles of the body.

(ii) It improves flexibility of the spine and strengthens it.

(iii) It improves digestion and reduces excess fat deposited on the stomach, neck and back.

(iv) It relaxes the lower back and helps to get rid of all kinds of back pain.

(v) Activates the brain cells and makes it function better by improving the blood circulation.

Contraindications

(i) People suffering from severe back and neck injury, high or low blood pressure, migraine or other severe headache should not attempt this asana.

(ii) Those who had recently undergone any abdominal surgery should avoid this asana.

7. **Vakrasana:** Vakrasana is simpllified form of Ardhmatsyendrasana. The Sanskrit name of both the postures differes whereas the English name remains same. Vakra means 'twisted' in Sanskrit. Vakrasana is the best yoga for chronic diseases like constipation, diabetes, etc.

Procedure



(i) Sit on the Carpet, stretch the legs straight.

(ii) Fold the right leg keep the right leg heel touching the left leg's knee.

(iii) Take the right hand to back of the waist twisting your trunk, spread your palms and place it on the carpet.

(iv) Bring the left hand close to right knee and hold the right leg's ankle or big toe with the left hand.

(v) Twist the head and shoulder to tight side and look Straight to the tight shoulder's side (i.e back side).

(vi) Stay in the pose up to 30 counts breathing normally.

(vii) Turn the head to the front, release hands holding the right leg's ankle or big toe, stretch the legs, keep the palm on the carpet in a relaxed manner and take rest. for 10 seconds.

(viii) Now follow the same procedure to the left side. It is enough to practice 2 rounds (i.e, 2 times in the right side and 2 times in the left side.)

Benefits

(i) It helps in Increasing the elasticity of the spine and tones the spinal nerves.

(ii) It stretches the muscles and helps to get relief in stiffness of vertebrae.

(iii) It massages the abdominal organs and also reduces belly fat.

(iv) It regulates the secretion of digestive juices useful for different digestive disorders.

(v) It helps in loosens the hip joints, relieving stiffness.

Contraindications

(i) People with heart, abdominal or brain surgeries should not practice this asana.

(ii) People having severe spinal problems should avoid, however, people having mild slipped disc can benefit but in severe cases it is to be avoided.

(iii) It is recommended to avoid during pregnancy and menstruation due to the strong twist in the abdomen.

(iv) Care should be taken for those with peptic ulcer or hernia.

8. Kapalbhati : Kapalbhati pranayama is a yogic breathing practice that is considered as internal purification practice. The term is derived from the Sanskrit word, 'kapal' which means 'skull' and 'bhati' which means 'to shine.'

Procedure

(I) Sit comfortably with your spine erect. Place your hands on the knees with palms open to the sky.



(ii) Take a deep breath in and as you exhale, pull your stomach, "Pull your navel i in back towards the spine. Do as much as you, comfortably can.

(iii) As you relax the navel and abdomen, the breath flows into your lungs automatically.

(iv) Take 20 such breaths to complete one round of Kapal Bhati Pranayama.

(v) After completing the round, relax with your eyes closed and observe the sensations in your body.

(vi) Do two more rounds of Kapal Bhati Pranayama.

Benefits : Regular practice of Kapalbhati has following benefits-

(i) It increases the metabolic rate and helps in weight loss.

(ii) Clears the nadis.

(iii) Stimulates abdominal organs and thus is extremely useful to those with diabetes.

(iv) Improves blood circulation and adds radiance to the facé.

(v) Improves digestive tract functioning, absorption, and assimilation of nutrients.

(vi) Results in a trimmed down belly.

(vii) Energizes the nervous system and rejuvenates brain cells.

(viii) Calms and uplifts the mind.

Contraindications

(i) Avoid practicing this breathing technique if you have an artificial pacemaker or stent, epilepsy, hernia, backache due to slip disc, or have recently undergone abdominal surgery.

(ii) Women should not practice this asana during menstruation as it involves vigorous abdominals queezes.

9 **Gomukhasana :** The word Gomukhasana is a combination of sanskrit words in which 'Go' means 'Cow','Mukha' means 'face' and 'asana' means posture. Gomukhusana is also known as Cow Face Pose because while performing this asana crossed legs look like the face of a cow. The knees look like the mouth, the shin looks like the side of a cow's face, and the feet look like the ears of a cow.



Procedure

(i) Sit with straight back and legs extended.

(ii) Keep both the feet together and place your palms on the hips.

(iii) Now fold your left leg and gently place it under the night bi buttock.

(iv) Bring your right leg over your left thigh.

(v) Stack both the knees closely over one another.

(vi) Now raise your left arm and bring it to the back over the shoulder. Keep the arm upwards, bend the elbow and palm facing outwards.

(vii) Stretch your right hand to the right, behind the back. Now, bend the elbow to reach the left hand. Try to grasp both hands with fingers interlocking behind the back.

(viii) Keep your spine straight and your head facing forward.

(ix) Stay in this pose as long as you are comfortable.

(x) Release your breath as you relax your hands and legs.

(xi) Repeat the same steps using opposite legs and hands.

(xii) After the pose, sit in a comfortable cross-legged posture.

Benefits : Regular practice of Gomukhasana has following benefits-

(i) Treats sciatica‘.

(ii) Treats high blood pressure

(iii) Enhances sexual performance .

(iv) Cures stiff and frozen shoulders

(v) Elongates spine and improves bad posture

(vi) Reduces anxiety and stress

(vii) Stimulates kidneys

(viii) Strengthens the muscles of the back, hips, ankles, shoulders, thighs, inner armpits, triceps, and chest

Contraindications

(i) People who are suffering from shoulder, knee or back pain should avoid practicing this asana.

(ii) In case of any recent surgery of knee, hip or shoulders, this asana should be avoided.

10. Matsyasana : Matsyasana is a reclining back-bending asana. The name is derived form the Sanskrit word'matsya' which means 'fish' and 'asana' which means 'pose.'

Procedure



(i) Lie flat on your back with knees straight, legs and feet together.

(ii) Place your hands on side of your body and palms beneath your hips such that the palms are facing the ground.

(iii) Cross your legs such that your feet cross each other.

(iv) Inhale and lift your chest and head away from the floor. Exhale deeply as you raise your head and torso till you are sitting halfway up.

(v) The weight of your body should be supported by your forearms and elbows and not your head.

(vi) Breath normally as you hold this breath until your are uncomfortable.

(vii) Exhale and release yourself from the position by gently lowering your torso and your head to the ground.

Benefits: Regular practice of Matsyasana has following benefits-

(i) It increases the blood supply to spine and makes it supple and flexible.

(ii) It helps to cure respiratory disorders like Asthma and Bronchitis.

(iii) It provide relief from constipation.

(iv) It provide relief from neck pain.

(v) It makes the lungs strong. |It beneficial in curing impotency.

(vi) It cures stiffness of the body.

(viii) It also helps in the reduction of thigh and belly fat.

(ix) It also helps in relieving tension in shoulders.

(x) It improves the posture.

Contraindications

(i) People with High/Low Blood Pressure should not 3 perform Matsyasana.

(ii) People with serious back and neck injuries should also not Practice this asana.

(iii) People suffering from insomnia should not perform this asana.

11. Anuloma-Viloma : Anulom Vilom is a specific type of pranayama, or controlled breathing, in yoga. It involves holding one nostril closed while inhaling, then holding the other nostril closed while exhaling. The process is then reversed and repeated. It's a form of alternate nostril breathing.

Procedure



(i) Take a sitting pose. Keep your spine and neck straight and close youreyes.

(ii) Clear your mind of everything outside of this moment.

(iii) Start with your outer wrists resting on your knees.

(iv) Using your right hand, fold your middle and index fingers toward your palm.

(v) Place your thumb on your right nostril and your ring finger on your left nostril.

(vi) Close your right nostril with your thumb and inhale through your left nostril, slowly and deeply, until your lungs are full. Focus on your breathing.

(vii) Next, release your thumb and close your left nostril with your ring finger.

(viii) Exhale slowly through the right nostril.

(ix) Now practice it in reverse, this time inhaling through the right nostril and exhaling through the left.

Benefits of Anuloma-Viloma:

(i) It help to care mental problems like anxiety, Stree etc.

(ii) Benefit for breathing problems like asthma.

(iii) Improve functioning capacity of the lungs.

Contraindications

(i) Avoid during breathing problems.

(ii) Under medical condition.

Multiple Choice Questions (1 Marks)

Q.1 A disease associated with respiratory tracts is known as

(A) Diabetes (B) Obesity

(C) **Asthma** (D) Back pain

Q.2. Choose the asana which helps to control Asthama :

(A) Pavanmuktasana (B) Trikonasana

(C) Hastasana (D) **Chakrasana**

Q.3. Coughing, heavy breathing, chest tightness are the Sysptoms of:

(A) **Asthma** (B) Diabetes

(C) Obesity (D) Back pain

Long Answer Type Question

Q.1 Enlist the asanas which are used to control Asthma. Explain any two asana in detail. 1+2+2=5

Ans. List of asana which helps to control asthma :

1. Tadasana 2. Dhanurasana
3. Vakrasana 4. Matsyasana
5. Gomukhasana 6. Bhujangasana

1. **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.

Procedure :

(i) Sit in sukhasana or dandasana pose.

(ii) Place the ankle of left leg near right but under the anus.

(iii) Place the right leg over the left leg so that knees should place over left knee.

(iv) Sweep your left hand behind your back, facing plams upwards.

(v) Sweep your right hand over the right shoulder, bend your elbow and place it behind your back.

(vi) Now inter lock fingers of both hands behind your back.

(Vii) Now stretch both hands in their respective directions. Look straight.

(viii) Repeat with changing leg position.

Benefits:

(i) Helps in curing Asthma, reduce weight makes body flexible and attractive.

(ii) It helps to make spine strong and erect.

(iii) Helps to make abdominal organ function well.

(vi) Helps to reduce obesity.

(v) Diaphram improves and keep away from all kinds of intoxification.

(vi) Upper body becomes flexible and strong.

(vi) It helps to circulate blood to the entire body.

Contraindications :

(I) Person having stiff shoulder should avoid this.

(ii) Any kind of hip problem or knee, hamstring and quadricep should be avoided.

(iii) If one has to sciatica problem, one should avoid this pose.

(iv) Avoid if any neck or shoulder injury.

(v) Aovid to perform or practice during pregnancy.

2. Matsyasana :

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

Procedure :

- 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 forehead 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.

Benefit :

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

Contraindication :

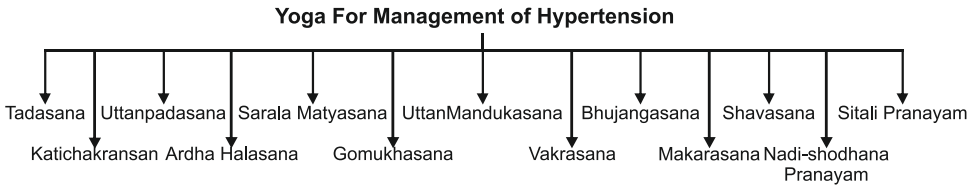
- Avoid this posture if any kind of neck injury.
- Any kind of blood pressure.
- If having migrane.
- If having spondylists, neck or back pain.
- If pregnancy is there.

3.4 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 millimetre of mercury. The normal blood pressure of an adult is considered 120/80mm/Hg. The person whose blood pressure readings are beyond140/90 mm/Hg are said to be having hypertension.

- High blood pressure can be controlled by doing the following yoga asanas Tadasana, vajrasana, pavanmuktasana, ardhachakrasana, bhujangasana, shavasana.



1. Tadasana : This asana is the base or mother of all asanas, from which the other asanas emerge. Tada means a tree. Thus, Tadasana is a pose where one stands firm and erect as atree.



Procedure

(i) Stand straight with both feet together, the heels and toes should touch each other. Keeping the front part of the feet on the floor lift the toe (back part of feet) in the upward direction.

(ii) Tighten the knees, contract the hips and pull up the muscles at the back of the thighs.

(iii) Keep the stomach in, chest forward, spine erect and the neck straight.

(iv) Distribute the weight of the body evenly on both the toes.

(v) Place the arms by the side of the thighs.

Benefits

(i) It strengthens the vertebral column and heart.

(ii) It cures indigestion.

(iii) Remove lethargy from body.

(iv) Strengthens the arms and legs.

(v) It reduces the problem of flat feet.

(vi) It develops and activates the nerves of the entire body.

(vii) This is the best exercise to increase the height.

(viii) It is also good for regulating the menstrual cycle in women.

Contraindications

(i) People suffering from headache, insomnia and low blood pressure should avoid this asana.

(ii) The patient of varicose vein should avoid this asana.

(iii) Pregnant women should avoid this asana.

2. Katichakrasana : Katichakrasana is a simple standing pose with a spinal twist. The name comes from the Sanskrit words- kati, which means 'waist'; whereas chakra, means 'wheel' or 'circular rotation'; and asana, means 'pose' or 'posture.'

Procedure

(i) Stand up straight with your feet together, spine erect and shoulders straight.

(ii) Keep your legs apart from each other and stretch your hands to the front, palms facing each other.

(iii) Your hands should be in line with the shoulders.

(iv) First inhale and then while exhaling twist from the waist to the right and look back over the right.



(v) Keep your breath out and stay in this position as long as possible.

(vi) Inhale and slowly come back to the center.

(vii) Exhale and twist from the waist to the left and look back over the left (keep your breath out).

(viii) Stay in this final posture as long as possible and then come back to the center and relax.

(ix) This is the complete cycle of this posture.

(x) Practice can be repeated 10 to 20 times or even more than that asper the convenience.

Benefits : Regular practice of Katichakrasana has following benefits-

(i) Provides relief in constipation.

(ii) Strengthens and improves the flexibility of the spine and waist.

(iii) Good for arm and leg muscles.

(iv) Opens up the neck and shoulders and strengthens the abdominal muscles and lower back.

(v) Beneficial for those with sedentary or desk bound jobs.

(vi) Helps to relive back pain.

Contraindications

(I) Don't practice this asana in case of recent surgery of abdomen or spine.

(ii) Don't practice this asana if you are suffering from hernia, slip disc or any abdominal inflammation.

(iii) This asana should be avoided during pregnancy.

3. Uttanpadasana : Uttana padasana is an intense stretch of the legs. The terms comes from the Sanskrit. words where ‘uttana’ refers to ‘intense stretch’, 'pada' means ‘leg’ and ‘asana’ means ‘pose or posture’.

Procedure



(i) Begin this pose by coming to a supine position with your back on the ground. Both your feet and knees should be kept together and your breathing should be normal.

(ii) Exhale and while breathing in, slowly raise the legs to 90 degree angle from the door without jerk. Do not raise the shoulders from the ground. Breathe normally in the final position and hold for few seconds. The upper body, arms, and face are to be relaxed.

(iii) Do not bend the knee or lift the lower body or buttocks from the floor.

(iv) During the final position, your legs should be kept straight with the toes pointed to the ceiling and you should move them down and up slowly while concentrating on your lower abdomen.

(v) Head is kept straight and eyesight to be fixed on the raised toes.

(vi) Arms are kept Straight and eyesight to be fixed on the raised toes.

(vii) While releasing, inhale and while exhaling slowly lower‘the legs back to the supine position. Relax and breathe normally.

Benefits : Regular practice of Uttana padasana has following benefits-

(i) Beneficial in stomach disorders such as- indigestion, acidity, and constipation.

(ii) Makes abdominal region stronger and strengthens your hip, back and thigh muscles.

(iii) Beneficial in arthritis pain, waist pain, and heart problems also.

(iv) This yoga pose cures back pain.

(v) It reduces belly fats and tones stomach muscles.

(vi) It improves the digestive system.

(vii) Excellent for those, who are looking for 6 packs abs.

Contraindications

(i) The pose can worsen back problems if not done correctly.

(ii) Avoid this asana in case of, lower back Injury.

(iii) Avoid this asana in case of recent surgery of stomach,

(iv) Pregnant woman should avoid this asana.

4. Ardha Halasana : The term Ardha Halasana is a combination of sanskrit words in which 'Ardha' means'half' and 'Hala' means plough. It is an intermediate posture to perform Halasana hence it is named as Ardha Halasana.

Procedure



(i) Lie down in Shavasanaa. Join the both legs and keep your hand with the thighs.

(ii) Slowly breathe in and raise the leg perpendicular to the ground keeping the knee straight.

(iii) Hold in the breathe and stay in this position as long as possible.

(iv) Breathe out and bring back your legs.

(v) Come back to the normal position and relax for a while.

Benefits : Regular practice of Ardha Halasana has following benefits-

(i) Improves digestion and appetite.

(ii) Improve blood circulation.

(iii) Strengthens the thigh muscles and calf muscles.

(iv) Helpful to reduce abdomen fat and lose weight.

(v) Stimulates the abdominal organs.

Contraindications

(i) One should be careful while doing this posture, otherwise, one may get hurt.

(ii) This pose should not be attempted if there is a pain in hip, knee, or back.

(iii) Pregnant women should not do this asana.

(iv) This pose should not be done if there is cervical pain or slip disc.

(v) This yoga should not be done in case of piles and fissures.

5. Saral Matsyasana : Saral matsyasana is a reclining back-bending asana. The name is derived from the sanskrit word 'matsya' which means 'fish' and 'asana' means 'pose'. This asana is called saral matsyasana because while doing this asana, body takes the shape like that of a fish.

Procedure

(i) Lie flat on your back, making sure your knees are straightened, and your legs and feet are together. Place your hands on side of your body.

(ii) Place your palms beneath your hips such that the pals are facing the ground.

(iii) Your elbows and forearms should be near the sides of your torso and pressed against the floor. Cross your legs such that, your feet cross each other.

(iv) Inhale and lift your chest and head away from the floor. Exhale deeply as you raise your head and torso till you are sitting halfway up.

(v) The weight of your body should be supported by your forearms and elbows and not your head.

(vi) Breath normally as you hold this breath until your are uncomfortable.

(vii) Exhale and release yourself from the position by gently lowering your torso and your head to the ground.



Benefits : Regular practice of Saral matsyasana has following benefits-

(i) Matsyasana helps to relieve respiratory problems by promoting the right method of breathing.

(ii) It helps to stretch the upper body which allows additional oxygen into the lungs.

(iii) It helps to overcome neck and back pain

(iv) It helps to enhance nutrient absorption.

(v) This asana improves skin conditions as well as enhance the throat and facial muscles.

(vi) Matsyasana helps to reduce stiffness in neck and shoulders.

(vii) It improves metabolism and shed weight.

(viii) It can remove soreness of bones and muscles in the neck and spine.

(ix) The asana can improve flexibility, posture, and digestion, there by removing problems like constipation.

(x) It helps to strengthen the muscle of the abdomen.

Contraindications

(I) People who are suffering from heart diseases, high blood pressure should not perform Matsyasana.

(ii) Patients of migraine and insomnia should also abstain from Practicing the Fish Pose.

(iii) Individuals having serious neck or lower-back injuries should not to Perform this pose.

(iv) In case of abdominal surgery or hernia one should not perform Matsyasana.

(v) If a person has spine problems, then he/she should not perform this asana.

(vi) People having migraines and Peptic ulcers should not Perform this asana.

6. Gomukhasana : The word Gomukhasana is a combination of sanskrit words in which 'Go' means 'Cow','Mukha' means 'face' and 'asana' means posture. Gomukhusana is also known as Cow Face Pose because while performing this asana Ctossed legs look like the face of a cow. The knees look like the mouth, the shin looks like the side of a cow's face, and the feet look like the ears of a cow.

Procedure



(i) Sit with straight back and legs extended.

(ii) Keep both the feet together and place your palms on the hips.

(iii) Now fold your left leg and gently place it under the right buttock.

(iv) Bring your tight leg over your left thigh.

(v) Stack both the knees closely over one another.

(vi) Now raise your left arm and bring it to the back over the shoulder. Keep the arm upwards, bend the elbow and palm facing outwards.

(vii) Stretch your right hand to the right, behind the neck. Now, bend the elbow to reach the left hand. Try to grasp both hands with fingers interlocking behind the back.

(viii) Keep your spine straight and your head facing forward.

(ix) Stay in this pose as long as you are comfortable.

(x) Release your breath as you relax your hands and legs.

(xi) Repeat the same steps using opposite legs and hands.

(xii) After the pose, sit in a comfortable cross-legged posture.

Benefits : Regular practice of Gomukhasana has following benefits-

(i) Treats sciatica

(ii) Treats high blood pressure

(iii) Enhances sexual performance

(iv) Cures stiff and frozen shoulders

(v) Elongates spine and improves bad posture

(vi) Reduces anxiety and stress

(vii) Stimulates kidneys

(viii) Strengthens the muscles of the back, hips, ankles, shoulders, thighs, inner armpits, triceps, and chest.

Contraindications

(i) People who are suffering from shoulder, knee or back pain should avoid practicing this asana.

(ii) In case of any recent surgery of knee, hip or shoulders, this asana should be avoided.

7. Uttan Mandukasana : Here, 'uttana' refers to 'stretched up', 'manduka'' means 'frog', and 'asana' refers to'Pose'. Since the final posture résembles an upright frog, due to which this asana is named so.



Procedure

(i) Begin with sitting in Vajrasana keeping the toes joined.

(ii) Spread both the knees as wide as possible placing hands between .the knees for support.

(iii) Inhale, raise your right arm and bend it at the elbow to place the tight hand below the left shoulder.

(iv) Similarly, raise the left arm and bend it to place the left palm belowthe right shoulder.

(v) The left wrists are placed crossing over the right one behind thehead. Hold the pose for 3-10 breaths expanding the chest fully and lengthening arching the spine.

(vi) Release by lifting the left arm followed by the right arm and lower them to the knees.

(vii) Bring your knees closer to sit in the initial pose.

Benefits : Regular practice of Uttan Mandukasana has following benefits-

(i) Stimulates thyroid and parathyroid glands

(ii) Preserves the youth by keeping spine elastic (Anti aging)

(iii) Improves blood Circulation to brain

(iv) Cures constipation, indigestion, diabetes, visceroptosis, varicose veins and menstrual disorder

Contraindications

(i) Those who are having arthritis, hernia, and back problems shouldn't practice this yoga pose.

(ii) If there are problems in the knee or its adjoining area, skip to practice it.

(iii) It shouldn’t be practice in case of pregnancy and menstruation.

(iv) This asana should not be practiced even if there is pain in the elbow.

(v) This posture should not be done if somebody is having severe pain in the shoulders.

8. **Vakrasana :** Vakrasana is simpllified form of Ardhmatsyendrasana. The Sanskrit name of both the postures differes whereas the English name remains same. Vakra means 'twisted' in Sanskrit. Vakrasanais the best yoga for chronic diseases like constipation, diabetes, etc.

Procedure



(i) Sit on the carpet, stretch the legs straight.

(ii) Fold the right leg keep the right leg heel touching the left leg's knee.

(iii) Take the right hand to back of the waist twisting your trunk, spread your palms and place it on the carpet.

(iv) Bring the left hand close to right knee and hold the right leg's ankle or big toe with the left hand.

(v) Twist the head and shoulder to right side and look straight to the right shoulder's side (i.e back side).

(vi) Stay in the pose up to 30 counts breathing normally.

(vii) Tum the head to the front, release hands holding the right leg's ankle or big toe, stretch the legs, keep the palm on the carpet in a relaxed manner and take rest for 10 seconds.

(viii) Now follow the same procedure to the left side. It is enough to practice 2 rounds (i.e, 2 times in the right side and 2 times in the left side.)

Benefits

(i) It helps in Increasing the elasticity of the spine and tones the spinal nerves.

(ii) It stretches the muscles and helps to get relief in stiffness of vertebrae.

(iii) It massages the abdominal organs and also reduces belly fat.

(iv) It regulates the secretion of digestive juices useful for different digestive disorders.

(v) It helps in loosens the hip joints, relieving stiffness.

Contraindications

(I) People with heart, abdominal or brain surgeries should not practice this asana.

(ii) People having severe spinal problems should avoid, however, people having mild slipped disc can benefit but in severe cases it is to be avoided.

(iii) It is recommended to avoid during pregnancy and menstruation due to the strong twist in the abdomen.

(iv) Care should be taken for those with peptic ulcer or hernia.

9. **Bhujangasana :** Bhujangasana is a simple 'backward bending asana'. The word bhujangasana is a combination of two from sanskrit in which 'bhujanga' means 'snake' and 'asana' means 'posture'.Bhujangasana is the final stage when the cobra is ready to attack its prey by raising its hood, hence it is also known as 'cobra pose'.

Procedure

(I) Lie down on the stomach, by Keeping your legs together.

(ii) Put your palms besides your shoulder and the head .should rest on the ground.



(iii) With inhaling raise your head up to your navel region and try to see the roof.

(iv) Maintain the position as per your capacity with steadily inhaling and exhaling.

(v) Then come to. 'the original position slowly with deep exhalation.

Benefits : Regular practice of Bhujangasana has following benefits-

(i) It stretches muscles in the shoulders, chest and abdominals and increases flexibility.

(ii) It relieves stress and fatigue and also elevates mood.

(iii) It helps to ease symptoms of asthma.

(iv) It improves digestion.

(v) It soothes sciatica.

(vi) It strengthens the spine, arms and shoulders.

(vii) It improves circulation of blood and oxygen, especially throughout the spinal and pelvic regions.

(viii) It opens the chest and helps to clear the passages of the heart and lungs.

(ix) It stimulates organs in the abdomen, like the kidneys.

(x) It firms and tones the buttocks.

(xi) It improves menstrual irregularities.

(xii) It decreases stiffness of the lower back.

Contraindications

(I) Pregnant ladies should avoid this asana.

(ii) The person suffering from sciatica, hernia, and slip-disc should not perform this asana.

(iii) It should also be avoided by those people who had abdominal injury in the recent past.

10. Makarasana : The name ‘Makarasana' is a combination of sanskrit words, in which 'makar' refers to, crocodile’ whereas ‘asana’ refers to ‘pose’. This yoga pose is also commonly referred to as the crocodile pose.

Procedure

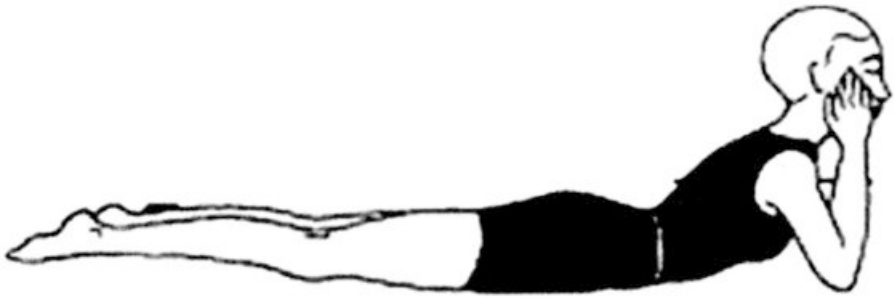
(I) Lie down straight on your stomach. Then join your elbows, making a stand and place you; palms under the chin.

(ii) Lift your chest up and Keep your elbows and d legs together.

(iii) During inhaling, first, fold your one leg at a time and then both the legs together in such a way that ankles should touch the hips.

(iv) While exhaling, your feet should be straight and keep your head steady.

(v) Repeat this procedure as per your capacity.



Benefits : Regular practice of Makarasana has following benefits-

(I) Makarasana provides deep relaxation to shoulders and spine.

(ii) It can cure asthma, knee pain, and any lung related issues.

(iii) It helps in curing slip disc, spondylitis, and sciatica.

(iv) The asana stretches the hip muscles and relaxes the body completely.

(v) It relieves the body, the mind of tension and prevents anxiety.

(vi) t treats hypertension, heart diseases, and mental disorders.

(vii) The asana keeps backache at bay.

(viii) Makarasana makes the body more flexible.

(ix) It stretches the muscles of the abdomen, chest, and neck, relieving fatigue and aches in those areas.

(x) The asana keeps backache at bay.

(xi) Makarasana makes the body more flexible.

Contraindications

(i) Person suffering from exaggerated lumbar curve should not practice Makarasana.

(ii) It shouldn't be done in case of pregnancy.

(iii) It shouldn't be done in case of back injury, neck injury or abdominal injuries.

11. Shavasana : The term comes from the Sanskrit word 'shava' which means ‘corpse’ and ‘asana’ means ‘pose’ or ‘posture.’ The common english name for Savasana is ‘corpse pose’.

Procedure : To enter the pose, the body lies face-up on the ground. The legs are comfortably spread and thearms are relaxed alongside the body with the palms facing either up or down.



(i) Lie flat on your back, like our sleeping pose. Legs should be separated.

(ii) Keep your arms at your side and your palms facing up. Just relax.

(iii) Close your eyes and breathe deeply and slowly through the nostrils.

(iv) Start concentrating from your head to your feet. This means you are consciously relaxing your each part of the body. Do not move ahead without relaxing particular part of the body.

(v) On each inhaling and exhaling (breathing) think that your body is totally relaxed. Let your tension, stress, depression and worry run away on each exhaling.

(vi) Those having good concentrations can practice for a long time and others can practice for 3-5 minutes.

Benefits : Regular practice of Savasana has following benefits-

(i) It relaxes the whole body.

(ii) It releases stress,-fatigue, depression and tension.

(iii) Improves concentration.

(iv) Cures insomnia.

(v) Relaxes muscles.

(vi) Calms the mind and improves mental health.

(vii) Excellent asana for stimulating blood circulation.

(viii) Beneficial for those suffering from neurological problem, asthma, constipation, diabetes, indigestion.

Contraindications

(i) In case of back pain/injury or knee injury, avoid this asana.

12. **Nadi Shodhana Pranayama :** Nadi shodhana pranayama is an alternate nostril breathing technique that calms the mird, body and emotions. The term comes from the Sanskrit word 'nadi' which means 'channel' and 'shodhana' which means 'cleaning or purifying."

Procedure

(i) Sit in the Padmasana and close your eyes. Your spine should be erect while sitting.

(ii) Then inhale through your left nostril, while inhaling close your right nostril with your right thumb.



(iii) When you feel your lungs are full of air then close left nostril by the ring and middle finger, and your right nostril should also close.

(iv) Hold the breath for a minute or as much as you can, then exhale through the right nostril. After that inhale through the right nostril and close the left nostril by your left thumb, as you inhale completely just close your right nostril with thumb and left nostril by the ring and middle finger.

(v) Hold your breath as per your capacity and then by your left nostril.

(vi) This completes one cycle of Nadi shodhana pranayama.

Benefits : Regular practice of Nadi shodhana pranayama has following benefits-

(i) Maintains the heart rate, dilates pupils.

(ii) Opens the lungs and stimulates metabolism.

(iii) Reduces lethargy, increases energy and alertness

(iv) Increases the ability of digestion

(v) Induces relaxation, rest and sleep

Contraindications

(i) If a person is suffering from hypertension he/she should not practice this asania.

(ii) This asana should be avoided if the person is suffering from heart disease or peptic ulcer.

13. Sitali Pranayam : Sitali pranayama is a yogic breathing exercise that is designed to both calm the mind and cool the body. The term comes from the Sanskrit words in which 'sitali' means 'cooling' 'prana' means 'life force' and 'ayama' refers to 'extension.' To practice sitali pranayama, the tongue is rolled and then the breath is drawn in through the tongue as if through a straw.

Procedure

(i) Set comfortably in any meditative pose like Padmasana or Swastikasana.

(ii) Keep your both hands on knees. Then bring your tongue all the way out and fold both sides of the tongue like a tube or straw.

(iii) Now take-a long, deep inhalation through the tube shapd tongue.

(iv) After inhalation, lower your chin to the chest and hold the breath for about 6 to & seconds.

(v) When you feel like breathe out release the breath slowly through the left nadi/nostril.

(vi) In the end, bring your breathing back to normal and feel relax.



Benefits : Regular practice of i pranayama has following benefits-

(i) Sitali Pranayama is useful in diseases related to tongue, mouth and throat.

(ii) It is very beneficial in case of fever and indigestion.

(iv) Controls the high blood pressure.

(v) Purifies the blood.

(vii) Best for cooling down the body temperature.

(viii) Best for fighting against the Insomnia problem.

(ix) It calms the mind, and it's an effective stress buster.

(xi) very effective in hyperacidity.

Contraindications

(I) People who have low blood pressure should avoid this asana.

(ii) People suffering from asthma should avoid doing this asana.

(iii) People having ailments of heart should also avoid doing this asana.

Multiple Choice Questions (1 Marks)

Q.1. The pressure of blood increase on the wall of aorta is known as_____

(A) Back pain (B) Obesity 7

(C) **Hypertension** (D) Asthma

Q.2. Select the asana which helps to reduce hypertension

(A) Tikonasana (B) Chakrasana

(C) **Shavasana** (D) Sukhasana

Q.3. Which asana is not practised in hypertension :

(A) **Vakrasana** (B) Vajrasana

(C) Tadasana (D) Ardhchakrasana

Short Answer Type Questions (2 Marks)

Q.1. Elaborate the role of Shavasana for the hypertension.

Ans. Asana plays an important role to prevent the various life Style disease. Following are the role of Shavasana:

Shavasana :

- Lie flat on your back.
- Keep your ams at your side and your palms facing up.
- Legs should be separated and just relax.
- Start concentrating from your head to your feet and relax each part of your body and feels that you are just like a dead body.

Benefits :

- Releax whole body.
- Release stress, fatigue, depression & tension.
- Calms the mind and improves mental health.

Precautions : Place where Shavasana is performed shouldbe peaceful with no noise at all.

Practice Question

Q.1 Match list -I with list - II and select the correct answer from the code given below. (1)

List - I	List - II
1. Tadasana	A. Cow face pose
2. Bhujangasa	B. Palm tree pose
3. Gumukhasa	C. Snake pose
4. Anorexia nervosa	D. Fish pose

Code

	1	2	3	4
(a)	A	B	C	D
(b)	C	D	A	B
(c)	B	C	D	A
(d)	D	A	B	C

Q.2 Match list -I with list - II and select the correct answer from the code given below.

List - I	List - II
1. Obesity	A. Heart & Blood
2. Asthma	B. Pancreas
3. Diabetes	C. Air pipe
4. Hypertension	D. Digestive system

Code

	A	B	C	D
(a)	1	2	3	4
(b)	4	3	2	1
(c)	2	1	4	3
(d)	3	4	1	2

Q.3 Identify the yoga pose & give their name (½ x 4 = 2)

(A)  _____

(B)  _____

(C)  _____

(D)  _____

Q.4 Sunil is a student of class XI and is suffering from hypertension. During a recent medical check up at school he was advised to practice yoga and participate in yogic activities for curing. (1 x3 = 3)

Based on this case Answer the following questions:

(i) **The yoga instructor at the school has asked Sunil to perform:**

(A) Bhujangasana (B) Tadasana

(C) Shavasana (D) All of above

(ii) **Which one asana is NOT help to control hypertension?**

(A) Tadasana (B) Gomukhasan

(C) Paschimottasana (D) Shavasana

(iii) **Sunil is also suffering from Flat Floot for which he is advised to:**

(A) Rope climbing (B) Walking on toes

(C) Walkin on heel (D) All the above

Q.5 Sachin is a student of class XIII is suffering from diabetes. During a recent medical check up at school he was advised to practice yoga and participate in yogic activities for curing.

Based on this case Answer the following question:

(i) **The yoga instructor at the school has asked Sachin to perform:**

(A) Bhujangasana (B) Sukhasana

(C) Chakrasana (D) Shavasana

(ii) **Which one asana helps to control Diabetes?**

(A) Tadasana (B) Vajrasana

(C) Paschimottasana (D) Shavasana

(iii) **Sachin is also suffering from knock knee for which he is advised to:**

(A) Rope climbing (B) Walking on toes

(C) Walking on heel (D) Walking on inner edges of foot

3.5 BACK PAIN and ARTHRITIS

Backpain

People experience this lifestyle disease at some point of their life. The main cause of this disease is sedentary lifestyle. Backpain can be caused by a sports injury or by jerk from lifting heavy things or losing balance while walking. Arthritis is also one of the major reasons for backpain.

The common symptoms of backpain are:

1. Pain from the lower back till the legs.
2. Stiffness of the back muscles.
3. Neck Pain
4. Buttock pain
5. Muscle weakness and soreness in the back

Arthritis

It is a condition of pain and inflammation in the joints. It can happen for many reasons such as sedentary lifestyle, genetic decomposition, alteration in the immune system, inflammation, metabolic changes, age etc. the common form of arthritis are:

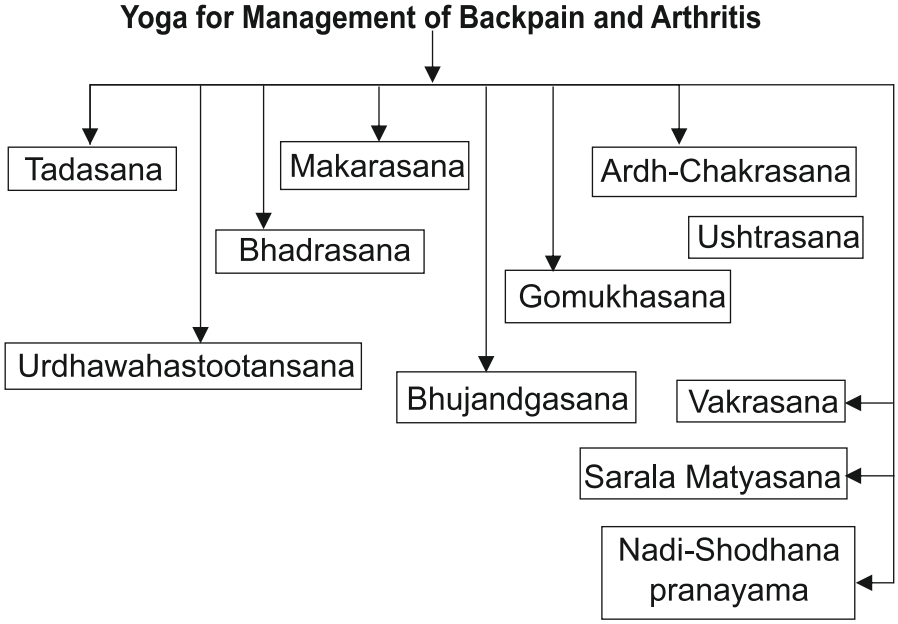
1. **Osteoporosis:** Where cartilages between the bones degenerates, resulting in pain as the bones rubs against each other.
2. **Gout:** This mostly happens in the case of male where due to metabolic disturbance, uric acid settles in the joints causing pain and inflammation.
3. **Rheumatoid arthritis:** this mostly happens in the case of women where due to abnormal immune response of the body the lining of the bones gets inflamed.

The common symptoms of arthritis are:

1. Swelling in the joints.
2. Pain in the joints.
3. Stiffness in the joints
4. Deformities in the joint
5. Fatigue.

Backpain and Arthritis can be prevented or managed by these postures

Yoga for Management of Backpain and Arthritis



1. **Tadasana:** This asana is the base or mother of all asanas, from which the other asanas emerge. Tada means a tree. Thus, Tadasana is a pose where one stands firm and erect as a tree.

Procedure



(i) Stand straight with both feet together, the heels and toes should touch each other. Keeping the front part of the feet on the floor lift the toe (back part of feet) in the upward direction.

(ii) Tighten the knees, contract the hips and pull up the muscles at the back of the thighs.

(iii) Keep the stomach in, chest forward, spine erect and the neck straight.

(iv) Distribute the weight of the body evenly on both the toes,

(v) Place the arms by the side of the thighs.

Benefits

(i) It strengthens the vertebral column and heart.

(ii) It cures indigestion.

(iii) Remove lethargy from body.

(iv) Strengthens the arms and legs.

(v) It reduces the problem of flat feet,

(vi) It develops and activates the nerves of the entire body.

(vii) This is the best exercise to increase the height.

(viii) It is also good for regulating the menstrual cycle in women.

Contraindications

(i) People suffering from headache, insomnia and low blood pressure should avoid this asana.

(ii) The patient of varicose vein should avoid this asana.

(iii) Pregnant women should avoid this asana.

2. **Urdhwahastottansana :** Urdhwahastottansana is a standing asana and a key posture in Surya Namaskara (Sun Salutation). In this asana, the practitioner stands tall, as in tree pose (tadasana), with the hands raisedaover the head. The name for this asana comes from the Sanskrit words ‘urdhva' which means‘upward’, ‘hasta’ which means ‘hands' and ‘asana' which means ‘posture’. This asana is called upward salute or upward hands pose in english.

Procedure



(i) Stand erect with legs placed hip-wide apart.

(ii) Raise both hands up and interlock the fingers with palms turned upwards.

(iii) Inhale and stretch the hands up as much as possible. As you exhale, bend from the waist to the right side, without leaning forward or backward.

(iv) Keep hands stretched straight and align the posture.

(v) Hold the posture for 5-7 breaths. Breathe normally then slowly come back to the upright position. Repeat the procedure on the left.

(vi) Release the hands. This completes one full round.

Benefits : Regular practice of Urdhwahastottansana has following Benefits -

(I) It enhances and opens up the chest and reduce the waist size.

(ii) Extra flesh in hips and back gets reduce.

(iii) Increases the height.

(iv) Instantly cures constipation problem.

(v) Reduces the pain in the ribs.

(vi) This asana stretches both sides of the body, so it massages, loosens and exercises the sides of the ribcage and the waist

(vii) Improves blood circulation around the thoracic area and the heart

(viii) Beneficial for respiratory disorders, hypertension and heart problems

Contraindications

(i) This asana should be avoided in case of neck or shoulder pain.

(ii) This asana should be avoided during pregnancy.

(iii) Patient suffering from leg pain should skip this yoga pose.

3. **Ardh chakrasana:** In Sanskrit the meaning of 'Ardh' is 'Half and 'Chakra' means 'wheel'. So, the meaning of ardh charkrasna is half wheel pose. It is the easier version of chakrasana.

PROCEDURE:

1. Stand straight with 2 inches gap between the legs.
2. Take your hands upwards in a clasped position.
3. Now inhale and bend your body backwards as far as possible and exhale.
4. Now hold the position according to your capacity.
5. Now slowly come back to your initial position.

BENEFITS:



1. Strengthens the back and abdominal muscles.
2. Increase the flexibility of back muscles.
3. Helps to relieve from back problems.
4. Strengthens the shoulder muscles
5. Prepare for advance asana such as chakrasna.

CONTRADICTION

1. Avoided if someone is suffering from spine, hip, and neck injury.
2. Pregnant woman should avoid ardh chakrasana.
3. In case of High blood pressure, people should avoid this asana.

3. Ushtrasana : The name "Ustrasana" is derived from the Sanskrit words 'ustra' which means 'camel' and 'asana' which means 'pose' or 'posture.' This asana is also known as camel pose.



Procedure

(i) Stand on the knees. Keep the thighs fully straight. Keep the knees and feet together,

(ii) Lean in the backward direction. Slowly move more back ward. Reach the right heel with the right hand, and the left heel with the left hand. Avoid straining the body.

(iii) Push the hips in the forward direction and then bend the head and the spine as backward and as far as possible without straining.

(iv) Relax the body and the muscles of the back and support the body weight equally on the legs and arms.

(v) Keep the arms in such a way that they anchor the shoulders to you find it comfortable.

(vi) Then release the hands from the heels one by one and return to the starting position.

Benefits : Regular Practice of Ustrasana has following benefits-

(i) It stretches the anterior muscles of the body.

(ii) It improves flexibility of the spine and strengthens it.

(iii) It improves digestion and reduces excess fat deposited on the stomach, neck and back.

(iv) It relaxes the lower back and helps to get rid of all kinds of back pain.

(v) Activates the brain cells and makes it function better by improving the blood circulation.

Contraindications

(i) People suffering from severe back and neck injury, high or low blood pressure, migraine or other severe headache should not attempt this asana.

(ii) Those who had recently undergone any abdominal surgery should avoid this asana.

4. Vakrasana: Vakrasana is simpllified form of Ardhmatsyendrasana. The Sanskrit name of both the postures differes whereas the English name remains same. Vakra means 'twisted' in Sanskrit. Vakrasana is the best yoga for chronic diseases like constipation, diabetes, etc.

Procedure



(i) Sit on the Carpet, stretch the legs straight.

(ii) Fold the right leg keep the right leg heel touching the left leg's knee.

(iii) Take the right hand to back of the waist twisting your trunk, spread your palms and place it on the carpet.

(iv) Bring the left hand close to right knee and hold the right leg's ankle or big toe with the left hand.

(v) Twist the head and shoulder to tight side and look Straight to the tight shoulder's side (i.e back side).

(vi) Stay in the pose up to 30 counts breathing normally.

(vii) Turn the head to the front, release hands holding the right leg's ankle or big toe, stretch the legs, keep the palm on the carpet in a relaxed manner and take rest. for 10 seconds.

(viii) Now follow the same procedure to the left side. It is enough to practice 2 rounds (i.e, 2 times in the right side and 2 times in the left side.)

Benefits

(i) It helps in Increasing the elasticity of the spine and tones the spinal nerves.

(ii) It stretches the muscles and helps to get relief in stiffness of vertebrae.

(iii) It massages the abdominal organs and also reduces belly fat.

(iv) It regulates the secretion of digestive juices useful for different digestive disorders.

(v) It helps in loosens the hip joints, relieving stiffness.

Contraindications

(i) People with heart, abdominal or brain surgeries should not practice this asana.

(ii) People having severe spinal problems should avoid, however, people having mild slipped disc can benefit but in severe cases it is to be avoided.

(iii) It is recommended to avoid during pregnancy and menstruation due to the strong twist in the abdomen.

(iv) Care should be taken for those with peptic ulcer or hernia.

5. **Saral Matsyasana :** Saral matsyasana is a reclining back-bending asana. The name is derived from the sanskrit word ‘matsya’ which means 'fish' and ‘asana’ means ‘pose’. This asana is called saral matsyasana because while doing this asana, body takes the shape like that of a fish.

Procedure

(i) Lie flat on your back, making sure your knees are straightened, and your legs and feet are together. Place your hands on side of your body.

(ii) Place your palms beneath your hips such that the pals are facing the ground.

(iii) Your elbows and forearms should be near the sides of your torso and pressed against the floor. Cross your legs such that, your feet cross each other.

(iv) Inhale and lift your chest and head away from the floor. Exhale deeply as you raise your head and torso till you are sitting halfway up.

(v) The weight of your body should be supported by your forearms and elbows and not your head.

(vi) Breath normally as you hold this breath until your are uncomfortable.

(vii) Exhale and release yourself from the position by gently lowering your torso and your head to the ground.



Benefits : Regular practice of Saral matsyasana has following benefits-

(i) Matsyasana helps to relieve respiratory problems by promoting the right method of breathing.

(ii) It helps to stretch the upper body which allows additional oxygen into the lungs.

(iii) It helps to overcome neck and back pain

(iv) It helps to enhance nutrient absorption.

(v) This asana improves skin conditions as well as enhance the throat and facial muscles.

(vi) Matsyasana helps to reduce stiffness in neck and shoulders.

(vii) It improves metabolism and shed weight.

(viii) It can remove soreness of bones and muscles in the neck and spine.

(ix) The asana can improve flexibility, posture, and digestion, there by removing problems like constipation.

(x) It helps to strengthen the muscle of the abdomen.

Contraindications

(I) People who are suffering from heart diseases, high blood pressure should not perform Matsyasana.

(ii) Patients of migraine and insomnia should also abstain from Practicing the Fish Pose.

(iii) Individuals having serious neck or lower-back injuries should not to Perform this pose.

(iv) In case of abdominal surgery or hernia one should not perform Matsyasana.

(v) If a person has spine problems, then he/she should not perform this asana.

(vi) People having migraines and Peptic ulcers should not Perform this asana.

3. **Bhujangasana:** bhujangasana is one of the best yoga poses for beginners as it is simple 'backward bending asana'. The word bhujangasana is a combination of the word 'bhujanga' (the Sanskrit word for snake) and asana meaning posture. Bhujangasana is the stretching yoga exercise of the front torso and the spine. Bhujangasana is the final stage when the cobra is ready to attack its prey by raising its hood; hence the name is cobra pose. Cobra pose is one of the most important back bending yoga asana, which has numerous health benefits Ranging from head to feet. The cobra posture and its variations are just like a boon to those who have back problem.

Procedure

(i) Lie down on the stomach by keeping your legs together. Make a-gap of 1-2 feet between the legs if somebody has backache.

(ii) Put your palms besides your shoulder and the head should rest on the ground.



(iii) With inhaling raise your head up to your navel region and try to see the roof.

(iv) Maintain the Position till 10 to 60 seconds with steadily inhaling and exhaling.

(v) Come to the original Position slowly with deep exhalation.

(vi) Repeat the Process for 3 to 5 times.

Benefits

(i) It stretches muscles in the shoulders, chest and abdomen.

(ii) It increases flexibility.

(iii) It relieves stress and fatigue.

(iv) It helps to ease symptoms of asthma.

(v) It improves digestion.

(vi) It soothes sciatica,

(vii) It strengthens the spine.

(viii) It improves circulation of blood and oxygen, especially throughout the spinal and Pelvic regions.

(ix) It opens the chest and helps to clear the passages of the heart and lungs.

(x) It stimulates organs in the abdomen, like the kidneys.

(xi) It invigorates the heart.

(xii) It firms and tones the buttocks.

(xiii) It elevates mood,

(xiv) It improves menstrual irregularities.

(xv) It strengthens the arms and shoulders.

(xi) It decreases stiffness of the lower back.

Contraindications

(i) Pregnant ladies should avoid this asana as it can be harmful for them and for their body.

(ii) The person suffering from sciatica, hernia, hypothyroidism, peptic ulcers and slip-disc should not perform this asana.

(iii) It must be avoided by the people also who have the abdominal injuries.

(iv) If the person has any serious physical problem, it is better to consult a yoga therapist or expert before performing bhujangasana.

7. **Gomukhasana :** The word Gomukhasana is a combination of sanskrit words in which 'Go' means 'Cow', 'Mukha' means 'face' and 'asana' meansposture. Gomukhusana is also known as Cow Face Pose because while performing this asana crossed legs look like the face of a cow. The knees look like the mouth, the shin looks like the side of a cow's face, and the feet look like the ears of a cow.

Procedure

(i) Sit with straight back and legs extended,

(ii) Keep both the feet together and place your palms on the hips.

(iii) Now fold your left leg and gently place it under the right buttock.

(iv) Bring your right leg over your left thigh.



(v) Stack both the knees closely over one another.

(vi) Now raise your left arm and bring it to the back over the shoulder. Keep the arm upwards, bend the elbow and palm facing outwards.

(vii) Stretch your right hand to the right, behind the back. Now, bend the elbow to reach the left hand. Try to grasp both hands with fingers interlocking behind the back.

(viii) Keep your spine straight and your head facing forward.

(ix) Stay in this pose as long as you are comfortable.

(x) Release your breath as you relax your hands and legs.

(xi) Repeat the same steps using opposite legs and hands.

(xii) After the pose, sit in a comfortable cross-legged posture.

Benefits : Regular practice of Gomukhasana has following benefits-

(i) Treats sciatica.

(ii) Treats high blood pressure.

(iii) Enhances sexual performance.

(iv) Cures stiff and frozen shoulders.

(v) Elongates spine and improves bad posture.

(vi) Reduces anxiety and stress.

(vii) Stimulates kidneys.

(viii) Strengthens the muscles of the back, hips, ankles, shoulders, thighs, inner armpits, triceps, and chest.

Contraindications

(I) People who are suffering from shoulder, knee or back pain should avoid practicing this asana.

(ii) In case of any recent surgery of knee, hip or shoulders, this asana should be avoided.

8. BHADRASANA: Bhadrasana consist of two words: 'bhadra' meaning 'auspicious' and asana means pose. Therefore, it simply means auspicious pose.

PROCEDURE:

1. Start with sitting on the mat with your legs extended and the toes pointing upwards.
2. Keep your back straight and chest upwards.
3. Now, bring your toes close to your body, facing each other with your knees out.
4. Touch your legs to the ground by putting pressure on the knees by your hands.
5. Now after achieving this position, hold it for few seconds.
6. Now slowly go back to your initial position.



BENEFITS:

1. Relieves the tension from spine.
2. Helps in improving posture.
3. Helps in removing arthritis.
4. Helps the mobility of tendons and joints of knee, back and ankle.
5. People who find it difficult to do vajrasana and padmasana can easily perform it.

CONTRADICTION:

1. In case of knee or hip injury.
2. People having slipped disc injury.

9. Makarasana : The name ‘Makarasana' is a combination of sanskrit words, in which 'makar' refers to, crocodile’ whereas ‘asana’ refers to ‘pose’. This yoga pose is also commonly referred to as the crocodile pose.

Procedure

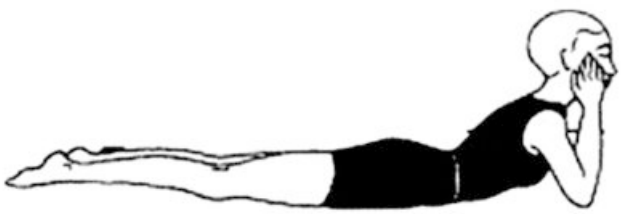
(I) Lie down straight on your stomach. Then join your elbows, making a stand and place you; palms under the chin.

(ii) Lift your chest up and Keep your elbows and d legs together.

(iii) During inhaling, first, fold your one leg at a time and then both the legs together in such a way that ankles should touch the hips.

(iv) While exhaling, your feet should be straight and keep your head steady.

(v) Repeat this procedure as per your capacity.



Benefits : Regular practice of Makarasana has following benefits-

(I) Makarasana provides deep relaxation to shoulders and spine.

(ii) It can cure asthma, knee pain, and any lung related issues.

(iii) It helps in curing slip disc, spondylitis, and sciatica.

(iv) The asana stretches the hip muscles and relaxes the body completely.

(v) It relieves the body, the mind of tension and prevents anxiety.

(vi) t treats hypertension, heart diseases, and mental disorders.

(vii) The asana keeps backache at bay.

(viii) Makarasana makes the body more flexible.

(ix) It stretches the muscles of the abdomen, chest, and neck, relieving fatigue and aches in those areas.

(x) The asana keeps backache at bay.

(xi) Makarasana makes the body more flexible.

Contraindications

(i) Person suffering from exaggerated lumbar curve should not practice Makarasana.

(ii) It shouldn't be done in case of pregnancy.

(iii) It shouldn't be done in case of back injury, neck injury or abdominal injuries.

10. Nadi Shodhana Pranayama : Nadi shodhana pranayama is an alternate nostril breathing technique that calms the mird, body and emotions. The term comes from the Sanskrit word ‘nadi’ which means ‘channel’ and ‘shodhana’ which means ‘cleaning or purifying.”

Procedure



(i) Sit in the Padmasana and close your eyes. Your spine should be erect while sitting.

(ii) Then inhale through your left nostril, while inhaling close your right nostril with your right thumb.

(iii) When you feel your lungs are full of air then close left nostril by the ring and middle finger, and your right nostril should also close.

(iv) Hold the breath for a minute or as much as you can, then exhale through the right nostril. After that inhale through the right nostril and close the left nostril by your left thumb, as you inhale completely just close your right nostril with thumb and left nostril by the ring and middle finger.

(v) Hold your breath as per your capacity and then by your left nostril.

(vi) This completes one cycle of Nadi shodhana pranayama.

Benefits : Regular practice of Nadi shodhana pranayama has following benefits-

(i) Maintains the heart rate, dilates pupils.

(ii) Opens the lungs and stimulates metabolism.

(iii) Reduces lethargy, increases energy and alertness

(iv) Increases the ability of digestion

(v) Induces relaxation, rest and sleep

Contraindications

(i) If a person is suffering from hypertension he/she should not practice this asania.

(ii) This asana should be avoided if the person is suffering from heart disease or peptic ulcer.

PRACTICE QUESTIONS

Tick the correct options

1. Which of the asana is for relaxation?
   (a) Makarasana (b) Bhadrasana
   (c) Ardh-Chakrasana (d) All of the above
2. In Ardh Chakrasana which is the correct pose:
   (a) Back bend in standing position
   (b) Forward bend in standing position
   (c) Leg raised in sitting position
   (d) Head and led raised in lying position
3. Which asana is base asana is not having back bend?
   (a) Tadasasana (b) Chakrasana
   (c) Bhujangasana (d) Ushtrasana

Answer the following questions in 150-200 words.

1. Explain the correct breathing pattern while performing nadi-shodhan pranayama.
2. Write in detail the benefits of Ardha Chakrasana.

UNIT - 4

Physical Education & Sports For CWSN

(Children with Special Needs-Divyang)

UNIT - 4

Physical Education & Sports for CWSN

(Children with Special Needs-Divyang)

4.1 Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)

4.2 Concept of Classification and Divisioning in Sports.

4.3 Concept of Inclusion in sports, its need, and Implementation.

4.4 Advantages of Physical Activities for children with special needs.

4.5 Strategies to make Physical Activities accessible for children with special needs.

4.1.1 Paralympic Games

This is similar to Olympic game for disabled sports person in 1960 first time it was organized in Rome. The headquarter of International Paralympic Committee is situated at Bonn, Germany. The IPC is responsible for organizing Summer and winter Paralympic games. At present it comprises of 178 National Paralympic Committees.

4.1.2 Special Olympic Games

The Special Olympic games were started in 1968 in Chicago.

The special Olympic games was started by Eunice Kennedy Shriver, sister of John F Kennedy the former President of the USA. She believes that with equal opportunities and experiences as anyone else, people with intellectual disabilities could compete more than ever thought possible. She was convinced that children with intellectual disabilities could be exceptional sports persons and that through sports they can realize their potential for growth and development.

Special Olympic Bharat

Special olympic Bharat is a movement that uses sports as a catalyst to change the lives of children and adults with intellectual disabilities or mentally challenged persons it was founded in 1988 as Special Olympics India and changed to

Special Olympics Bharat in 2001 it is recognised by the government of India as in national sports Federation for the development of sports opportunity for the people with intellectual disabilities.

Goal

Its goal is to provide chance to differently abled people to develop physical fitness and focus on their holistic development.

Special Olympic oath

"Let me win. but if I cannot win, let me be brave in the attempt."



Previous Special Olympics

The recent Special Olympics World Summer Games were held June 17 to 25, 2023 in Berlin, Germany These were the first Special Olympics World Games where 24 sports competitions were held.

Upcoming Special Olympic Games - From 19 to 31 October 2027 Santiago, Chile will welcome 7,000 Special athletes and Unified partners from approximately 170 Olympics countries to compete in 22 sports. The athletes will be supported by more than 3,000 coaches and 20,000 volunteers.

4.1.3 Deaflympics

The 'Deaflympics' are games for deaf athletes. Previously they were called the International games for the Deaf. These games are organised by "The International committee of

Sports for the Deaf" since the first event and they are sanctioned by the International Olympic Committee. The deaf Olympian can not be guided by sounds for example, the starter gun, bullhorn commands or referee whistles. The Deaflympics were held in Paris in 1924 and were also the first ever international sporting events for athletes with disability.

The Deaflympic winter games, was added in 1949. The games began as a small gathering of 148 athletes. Now these games are grown into a global movement.

To qualify for the games, athletes must have a hearing loss of atleast 55db in their "better ear'.

Hearing aids, cochlear implant and the leke are not allowed to be used in competition.

Deaf olympians can not be guided by sounds so atternative methods are used to address the athletes. For example the football referees wave a flag instead of blowing a whiste, on the track races are started by using a light, instead of using a starting pistol.

	Host City	Type	Year
Previous	Laxias do sul, Brazil	Summer	2022
Next	Tokyo, Japan	Summer	2025
Previous	Sondrio Province, Italy	Winter	2019
Next	Erzurum, Turkey	Winter	2024

Objective Type Questions (1 Mark Each)

Q.1. The head quarter of paralympics is at

(a) Paris (b) New York
(c) **Germany** (d) Denmark

Q.2. Deaflymics started in

(a) **1924** (b) 1960
(c) 1947 (d) 2001

Q.3. Cochlear implant is not allowed in

(a) Special Olympics (b) **Deaflymics**
(c) Asian games (d) Olympic Games

Q.4. Speech therapist helps a child in

(a) Grooming (b) **Communication**
(c) Enhancing mobility (d) Playing

Q.5. "Let me win. But if I cannot win, let me be brave in the attempt". In which game this Oath is taken?

(a) **Special Olympic Bharat** (b) Paralympic
(c) Deaflymipic (d) Asian games

Q.6. 'Spirit in motion' is the motto of

(a) **Paralympic** (b) Special olympic Barat
(c) Common wealth games (d) Deaflympic

Q.7. What is the motto of deaflymic?

(a) Spirit in motion (b) **Per ludos aequalitas**
(c) Cetius, altius fortius (d) Let me win brane in my attempt

Q.8. Inclusion is needed to....

(a) Social development of CWSN
(b) To increase motion skills
(c) To improve academic performance
(d) **All of these**

Q.9. Name the teacher who is specially trained to work with CWSN....

(a) Physical education teacher (b) Physiotherapist
(c) Principal (d) **Special educator**

Q.10. Whisles or guns are not used in these games...

(a) Common heath (b) **Deaflympic**
(c) Paralympics (d) Special Olympics

Question for 3 Marks (60 Words)

Q.1 Write a short note on the origin of Paralympics Games.

Ans. In the second world war, majority of people suffered . They lost their willpower and kept remembering the horrors of wars all the time. In1960 Rome Olympic, Sir Ludwig Collected 400 disabled Athletes and organized games and it was named Para-Olympics. Shooting was the first game to be introduced in Para Olympic games, the International Paralympics Committee(IPC) is responsible for organizing summer and winter Paralympic game. The head quarter IPC is situated in Bonn (Germany). The symbol of Paralympic Games is three colours red, blue and green flag and the motto of Paralympic is 'Spirit in Motion' 2022 winter Paralympic games was successfully hosted by China.

Write a note on special Olympic Bharat.

Ans. This organization was established in 2001, its aims to increase the participation of differently abled persons in games and sports. Its another objectives was to develop leadership quality and health. This organization organizes sports competition at state level. It also serve talented players and train them for international games. After 2002, about 23,750 participants have participated in national games. Between 1987 and 2013, a total of 671 Indian athletes participated in Olympic. They won 246 Gold medals, 265 Silver medals, 27 bronze medals and they raised the glory of the country in the world. Today around 1 million athletes are the members of this organization and 84905 coaches train these athletes. This organization does the all round development of the players through games and sports.

4.2 Concept of Classification and Divisioning in Sports

The concept of Classification and Divisioning is a process used in disability sports for providing even and fair competition for athletes with disability through grouping of athletes. The purpose is very much similar to the grouping system used in mainstream sports according to their age-group, gender, weight etc. The genera! goal of any classification or divisioning in disability sports is to reduce or minimise the effect of sports performance due to any of the above-mentioned variables like age, gender, weight or even abilitiesAnswer the following questions.

Question For 3 Marks (60-80 Words)

Q.1 Describe the concept of classification in Paralympics?

The Paralympic Games, through the International Paralympic Committee (IPC), has developed a classification process which can contribute "to sporting excellence for all Athletes and sports in the Paralympic Movement, and providing equitable competition. Classification is undertaken to ensure that an Athlete's impairment

is relevant to sport performance, and to ensure that the Athlete competes equitably with other Athletes"

Q2. What is the role of classification?

According to the IPC (international paralympic committee), the classification process serves two roles.

(i) The first is to determine who is eligible and

(ii) The second is to group sports people for the purpose of competition. The eligibility minimum is an impairment that limits the sports persons ability to participate in an activity and the disability needs to be permanent in nature.

Q3. Mention the different steps of the classification process in Paralympics.

Classification for Paralympics sports generally has three or four steps.

1. Medical assessment.
2. Functional assessment : it involves two steps: first observing a sportsperson in training and then observing the sportsperson in competition.
3. There are a number of people involved in this process beyond the sportsperson, including individual classifiers, medical classifiers, technical classifiers, a chief classifier, a head of classification, a classification panel and a classification committee.

Q4. Athletes with which physical impairments are eligible to participate in Paralympics ?

1. Impaired muscle power
2. Impaired passive range of movement
3. Loss of limb or limb deficiency
4. Leg-length difference
5. Short stature
6. Hypertonia
7. Ataxia
8. Athetosis

Q5. Explain about Divisioning in Sports by Special Olympics.

Special Olympics uses a competitive-level matching or grouping referred to as 'divisioning', which is a fundamental rule at Special Olympics. Athletes in competitions are matched with others of the same gender, about the same age and most importantly, of about the same competitive ability.

Q6. What is the difference between Classification and Divisioning in disability sports?

Classification	Divisioning
1. Classification' is a grouping process associated with Paralympics and para-athletes 2. Classification process adopted by Paralympics assigns categories to athletes based on different types of disabilities	'Divisioning' is a process of grouping associated with the Special Olympics. The divisioning process of the Special Olympics is a performance based system of grouping athletes based on their skill level.

Q7. Describe 'Maximum Effort Rule' used in Special Olympics.

Maximum Effort Rule : To achieve the intentions of fairness, there is a 'maximum efforts rule', wherein athletes are expected to give their maximum effort during the divisioning process and coaches are expected to motivate all athletes towards giving their best. Special Olympics Athletes who do not participate honestly and do not adhere to the maximum effort rule in all preliminary trials or final rounds violate the true spirit of competition and may even be disqualified from competition

Q8. What is the process of divisioning in Special Olympics Competition?

In the process of divisioning, athletes are firstly categorised as

per their age group which is different for individual and team sports, followed by Gender and lastly by their ability.

1. Age

Team Sports	Individual Sports
15 & under	8-11 years
16-21 years	12-15 years
22 and above	16-21 years
	22-29 years
	30 and above

2. **Gender:** In the second step, athletes are grouped as per gender, in some circumstances gender can be combined too.
3. **Ability :** The athletes in Special Olympics are grouped according to their skill abilities scores which are recorded by committee through preliminary and on-site events

Objective Type Questions (1 Marks)

Tick the correct options

Q1. Grouping process associated with Paralympics is referred as :

(a) Divisioning **(b) Classification**

(c) Grouping (d) Categorization

Q2. Grouping process associated with the Special Olympics is referred to as?

(a) Divisioning (b) Classification

(c) Grouping (d) Categorization

Q3. Rule used by Special Olympics to achieve the intentions of fairness is referred as :

(a) Maximum Effort Rule (b) Honest Effort Rule

(c) Best Effort Rule (d) Minimum Effort Rule

Q4. Which is the first step used in classification for Paralympics

(a) Medical Assessment

(b) Functional Assessment

(c) Observation

(d) Competition

4.3 Concept of Inclusion in Sports, its need & implementation

Long Answer Questions

Q1. Explain the Concept of inclusion

Inclusion means to enable students with special needs to study and learn alongside students without any special needs.

— Students with disabilities participate in the same activities , in the same space, with the same assessments as all other students. Modifications are applied when needed.

— When placed in the same classroom environment , these students exhibit high levels of self-esteem as compared to students who are isolated to different classrooms simply because of their special needs.

— The proponents of inclusion believe that students learn better in a community that is diverse, caring and collaborative.

Q2. Why is there a need for inclusion?

1. **Builds Self-Esteem -** Inclusive classrooms are filled with diverse learners. Differently-abled individuals show marked improvement in self- confidence if they have studied in a regular school. It can also help students build and maintain friendships It also helps reduce stigma faced by those who have learning and attention issues.

2. **Improves Social and Communication Skills:** Inclusive education provides ample opportunities for all students. Students with disabilities and those without disabilities -to have better social relations amongst themselves. Since social skills are better learnt through observation and imitation, students with special needs get a better understanding of the world around them by being part of a regular classroom.
3. **Enhances Sensitivity - I**t has been noted that students without disabilities become more sensitive if they study in a classroom where they have students with special needs. They understand and appreciate their emotions and feelings and become more sensitive and caring towards them. They learn how to be more patient and to empathise with others. When children are involved in helping their peers, they not only derive immense satisfaction out of it, but often strike lifelong friendships with them.
4. **Creates Better Understanding and Appreciation of others - I**n an inclusive classroom, students with or without special needs understand and appreciate the strengths and weaknesses of their classmates. They learn to understand and appreciate these differences.
5. **Creates a Sense of Belonging -** All children are able to be part of a community and develop a sense of belonging. This makes them better prepared for life as they learn to value each other despite their differences. CWSN enjoys the acceptance and develops a feeling of belonging to the group of students with or without special needs.
6. **Enhances Academic Performance - I**nclusive education leads to better academic performance than in exclusive education. It provides better opportunities for learning as children with varying abilities are often better motivated when they learn in classes surrounded by other children.
7. **Improves Performance -** Since the expectations of all the children are higher in a mixed abilities classroom, inclusion attempts to develop an individual's strengths and gifts by stretching each individual to optimal performance.

Q3. Give your suggestions to implement the program of Inclusion effectively in India.

India should emphasise on the following measures for effective implementation of inclusive education.

1. Ensuring effective implementation of the Right to Education in all states so that no child is left out of the ambit of education so that we are able to take care of the needs of CWSN.
2. Equipping teachers, especially in rural areas, through appropriate training and in-service workshops to teach CWSN in an inclusive classroom.
3. Developing a support team through regular analysis of schools, curriculum and amenities in order to give access to the regular curriculum methods to children with difficulties in learning.
4. Encouraging a flexible approach towards curriculum transaction whereby teachers and students are able to diagnose and resolve the problems that they face during the teaching-learning process.
5. Involving parents as partners and as a resource in the decision-making process for enhancing their child's learning so that a collaborative effort results in effective inclusive education.
6. Looking at all children at what they can do rather than what they cannot do. It is important for the student's self-esteem that a child with special needs is not looked at with sympathy, but is recognised for her/his talents, capabilities and abilities.
7. Designing schools and classes in ways that help children learn and achieve to their fullest potential. Enrolling of CWSN in regular schools requires a lot of adjustments in terms of classrooms, transport facilities and educational materials and assistive devices such as audio textbooks or Braille text-books, etc.
8. Developing education goals according to each child's abilities. Curriculum experts should carefully design programmes so that the curriculum is made parallel for all the children with or without special needs in inclusive education.

9. Making sincere efforts to develop good relations and understanding between families of students with disabilities and without disabilities. In this way, all students will also develop good relations among themselves and thereby create an appropriate environment for implementing inclusive education.

10. Providing students-related materials like uniforms, books, stationery, transport allowance, stipend for girls, boarding and lodging facilities, therapeutic services, teaching and learning materials, assistive devices, etc., to CWSN from the school.

Q4. How does inclusion in Physical Education benefit CWSN?

1. **Role of Family -** The role of family in encouraging a healthy, sports-oriented lifestyle for a child with a disability is crucial. At times the family may find it difficult to accept reality, and may give up on the child. It is essential to promote awareness and to treat a CWSN as equal in the family. A CWSN may require a structured life routine where participation in recreational games and sports plays a very important role in developing a healthy mind and body of the child. Parents should observe certain different abilities of the child and take professional help to enable her/him to excel in the area.

2. **Role of School -** School gives a structured programme to a child or a group where co- scholastic activities and sports are a part of the regular routine. All schools must have trained APE teachers to give a specially-abled child access to games where equipment and movements are adapted in a fun way for her/his holistic development. Here, a teacher or a coach helps a child to transit towards competitive sports under different organisations such as Special Olympics, Paralympics etc.. The school should take care to provide infrastructure that is compatible with the needs of CWSN e.g., a ramp along with stairs. Schools must run sensitization programmes so that CWSN's are recognised for their efforts and organise intramural and extramural sports competitions or carnivals.

3. **Role of Organisations -** Some organisations are working at the grass-roots level to promote adapted sports. These organisations are responsible for training teachers and coaches for teaching, coaching and organising sports events at Zonal, District, State, National and International levels.

MCQ (Objectives Type Questions) (1 Marks)

Tick the correct options

Q1. Inclusion is vast concept that implies

(a) including learners with different abilities, appearance and economic conditions in education

(b) including learners with an emotional or intellectual impairment in mainstream education

(c) integrating all children with intellectual disabilities into mainstream schooling

(d) integrating all children with physical disabilities into mainstream schooling

Q2. Right to education provides free education for all children within the age group of:

(a) 5-10 yrs **(b) 6-14 yrs**

(c) 10-18 yrs (d) 2-7 yrs

Q3. Which of the following will be an inclusive school

(a) Mainstream school with separate classrooms for different abilities

(b) Mainstream school with same classrooms for different abilities

(c) Separate schools for Mainstream and for children with disability

(d) All of the above

Q4. Given below are the two statements labelled Assertion (A) and Reason (R).

Assertion-Inclusion is a process which enables a child smooth transition to understand, accept and implement the culture of inclusion in different situations

Reason- Physical education and sports play a very important role in promoting inclusion in any educational institute

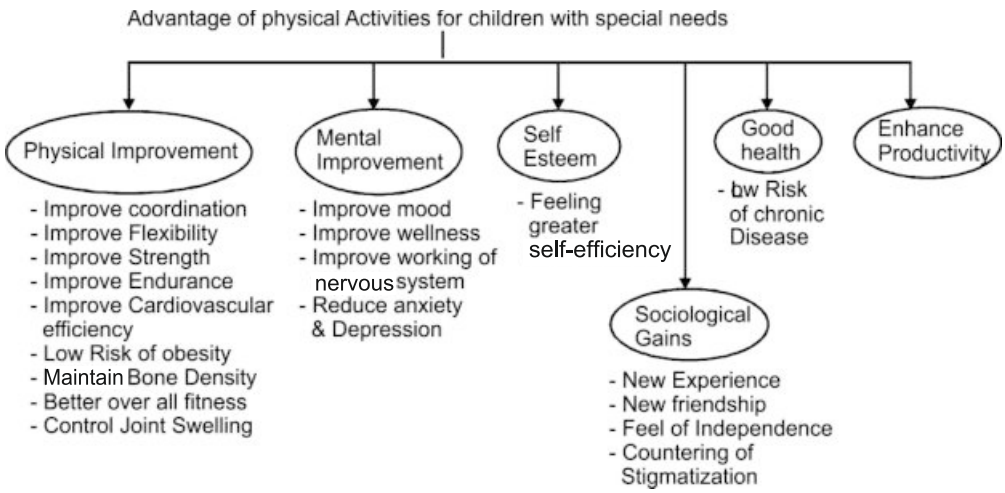
(A) Both (A) and (R) are true and (R) is the correct explanation of (A).

(B) Both (A) and (R) are true, but (R) is not the correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true

4.4 Advantage of physical activities for children with special need



Multiple Choice Questions (1 Marks)

Q.1. **Physical improvement CWSN by physical activities**

(A) Strengthen Heart

(B) Strengthen Bones

(C) Not control body weight & blood pressure

(D) Both (a) and (b)

Short Answer Type Question

Q.1. **Explain the advantages of physical activities for children with special needs.**

Ans. **(1) Physical improvement:** Improvement in 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 of the working of nervous system.
- Brain release endorphins that help to feel good and ease from depression and 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

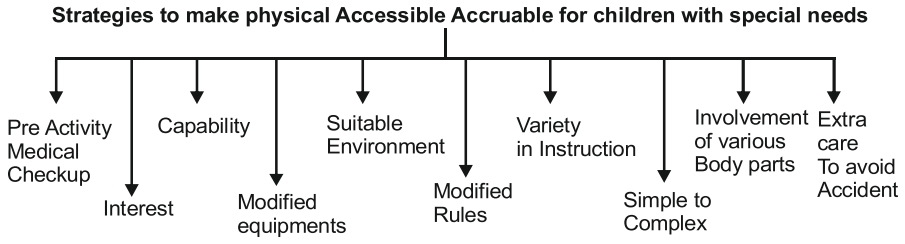
- Improve the working efficiency

Practice Question

Q1. Explain any three benefits of physical activities for children with special needs. **(3)**

Q2. How physical activities improve the mental & social status of CWSN? **(1½ + 1½ = 3)**

4.5 Strategies to make physical activities for children with special needs.



Long Answer Type Question (150-200 words)

Q.1. Explain the strategies to make physical activities accessible for children with special needs.

Ans.

1. **Medical Check-up:** First of all, it is essential to have a medical check-up of all the children with special needs or with various disabilities. Because without medical check-up, the teachers of physical education cannot come to know about the type of disability the child is facing. Indeed, if we really want to make physical activities accessible for the children with special needs, we need to understand the type of disabilities of the children.

2. **Physical Activities Must Be Based on Interests of Children:** Indeed, physical activities must be based on the interests, aptitudes, abilities, previous experience and limitations of children with special needs. So, the teachers of physical education should have a deep knowledge of limitations, interests and aptitudes of children. After that physical activities can be made accessible for children with special needs more easily.

3. **Equipment Related to Physical Activities Should Be According to the Needs of children:** The equipments/ objects related to physical activities should be according to the needs of children. These equipment should vary in size, shape, colour and weight. These equipment should be according to the capability and level of children. A child with visual impairment should use bright-coloured ball. A yarn should be tied to the ball to bring the ball back to children. So, various types of equipment must be provided for children with special needs.

4. **Specific Environment Should Be Provided:** The area of physical activities should be limited as movement capabilities of children with special needs are limited. Specially, in case of children who have autism, they must be provided specific playing area because they may need some time to relax. Light and sound are also vital for making good environment for such children.

5. **A Variety of Different Instructional Strategies Should Be Used:** For performing various types of physical activities, a variety of different instructional strategies such as verbal, visual and peer teaching should be used. It can give children the opportunity to start learning on their own and become more independent. Pictorial books are also vital in terms of instructions regarding physical activities.

6. **Rules Should Be Modified According to the Needs of Children with Disabilities:** In the beginning, rules of the physical activities should be simple but later on, these rules can be modified according to the needs of the children. They can be provided extra attempt or time to perform a physical activity. They can also be given additional resting time before doing the next physical activity.

7. **Children's Previous Experience Must Be Taken into Consideration:** For making physical activities more accessible for children with special needs, the concerned teacher of physical education should have comprehensive understanding and knowledge of children's previous experience about physical activities.

In conclusion, it can be said that the above mentioned strategies are very significant to make physical activities accessible for children with special needs.

Q.2. X is a visually impaired student in the 6th class in an inclusive school. His school is organizing a Sports Day and wants to ensure that all students get to participate. You are a member of the Sports Committee and have to plan the event in an inclusive manner. Keeping that in mind, answer the following question:

(i) Which strategy would you choose to include X in the Sports Day?

(A) His previous experience must be taken into consideration

(B) Modify rules

(C) Take X's interest into account

(D) All of the above

(ii) What kind of instruction should be used in the ground?

(A) Waving flag

(B) Sound producing equipment

(C) Braille

(D) None of the above

(iii) Physical activities for CWSN leads to_____

(A) Increased stress

(B) Decreased self-esteem

(C) Improved physical fitness

(D) Increased health risk

UNIT - 5

Sports & Nutrition

UNIT - 5

Sports & Nutrition

Key Points:

5.1. Concept of Balance Diet and Nutrition

5.2. Macro and Micro Nutrients: Food sources and functions

5.3. Nutritive and Non- Nutritive Components of Diet

5.4. Eating for Weight control - A Healthy Weight, The Pitfalls of Dieting, Food Intolerance and Food Myths

5.5. Importance of Diet in Sports-Pre, During and Post competition Requirement.

Concept of Balance Diet and Nutrition.

5.1. A balanced diet is a diet that contains adequate quantity of the nutrients that we require in a day. Balanced diet includes fat, protein, carbohydrates, water, fiber, vitamis and minerals present in the foods that we eat.

Nutrition :- Nutrition is the study of a dynamic process in which food is taken, digested, absorbed, and then nutrients are utilized by the body for growth and development.

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

Macro Nutrients :- Macro Nutrient are needed in large quantities, they include carbohydrates, fat, protein and water.

Micro Nutrients: Vitamins and minerals which are required in small quantities to ensure normal metabolism, growth and physical well-being.

5.2.3 Macro-Nutrients

5.2.3.1Carbohydrate

Carbohydrates are the the most important source of energy they contain the elements of carbon hydrogen and oxygen Carbon and hydrogen and oxygen are present in the ratio of 1:2:1

Types of carbohydrates

Simple Carbohydrates- they are soluble in water. for example glucose,fructose, galactose and maltose

Complex Carbohydrates- they are not soluble in water- for example Sugar , starch and cellulose

Role of carbohydrate:

1) **Energy giving function :** The chief function of carbohydrates is to furnish energy for the working of the body. One gram of carbohydrate provides approximately 4 kilocalories (Kcal). Carbohydrate foods are widely distributed in nature and are the cheapest sources of energy.

2) **Protein-sparing action :** Carbohydrates. if taken in sufficient amounts to meet the energy needs of the body, spare proteins for their important basic role in the body i.e. supporting growth and bodybuilding. This particular act of sparing proteins for other functions is termed as the protein-sparing action of carbohydrates.

3) **Utilization of fats:** In case of deficiency of carbohydrates in the diet, more fat will be broken down to meet the energy requirements of the body. Why is this harmful? The reason is that excessive fat breakdown can result in accumulation of by-products of fat metabolism. This accumulation causes a problem and can affect health.

Protein

Proteins are large, complex molecules that play many critical roles in the body. Proteins are made up of carbon hydrogen Oxygen and nitrogen and sometimes sulphur. They do most of the work in cells and are required for the structure, function,

and regulation of the body's tissues and organs. Proteins are made up of hundreds or thousands of smaller units called amino acids, which are attached to one another in long chains. There are 23 different types of amino acids that can be combined to make a protein.

Sources of protein

Plant source- Pulses, nuts and oilseeds

Animal source- milk and Milk products, meat and meat products .

The functions of proteins are given below:

1) **Body-building:** Proteins supply amino acids for building new body tissues and for the replacement of worn out tissues. Thus they help in the growth and the maintenance of the body. Proteins are required throughout life for the growth and maintenance of the body.
2) **Proteins as regulatory and protective substances:** Proteins are also part of some chemical substances essential for the regulation of vital body processes. All enzymes hormones are proteins in nature.
3) **Proteins as carriers:** Some of the proteins act as carriers and help to transport certain substances from one place to another. One prominent example of a protein carrier is haemoglobin. It carries oxygen from the lungs to various body tissues and carbon dioxide from body tissues to the lungs.
4) **Energy-giving function:** Proteins can also be broken down in the body to provide energy. Each gram of protein yields about 4 Kcal. This, however, is not the major function of proteins and only takes place when-the diet does not supply sufficient amount of energy giving food.

Fats

Fats are macro nutrients. fats contain carbon, oxygen hydrogen in the percentage of 76,12,12. They keep us warm and protect our vital organs. fats also help in production of hormones.

Sources of Fats

Plant Source- , nuts and oilseeds, avocado fruits

Animal source- milk and Milk products, meat and meat products

Functions of Fats

1) **Source of energy:** Fat is a concentrated source of energy. Each gram of fat provides approximately 9 Kcal. This is more than double the amount of energy supplied by a gram of carbohydrate or protein.

2) **Satiety Value:** fats remain longer in the stomach and take more time to digest. Hence, like fibre, fats also give satiety value.

3) **Insulation and Padding:** fat is stored in the body in adipose tissues at specific places. Layers of stored fat under the skin act as an insulator and keep the body warm. A layer of fat is also present around the vital organs of the body like the kidney and the heart. This serves as a padding and protects them against injury.

4) **Source of essential fatty acids:** Fats serve as sources of essential fatty acids which have important functions in our body.

5) **Carrier of fat-soluble vitamins:** Some of the vitamins are soluble in fats and are termed as fat-soluble vitamins. Fats serve as carriers of these fat-soluble

Micronutrients

Vitamins and minerals are nutrients our body needs in small amounts to work properly and stay healthy.

Vitamins;- Vitamins are organic compounds that body need in small quantities. Most vitamins need to come from food because the body either does not produce them or produces very little.

Types of vitamin

1. Water Soluble Vitamin- vitamin B and Vitamin C
2. Fat Soluble Vitamin- A,D,E,& K

Minerals

Minerals are essential in our diet. minerals can be classified into Macro and micro minerals

Macro Minerals- calcium, phosphorus, sodium, chlorine, magnesium, potassium and sulphur

Micro Minerals- iron lodine, fluoride ,chromium Cobalt, and Selenium

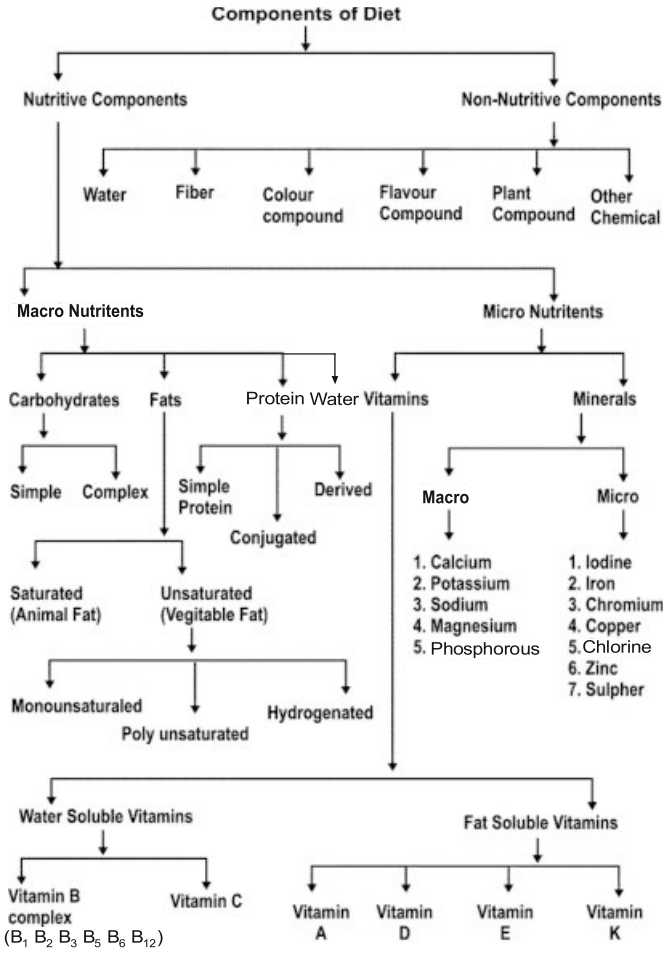
5.3 Non nutritive components of diet

1. Fibre Roughage- Some parts of the food cannot be digested by the human intestinal tract. It is called fibre or roughage. It has no nutritive value so it is included in the non nutritive components of diet. It consists of water and improves intestinal function by adding bulk to it . It satisfies the appetite. it helps to correct the disorders of large intestine,it prevents constipation

   Roughage or fibre is of two types

   - **soluble fibres-** can dissolve in water
   - **insoluble fibres-** they cannot be dissolved in water Insoluble fibre is a good stool softener

   we must take 30g of fibres everyday for the smooth functioning of the digestive system
2. Colour compounds
3. Flavour compounds
4. Plant compounds



Multiple Choice Question (1 Marks)

Q.1 Maximum Carbohydrates are obtained from

(A) **Whole grain food** (B) Fish

(C) Plant oil (D) Nuts

Q.2 Sources of Proteins includes

(A) **Fish** (B) Spinach

(C) Potato (D) Cucumber

Q.3 A balanced diet is complete, when it will be–

(A) Complex Carbohydrates

(B) **According to the needs of the person**

(C) Animal fat rich

(D) 4 to 5 litres water

Ans.

Q.4 Which food item has carbohydrates and fats–

(A) **Bread and butters** (B) Rice and Pules

(C) Potato and Tomato (D) Tomato and Almond

Q.5 Balanced diet is important for –

(A) Disease prevention (B) Immune system

(C) Meeting nutritional need (D) **All the above**

Q.6 Given below are the two statement labeled Assertion (A) and Reason (R).

Assertion (A): Protein is an important element for cell formation.

Reason (R) : Protein is the primary source of energy.
In the context of the above two statements, which one of the following is correct?

(A) Both (A) and (R) true and (R) is the correct explanation of A).

(B) Both (A) and (R) true and (R) is not the correct explanation of A).

(C) A is true, but (R) is false.

(D) A is false, but (R) is true.

Very short Answer Type Questions (40 to 60 words) (2 Marks Each)

Q.1 Enlist the component of diet.

Ans. The components of diet are

1. Proteins 2. Carbohydrates 3. Fats
4. Vitamins 5. Minerals 6. Water

(any two)

Q.2 State any two functions of balanced diet.

Ans. 1. Balanced diet gives us energy to perform our everyday activities.
2. It also helps in growth and development of our body.

Q.3 Mention the different sources of protein.

Ans. 1. Milk and milk product
2. Meat and meat product
3. Pulses
4. Nuts and oil seeds

Q.4 Mention the different sources of Carbohydrates.

Ans. 1. Cereals - Wheat, Maize, Rice, Barely, Oats, Millets
2. Roots and tubers - Potato, Sweet Potato, Tapioca
3. Sugar and Jaggery

Q.5 Mention the different sources of Fats.

Ans. 1. Animal Sources - Meat, Egg, Fish, Dairy Product
2. Plant Sources - Vegetable oils, Nuts, Avacado

Short Answer Type Questions (80 to 100 words) (3 Marks Each)

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

Ans. Balanced diet:- Balanced diet is that which consists 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 system 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 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 important in some situation like early development maturation, Pregnancy etc.

Q.3 Differentiate between simple carbohydrate 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, Glactose, Fructose, Maltose, Sucrosse, Lactose. Complex are starch, Giycogen, Dexitine and Cellulose.

(iii) Simple carbohydrate 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 disolves in water but complex carbohydrate are insoluable in water.

Q.4 Is fat useful or not useful for us Explain?

Ans. (i) Fats are stored in body and 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 transportation of fat soluble Vitamins A,D,E,K.

(iv) It helps in blood clotting and maintenance of skin & hair. Our diet should consist of 20% – 25% of fat higher in take of fat may leads to high risk of obesity and many heart diseases.

(v) Fats maintain body temperature

(vi) Fats keeps body soft & oily.

Q.5 How water is useful for us? Explain Briefly.

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

Blood plasma comprises 91% of water, water comprises 75% of muscular weight and 70% of body weight. It is important for secretion of waste products. It regulate the body temperature. Our body loses approximately 2% of our body weight or water per day. We compensate this 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.

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

Importance :

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

(ii) **For optimum growth & Development :-** It helps individual to grow and to achieve 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 takes place.

v) **Strong immune system :-** It gives better resistance power to body to make good immune system.

(vi) **Improves fitness level :-** It improves over all health status and resulting in fitness of body by preventing diseases.

(vii) **Improves Metabolism :-** Quality of metabolizing increases and thus efficient release of energy .

(viii) **Prevents Deficiency Diseases :-** It gives all necessary nutrients to body so deficiency diseases cannot take place.

(ix) **Maintaining body weight :-** It helps individual to maintain proper body weight.

(x) **Overall efficiency improves :-** It improves all physiological systems of body and thus, efficiency level of individual increaes. In this way balanced diet is useful for us.

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

Ans.

(i) **Age :-** Age plays a great role in making diet. In growing age a child needs more protein. 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 needs more calories & less physical activities work needs less calories.

(iv) **Body weight :-** Obese person need more fibrous food, 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, explosive strength player needs more carbohydrates.

(vi) **Pregnancy or feeding mother :-** Pregnant mother needs extra diet - carbohydrates, proteins, fats, vitamines, minerals specially high protein diet is recomended 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 :-** In cold places food should be rich in oily fried, while in coastal region the food should be taken in liquid.

(ix) **Doctor's Recommendation :-** Diseased or sick person should take proper diet according to doctor recommendation example patient should avoid fried food in jaundice.

(x) **Eating habbits & Social Customes :-** They also effect the diet of individual. In some family, on the day of festival, selected fried food is compulsory for whole family.

(any five)

Practice Question

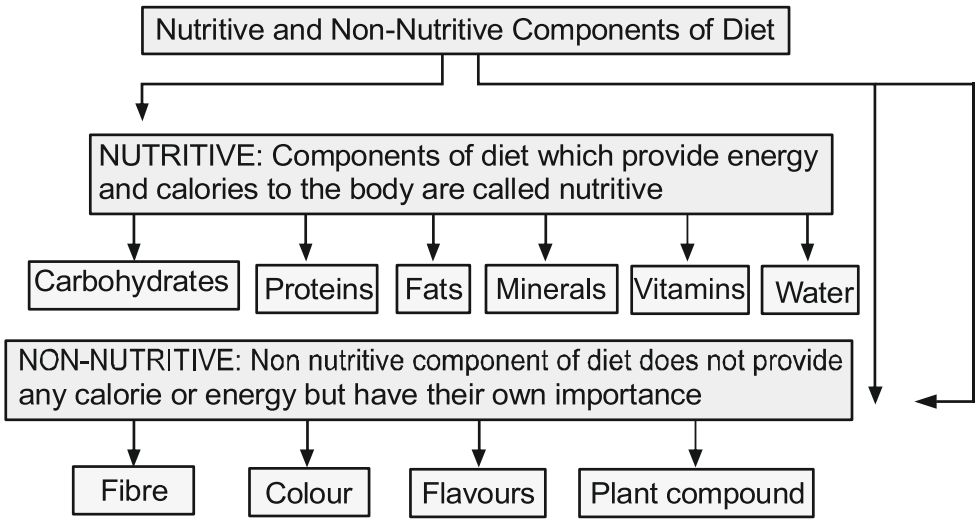
Q.1 What are the essential components of balanced diet?

Explain any two in briefty (1 + 2 = 3)

Q.2 What nutritive components are required in small Quantity? (1 × 3 = 3)

Q.3 Describe the Importance of balanced diet for a person.

(1 × 5 = 5)



Multiple Choice Questions (1 Marks)

Q.1 What is the function of protein as a nutrient.

(A) **Growth of organs and development of new Tissues**

(B) Does not carry oxygen and haemoglobin to all parts of the body

(C) Required for metabolism

(D) Prevents skin from being rough

Q.2 Match the following

1. Creates antibodies	**A. Fat**
2. Protects internal organs	**B. Calcium**
3. Essential for bones and teeth	**C. Iron**
4. Essential for creating haemoglobin	**D. protein**

(A) **1D, 2A, 3B, 4C** (B) 1D, 2B, 3A, 4C

(c) 1-A, 2C, 3C, 4D (D) 1-B, 2C, 3D, 4A

Q.3 Match the following

1. Carbohydrate	**A. Build interal organs**
2. Protein	**B. Provides energy to the body**
3. Fat	**C. Make cells soft and flexible**
4. Water	**D. Protect the soft organs**

(A) 1-D, 2-A, 3-B, 4-C
(B) **1-B, 2-A, 3-D, 4C**
(C) 1-B, 2-A, 3-C, 4D
(D) 1-B, 2-C, 3-4, 4A

Q.4 It is the example of macro Mineral.

(A) **Phosphorus**
(B) Copper
(C) lodine
(D) Iron

Q.5 Body needs vitamins and minerals because

(A) They give the body energy
(B) **They help carry out metabolic reactions**
(C) They insulate the bodys organs
(D) They with draw heat from the body

Q.6 Substance needed by the body for growth energy and maintenance is called

(A) **Nutrient**
(B) Carbohydrate
(C) Fat
(D) Colories

Q.7 Given below are the two statement labeled Assertion (A) and Reason (R).

Assertion (A) : Nonnutritive components do not provide any energy to our body

Reason (R): We should take a lot of fiber in our diet.

In the context of the above two statement, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is the correct explanation of A).

(B) **Both (A) and (R) are true, but (R) is not the correct explanation of A).**

(C) A is true, but (R) is false.

(D) A is false, but (R) is true.

Very Short Answers Questions (40 to 60 words) (2 Marks Each)

Q.1 Given one similarity and one difference between the functions of Proteins and carbohydrates.

Difference - Carbohydrate are the primary source of energy, where as Proteins helps in repair and maintenance also growth and development of the body.

similarity - Protein also is a source of energy.

Q.2 What are the types of "Carbohydrates"? Given example from each.

Ans. There are two types of carbohydrates -

1. **Simple Carbohydrate**
   e.g. Glucose, Fructose, Sucrose maltose etc.
2. **Complex Carbohydrates**
   e.g. Starch, Dextrins, Glycogen, and Cellulose.

Q.3 Write briefly about "Micro-Nutrients".

Ans. Micronutrients are nutrients that we need in a very small quantity but on daily basis.They serve very important functions. All the chemical reactions are aided by Micronutrients which are mostly vitamins and mineral.

Q.4 Vitamins are very essential for the working of the body and are divided into two groups. Explain them.

Ans. Vitamins are divided into two parts -

1. **Water soluble Vitamins :-** Vitamin B and C are soluble in water.
2. **Fat soluble Vitamins :-** Vitamin A ,D, K and E are soluble in fat.

Vitamins are required by our body on daily basis but in a small quantity. Vitamins plays the role of protection and regulation of our body.

Q.5 Explain the role of 'Calcium' and 'Iron' in our body.

Ans. Calcium - It is vital for bone and teeth. Calcium helps in proper heart and muscle function and blood clotting

Iron - Iron is a essential element for producing blood. Iron is found in the Red Blood cell (R.B.C) as called Hemoglobin and in muscle cells called as Myoglobin. Iron deficiency can cause Anaemia.

Short Answers Questions (3 Marks)

Q.1. Mention the types of micro nutrients which are essential for 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, deficiency causes Osteoporosis, Rickets and retorted growth.

(ii) **Iron :-** It is required for formation of Haemoglobin, deficiency of iron leads to Anemia.

(iii) **Phosphorus :-** It helps to making strong bones and teeth.

(iv) **Sodium :-** It helps nervous system for better response, dificiency leads to cramps and tiredness.

(v) **Iodine :-** It helps in proper growth and development of body, deficiency leads to goitre.

(vi) **Fluoride :-** It helps to formation of teeth and nails.

(vii) **Chioride : -** It helps body to fight against infection, proper functions of nervous system.

Vitamins :

Vitamin A - Helps in normal growth and 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 B_2 - Helps in growth of RBC.

Vitamin B_3 - Play important role in energy transfer, reactions in the metabolism of glucose, fat & alcohol.

Vitamin B_5 - In involved in oxidation of fatty acids & Carbohydrates.

Vitamin B_6 - It helps in metabolism of amino acids.

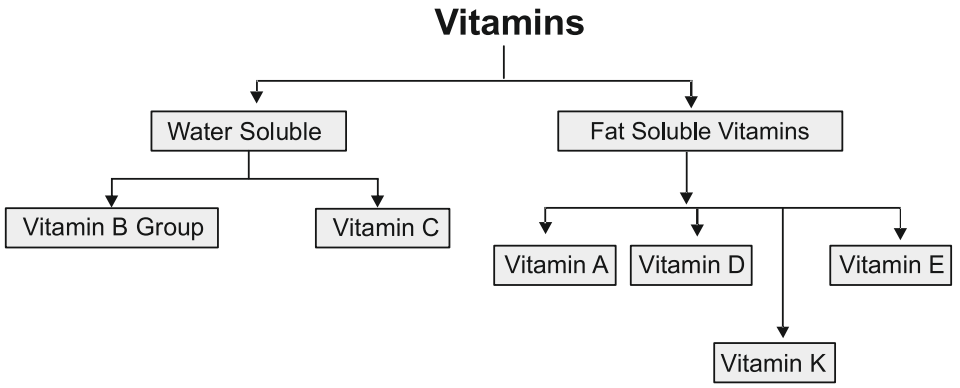
Vitamin B_7 - It play key role in metabolism of lipids, proteins and carbohydrates.

Vitamin B_9 - Folic Acids Needed for normal cell division especially during pregnancy and infancy.

Vitamin B_{12} - It involved in cellular metabolism of carbohydrates proteins and lipids and helps in production of RBC in bone marrow.

Q.2 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 Cod liver Oils/animal Liver, york, Milk, & Milk products, carrot.

Vitamin D Vitamin is found in milk, fish, and Liver oils, Sun light

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, perk Liver, Legumes

Vitamin B_2 We can find in eggs, dark green vegetables, legumes, whole and enriched grain produced milk.

Vitamin B_3 Fish, meat, peanuts and whole enriched grain produced milk.

Vitamin B_5 Pork, meats whole grains, cereals legumes, green leaftly vegetables.

Vitamin B_6 Cereals, grains, legumas, vegetables, milk, cheese, eggs, fish liver, meat, flour.

Vitamin B_{12} Fish, red meat, milk, cheese, eggs.

Vitamin C Citrus fruits like grape, lemon, oranges, and kiwis, other good sources of vitamin C are mango, papaya, pineapple.

Q.3 What do you understand by non nutritive components of diet? Explain the imprortance of any two such components.

Ans. Non-nutritive component of diet does not provide any calorie or energy but have their own importance.

(1) Fibre: It is undigested part of food. It cannot be digested by human intestinal part. It increases apetite and smoothens function of intestines. It removes constipation.

(2) Flavour Compounds: It addressces the taste of food. but does not coutributie any nutritire value. Like tea in milk or coffee powder in milk gives it colour and taste.

(3) Colour Compound: It makes attractive to see by the wide reflection of colours made possible through pigments. Natural Pigment are found in fruits and vegetables like red, orange, yellow, green etc.

(4) Plant Compounds: There are some plants which contain non nutritive element. Ingestion can beneficial or harmful. There are many compounds that Inhibit cancer. (Explanation any two)

Long Answers Questions (5 Marks)

Q.1 What is balance diet? Write its component in details.

Ans. Balanced diet is a diet that contains an adequate quantity of the nutrients that we require in a day balanced diet includes fats, protein, Carbohydrates, water, fiber, vitamins and minerals present in the foods that we eat.

Macro Nutrients:-

1. **Carbohydrates :** They are main source of energy for all activities. They give quick energy and less amount of carbohydrate in diet causes under nutrition and weight loss. Excess amount has been stored in livers and tissues from there they release the energy when in need.

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

3. Fats: Fats are emergency sources of energy and stored in body. Fats carry Vitamin, A,D,E,K. They are sources of energy for large activities. In proper functionary of glands and internal organs against the blood clotting, maintains the skin and important functions of glands. Internal organs helps on blood clotting. Our diet should consist of20%-25% of fat more intake more risk of obesity and many heart diseases. So that nutrients and highly proporation of diet should be taken in proper amount according to need.

4. **Water:** It is an essential nutrient. Our body consists of 70% of water. Water consist 90% of blood. Each person shall drink 8-10 glass of water daily. The essential nutrients are sent through water to all cell of body. It is significant in excertion of waste products. It helps in digestion. it also regulates the body temperature.

Practice Questions

Q.1 Explain nutritive and non-nutritive components of diet? (1 ½ + 1 ½ = 3)

Q.2 What do you understand by diet? Explain any four components of diet. (1 + 4 = 5)

Q.3 Explain any three non-nutritive components of diet. (1 × 3 = 3)

Q.4 Describe any five nutritive components of diet.(1 × 5 = 5)

Practice Question

Q.1 Differentiate between macro and micro nutrients.

(1½ + ½)

Q.2 State the components of balanced diet and their daily requirements. **(1 + 2)**

Q.3 Explain nutritive and non-nutritive components of diet in detail. **(2½ + 2½ = 5)**

Q.4 Match the following

1. Protein	**(A) Teeth and blood related diseases**
2. Water	**(B) Growth of skin, nails, hair, internal organs.**
3. Colour compound	**(C) 60-70% of human body**
4. Dieting	**(D) Make food appealing**

(A) **IB, 2C, 3D, 4A** (B) IC, 2D, 3A, 4B

(C) ID, 2A, 3C, 4B (D) IA, 2C, 3B, 4D

Q.5 Match the following

1. Dryness	**(A) Deficiency of calcium**
2. Anaemia	**(B) Deficiency of vitamin A**
3. Decreased bone density	**(C) Lack of water during dieting**
4. Night Blindness	**(D) Deficiency of iron**

(A) 1D, 2C, 3A, 4B (B) **1C, 2D, 3A, 4B**

(C) 1A, 2B, 3C, 4D (D) 1D, 2C, 3B, 4B

5.4. Eating for Weight control - A Healthy Weight, The Pitfalls of Dieting, Food Intolerance and Food Myths Eating for weight Control

(A) A healthy weight is a number that is associated with a low risk of weight-related diseases and health issues., 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)

BMI Classification < 18.5 Underweight

18.5-24.9 Normal weight

25.0-29.9 Overweight

30.0-34.9 Grade I obesity

35.0-39.9 Grade II obesity

≥ 40.0 Grade III obesity

Eating for weight control:- Factors to control body weight

* Balanced diet
* Drink 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 intervals
* Follow Hygenic Habits
* Do not do Dieting
* Never Try sliming pills

* Avoid over does of carbolydrate.
* Balancing the intakes of calories and expenditure of calories.

(B) Dieting- Dieting typically refers to individuals' attempts to lose weight by restricting the amount or types of foods that are consumed.

Pitfalls of Dieting

* Disturbance in digestive system,
* Acidity problem,
* Gastric problem,
* Muscular weakness,
* Quick Tiredness,
* Loose the sheen of face,
* Disturbed metabolic rate,
* Muscles cramp,
* Chances of heart problems,
* Pain in stomach ,
* Palpitation ,
* Burning sensation in urine,
* After dieting, when A person comes on his normal diet. Body weight overshoots the initial body 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

(**D**) **Food myths:** A food myth is a misconception or unfounded idea about food in general.

Some various myths regarding food.

1. Don't take heavy Breakfast,
2. Potatoes Increase obesity ,
3 Eating sweets cause diabetes,
4. Do not drink water during meals ,
5. Sweets are not good for health,
6. Don't take milk just after eating fish ,
7. Do not take in greasy meals ,
8. Dieting reduce weight,
9. Non-Veg. food is compulsory for protein.

Multiple Choice Question (1 Marks)

Q.1 In which category BMI comes in 30

(A) Obesity I (B) Over load

(C) Obesity II (D) Heathy weight

Q.2 Methods to control healthy body weight

(A) Not taking balanced diet

(B) Regular physical activity

(C) Excessive water consumption

(D) Frequent eating

Q.3 Disadvantages of Dieting _____

(A) No change in body weight

(B) Over body weight

(C) Loss in body weight

(D) Not achieving the required goal

Q.4 Symptoms of headaches, vomiting, stomach pain, loose motion,

(A) Dieting (B) **Food intolerance**

(C) Food myths (D) Lack of vitamins

Q5. Match the following

1.	Food Intolerance	(A)	Loss in body weight
2.	Food myths	(B)	Vomiting
3.	Dieting	(C)	Healthy weight
4.	B.M.I 24	(D)	Do not drink water during meals

(A) ID, 2A, 3B, 4C

(B) IB, 2D, 3A, 4C

(C) IB, 2A, 3D, 4C

(D) ID, 2A, 3C, 4B

Very Short Answer Question (2 Marks)

Q1. What is meaning of pitfalls of dieting.

Ans. Extreme Reduction of Calories : - Person reduces the diet considerable which causes low level of energy thus person feels tiredness body aches. Skipping meals:- People often skip meals to reduce weight where as in react meal they take large amount of food.

Q2. What do you mean by Food Myths.

Ans. A food myth is a misconception or unfounded idea about food in general. It may lead people to follow the latest trendy diet. It could involve cutting a completely nutritious food out of your daily eating regimen because you think it's bad for you.

Q3. How food intolerance is treated?

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.

Long Answer Question (5 Marks)

Q1. Describe the myths of dieting. (1x5)

Ans. 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 saturated fat eating unsaturated 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 leans muscles.

(iii) **Myth :- Food eaten late at 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.

(vii) **Myth:- Milk should not be taken immediately after fish.** Fact: It is not true, it will not give any allergy or irritation.

(viii) **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.

(Explain any five)

Practice Question

Q.1 Briefly explain any two causes of food intolerance, (1x 2)

Q.2 List the points to be considered for weight maintenance.(1x2)

Q.3 List out the pit falls of dieting.(1x3)

Q.4 What is the difference between food intolerance and food myths? (1x3)

Q.5 Explain healthy weight and discuss disadvantages of dieting.

(2 + 3)

Q.6 What kind of diet helps to maintain healthy weight? Explain briefly and also explain negative effects of dieting. (3 + 2)

5.5 Importance of Diet In Sports Pre, During And Post Competition Requirement

(A) Importance Of Diet In Sports

For a sportsperson, it is essential to take a balanced diet as lot of physical activity and Fitness components are needed in sports. The quality of sports diet depends on the correct proportion of carbohydrates, fats. proteins, minerals, Vitamins salts etc, which constitute the main nutrients of diet.

1. The body needs nutrition to repair and recover. Sports persons have greater demands on their body. If these are not met through proper diet, outcome will suffer and post training recovery process will be affected.

2. For different games, there are different body composition requirements which can be manipulated to certain extent by nutrient composition of diet besides training, thus helping in achieving body composition goals.

3. Right kind of nutritional composition in pre-competition meals, during competition and post competition meals can help improve performance, delay fatigue and speed up recovery.

4. Knowledge of nutrition is essential to make fitness, weight loss and weight gain programmes successful in athletes. Those sports persons who play in weight categories can achieve body weight goals with appropriate diets. During offseason or no practice period, the diet should be such that it does not alter too much of body composition and prevents excessive weight gain.

5. Certain nutrients are taken as ergogenic aids, their ergogenic potential and psychological and physiological effects can help sports persons in their performance.

6. Dehydration can impaire athletic performance. Therefore, sufficient intake of fluids and electrolytes ensures maximum hydration before, during and after exercise.

7. Adequate diet enhances physiological adaptations during training.

(B) CARBOHYDRATES IN SPORTS AND EXERCISE- For athletes engaging in strength-sports (wrestling, boxing, judo etc.) 55% of total calories should be provided by carbohydrate sources.

While in endurance sports like running, swimming, football, hockey and other similar type of sports 60 to 70% of calories should be derived from carbohydrates in the diet.

(C) PROTEINS IN SPORTS AND TRAINING- During exercise and training, muscle bulk is increased and also there is breakdown of muscle tissues. During prolonged exercises, protein is oxidised to provide energy.

(D) FAT INTAKE IN SPORTS AND TRAINING- Fat intake in athletes contributes to energy density and offers other protective roles for vital organs.

(E) VITAMINS AND MINERALS IN SPORTS AND TRAINING- Vitamins and minerals perform functions for athletes and non-athletes.

(1) PRE-EXERCISE OR PRE-EVENT MEAL

1. A meal comprising high-carbohydrate, moderate protein and low fibre and low-fat foods providing 500 to 1000 kcal should be consumed. Examples of good pre-event meal would be banana milk shake or pasta and fruits with curd or potato sandwich with fruit juice.
2. High sugar foods must be avoided to prevent insulin rush that results in early fatigue, cramping, dehydration, nausea and diarrhoea.
3. On regular training days, instead of large meals, small meals or a snack every 2-3 hours should be taken, Meals should be taken about 2-4 hours before exercise.
4. If eating within two hours of exercise, eat less and take semi-solid or liquid meals.
5. Dinner on the previous night of the competition is also important. The meal should be such that it ensures proper sleep and adequate fueling up.
6. Familiar and easily digestible foods should be consumed. Any newer food or foods with known allergies or known to cause gastrointestinal upsets should be avoided.
7. Foods heavy on stomach like fried foods or high fibers foods should be avoided on the day prior to competition.
8. Too much of protein intake should also be avoided as it increases water excretion leading to a state of dehydration. Moreover, proteins are digested slower.
9. Take sufficient liquids or a small snack an hour (or less) before exercise.

(2) DURING EXERCISE

1. The main aim during exercise and training should be to maintain water balance, control body temperature, sustain normal blood sugar levels and delay fatigue.

2. In order to maintain fluid balance and normal body temperature during exercise, water that is lost through sweating during exercise needs to be replaced.

3. Even slight dehydration brings in mental and physical fatigue and weakness in the performance. During small breaks in the events like in tennis, boxing etc. the consumption of adequate carbohydrate and fluids may be taken care of.

4. In shorter breaks, carbohydrate rich foods like banana, juices, carbohydrate-based drinks (less than 2% concentration) or simply water may be taken.

5. Carbonated beverages, fizzy drinks and drinks that contain caffeine are not recommended.

6. If exercising for more than 60 minutes, carbohydrate-electrolyte beverages like diluted fruit juices containing 5 percent to 8 percent carbohydrates can be ingested.

7. As the duration of high intensity events continues, muscle glycogen levels diminish. Therefore, for endurance athletes, in events lasting longer than two hours, carbohydrate rich solids or liquid meals recommended during exercise.

(3) POST-TRAINING/COMPETITION

1. To replace fluids lost during exercise.

2. To refill carbohydrate stores (muscle and liver glycogen)

3. To replace electrolytes (sodium, potassium, chloride)

MULTIPLE CHOICE QUESTIONS (1 MARKS)

1. _____ is the main energy source for any exercise.

(A) Fats (B) Protein

(C) Water (D) **Carbohydrates.**

2. The most important reason for well hydrates before an event is to prevent _____

(A) **Hypoglycaemia** (B) Hyperglycaemia

(C) Hectoglycaemia (D) Hetroglycaemia

3. Match List - I with List - II and select the correct answer from the code given below:

	List 1		**List II**
I	Pre-Exercise Or Pre-Event Meal	1.	To Consume an instant Energy drinks
II	During Exercise Meal	2.	To Prevent Hypoglycaemia
III	Post Exercise Meal	3.	Carbohydrate and Protein food
IV	Diet	4.	Consists of all essential nutrients

Code

	1	II	III	IV
A	3	2	4	1
B	2	3	1	4
C	1	2	3	4
D	4	3	2	1

Practice Question

Q.1. Discuss the importance of Protein in regard to sportsperson. (0.5 x 4)

Q.2. Which diet should a sportsperson take during the competition? (0.5x4)

Q.3 Write the importance of Carbohydrates for endurance Players. (1x3)

Q.4 Elaborate the importance of food before competition. (1x3)

Q.5 Elaborate the importance of food during and after competition. (2.5+2.5)

Q.6. Diet for Sports persons is very important. What should be the aim of prepative diet for sports persons. (2+3)

UNIT - 6

Test & Measurement in Sports

UNIT - 6

Test & Measurement in Sports

Key Points

6.1 Fitness Test ~ SAI Khelo India Fitness Test in School:

(A) Age group 5-8 years/class 1-3:

I. BMI,

ii. Flamingo Balance Test,

iii. Plate Tapping Test

(B) Age group 9-18 years/class 4-12:

I. BMI,

ii. 50mt Speed test,

iii. 600mt Run/Walk,

iv. Sit & Reach flexibility test,

v. Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls)

6.2 Measurement of Cardio Vascular Fitness:

Harvard Step Test

$$\text{Fitness Index} = \frac{\text{Duration of the Exercise in Seconds} \times 100}{5.5 \times \text{Pulse Court of 1 to 1.5 Min (after exercise)}}$$

6.3. Computing Basal Metabolic Rate (BMR)

6.4 Rikli & Jones - Senior Citizen Fitness Test

a. Chair Stand Test for Lower Body Strength

b. Arm Curl Test for Upper Body Strength

c. Chair Sit & Reach Test for Lower Body Flexibility

d. Back Scratch Test for Upper Body Flexibility

e. Eight Foot Up & Go Test for Agility

f. Six Minute Walk Test for Aerobic Endurance

6.5 Johnsen-Methney Test of Motor Educability

(Front Roll, Back Roll, Jumping Half-Turns, Jumping Full-Turns)

6.1. Fitness Test—SAI Khelo India Fitness Test in School:

Fitness defines the ability to perform physical activity, and encompasses a wide range of abilities. Each activity and sports requires a specific set of skills, and so being fit for an activity or a sport does not necessarily make you fit for another. Fitness is generally divided into specific fitness categories or components, and each can be tested and trained individually.These Fitness Test are classified on the basis of age / class .

(A) AGE GROUP 5-8 YEARS (CLASS 1 to 3)

At Primary class 1-3, children should acquire Fundamental Movement Skills (FMS) leaving the learning of specific physical activities to later stages. FMS provide the building blocks for many physical activities, such as playing games, dance, etc. Locomotor, Manipulative & Body Management abilities are key to success in most sports and physical activities. Abilities of children in class 1-3 which need to be measured and tracked arc

Age Group 5-8 Years/ Classes 1-3
i. Body Mass Index (BMI) ii. Flamingo Balance Test iii. Plate Tapping Test

Which are important for controlling the body in various situations.

(B) AGE GROUP: 9-18 YEARS (CLASS 4 to 12)

For Class 4 to 12, it is important for students to have an overall physical fitness. The following Components arc to be considered in Physical Health and Fitness Profile:

Age Group 9-18 Years/ Classes 4-12
i. Body Mass Index (BMI) ii. 50mt Speed Test iii. 600mt Run/Walk iv. Sit & Reach flexibility Test v. Strength Test: ◆ Abdominal Partial Curl Up ◆ Push-Ups for Boys ◆ Modified Push-Ups for Girls

SAI Khelo India Fitness Test in School: Age Group 5-8 Years/ Classes 1-3

Test Item	Purpose: To measure	Equipment's	Procedure	Scoring
Body Mass Index (BMI)	Body Composition	1. Weighing Machine 2. Stadiometer/ Measuring Tape	1. **Weight Measurement:** Make participant stand with both feet in the center of the scale. 2. **Height Measurement:** Make participant stand with feet flat with straight legs, arms at sides, and shoulders level and back against the wall. 3. **Body Mass Index** = $\frac{\text{Weight (Kgs)}}{\text{Height (m) x Height (m)}}$	• Height in Cms (0.1 cm) • Weight in (kgs (0.1 kg) • BMI: Score kg/m^2
Flamingo Balance Test	Balance & Strength (Leg)	1. Beam or Brick 2. Stopwatch	1. Stand on the beam/ brick on your preferred leg. 2. Keep your free leg knee flexed and hold the other foot close tothe buttocks. 3. Remain in this position for 60 seconds. 4. Pause the stopwatch every time the participant loses balance(falling or letting goes of the foot being held) 5. Record the number of falls in 60 seconds.	Number of Falls in 60 seconds
Plate Tapping Test	Speed and Co-ordinator	1.Table (adjustable height), 2.Yellow discs-2 (20cm diameter) 3.Rectangle-1 (30x20 cm), 4.Stopwatch	1. Put yellow discs 60 cm apart (at center). 2. Put rectangle equidistant between both discs. 3. Stand comfortably in front of the discs. 4. Place the non-preferred hand on the rectangle. 5. On the command 'Go' start tapping the yellow discs one after another as quickly as possible. 6. Perform 25 full cycles (50 taps).	Seconds

(i) Body Mass Index

What does it measure: Body Composition refers primarily to the distribution of muscle and fat in the body. Body size such as height, lengths and girths are also grouped under this component.

$$BMI = \frac{\text{Body weight in Kgs}}{\text{Height in } m^2}$$

Purpose : To measure body composition

Equipment Required : Stadiometer/Measuring tap, weighing Machine, Pen Paper etc.

Measuring Height Accurately

- Remove the participant's shoes, bulky clothing, and hair ornaments, and unbraid hair that interferes with the measurement.
- Take the height measurement on flooring that is not carpeted and against a flat surface such as a wall with no molding.
- Have the participant stand with feet flat, together, and back against the wall. Make sine legs are straight, arms are at sides, and shoulders are level.
- Make sure the participant is looking straight ahead and that the line of sight is parallel with the floor.
- Take the measurement while the participant stands with head, shoulders, buttocks, and heels touching the flat surface (wall). (Sec illustration.) Depending on the overall body shape of the participant, all points may not touch the wall.
- Use a flat headpiece to form a right angle with the wall and lower the headpiece until it firmly touches the crown of the head.



- Make sure the measurer's eyes are at the same level as the headpiece.
- Lightly mark where the bottom of the headpiece meets the wall. Then, use a metal tape to measure from the base on the floor to the marked measurement on the wall to get the height measurement.
- Accurately record the height to the nearest 0.1 centimeter.

Measuring Weight Accurately

- Use a digital scale. Avoid using bathroom scales that are spring-loaded. Place the scale on firm flooring (such as tile or wood) rather than carpel.
- Have the participant remove shoes and heavy clothing, such as sweaters.
- Have the participant stand with both feel in the center of the scale.
- Record the weight to the nearest decimal fraction (for example. 25.1 kilograms).



Scoring : Weight of the student is 25.1 kg and his height is 1.25 m

$$\text{BMI} = \frac{25.1}{1.25^2} = \frac{25.1}{1.25 \times 1.25} = 16.06 \text{ kg/m}^2$$

(ii) Flamingo Balance Test

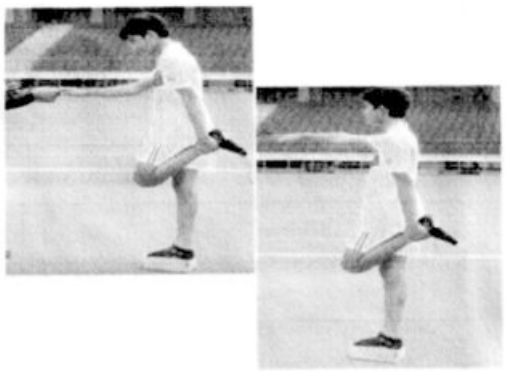
What does it measure:
Ability to balance successfully on a single leg. This single leg balance test assesses the strength of the leg pelvic, and trunk muscle as well as Static balance.

Purpose : To measure balance and Leg strength,

Equipment Required : Even Surface (Non slippery), stopmatch, beam, pen, paper etc.

How to Perform:

- Stand on the beam. Keep balance by holding the instructor's hand (if required to start).



- While balancing on the preferred leg. the free leg is flexed at the knee and the foot of this leg held close to the buttocks.
- Start the watch as the instructor lets go of the participant/subject.
- Pause the stopwatch each time the subject loses balance (either by falling off the beam or letting goes of the foot being held).
- Resume over, again timing until they lose balance. Count the number of falls in 60 seconds of balancing.

  Note: If there are more than 15 falls in the first 30 seconds, the test is terminated.

Scoring:

- The total number of falls or loss of balance in 60 seconds of balancing is recorded.

- If there are more than 15 falls in the first 30 seconds, the test is terminated.

(iii) Plate Tapping Test

What does it measure: Test speed, and coordination of limb movement.

Purpose: To measure Speed & Coordination

Equipment Required: Table (adjustable height) 2 yellow discs (20 m diameter), 1 rectangle (30 × 20 cm), stopwatch, Pen, Paper, etc.

How to Perform:

- If possible, the table height should be adjusted so that the subject is standing comfortably in front of the discs. The two yellow discs are placed with their centers 60 cm apart on the table. The rectangle is placed equidistant between both discs.



- The non-preferred hand is placed on the rectangle. The subject moves the preferred hand back and forth between the discs over the hand in the middle as quickly as possible.
- This action is repeated for 25 full cycles (50 taps).

Scoring:

- The time taken to complete 25 cycles is recorded

SAI Khelo India Fitness Test in School: Age Group 9-18 Years/ Classes 4-12

Test Item	Purpose: To measure	Equipment's	Procedure	Scoring
Body Mass Index (BMI)	Body Composition	1. Weighing Machine 2. Stadiometer/ Measuring Tape	1. Weight Measurement: Make participant stand with both feet in the center of the scale. 2. Height Measurement: Make participant stand with feet flat with straight legs, arms at sides, and shoulders level and back against the wall. Body Mass Index = $\frac{\text{Weight (Kgs)}}{\text{Height (m) x Height (m)}}$	• Height in Cms (0.1 cm) • Weight in (kgs (0.1 kg) • BMI: Score kg/m^2
50mt Speed Test	Speed & Acceleration	1. Stopwatch 2. Track/ Flat surface of at-least 60mt.	1. Start from a stationary standing position, with one foot in front of the other. 2. On the command 'go' the participant runs towards the finish line (50mt from starting line) in a single maximum sprint.	Seconds (Time taken to cover 50 mts)
600mt Run/ Walk Test	Cardio-Vascular Endurance/ Aerobic Capacity	1. Stopwatch 2. Measuring Tap 3. Marked Track	1. Participants runs 600 mts. in the fastest possible pace. 2. The participants take standing start and begin on signal, "ready, start" and stops after crossing the finish line (600mts). 3. The participant can walk also if feels so.	Seconds/Minute (Time taken to cover 600 mts)
Sit & Reach Flexibility Test	Flexibility	1. Sit & Reach Test Box with measuring scale	1. Sit on the floor with legs straight and feet against the box. 2. Both knees locked and pressed flat to the floor one. 3. With hands on top of other, subject reaches forward along the measuring scale as far as possible. 4. Record the distance where there is a hold for 1-2 seconds. 5. Make sure there are no jerky movements.	Centimeter (difference between initial position and final position)

SAI Khelo India Fitness Test in School: Age Group 9-18 Years/ Classes 4-12 (Cont..)

Test Item	Purpose: To measure	Equipment's	Procedure	Scoring
Abdominal Partial Curl Up Test	Strength and Endurance	1. Cushioned/ Gym Mat (two parallel strips marked 6 inches apart) 2. Stopwatch	1. Lie down on the mat with knees flexed and hands straight on the sides. 2. Raise the trunk in a smooth motion, keeping the arms in position, 3. Curl up the desired amount (at least 6 inches above/alongthe ground towards the parallel strip). 4. Lower down back to the floor. 5. Perform partial curls up for 30 seconds	Number of curl ups performed
Push-Ups for Boys	Strength Endurance and Trunk Stability	Gym Mat	1. Take the standard push up position with hands and toes touching the floor. 2. Keep the body and legs in a straight line, feet slightly apart, the arms at shoulder width apart, extended and at a right angle to the body. 3. Lower down the body until there is a 90° angle at the elbows, then returns back to the starting position. 4. This action is repeated and test continues until exhaustion.	Number of push-ups performed correctly
Modified Push-Ups for Girls	Strength Endurance and Trunk Stability	Gym Mat	1. Take the push up position with hands, knees and toes on the floor. 2. Keep the body and knees in a straight line, the arms at shoulder width apart, extended and at a right angle to the body. 3. Lower down the body until there is a 90° angle at the elbows, then returns back to the starting position. 4. This action is repeated and test continues until exhaustion.	Number of push-ups performed correctly

(i) Body Mass Index

Same as available on page No. 243.

(ii) 50 mt Speed Test

What does it measure: Determines acceleration and speed.

Purpose: To measure speed

Equipment Required: Measuring tape, flax & clean surface, marked track, stopwatch, pen, paper, etc.

How to Perform:

- A thorough warm up should be given, including some practice starts and accelerations.
- Start from a stationary position, with one foot in front of the other. The front foot must be on or behind the starling line. This starting position should be static & standing start.
- The tester should provide hints to maximizing speed (such as keeping low, driving hard with the arms and legs) and encouraged to continue running hard through the finish line.

50 Meter Standing Start Run



Scaring:

- Time taken for completion of 50mt.

(iii) 600mt. Run/Walk Test:

What does it measure: Cardiovasular endurance/aerobic capacity.

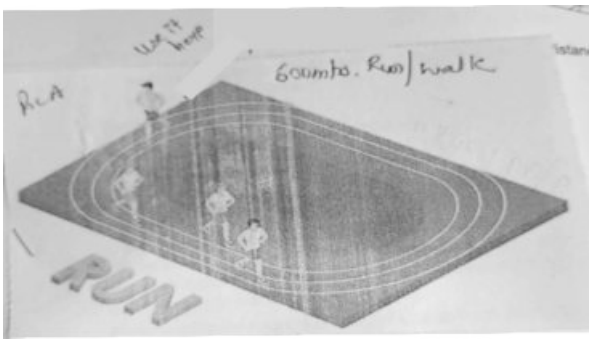
Purpose : To measure cardiovascular fitness

Equipment Required: Measuring taps, marked track, flat & clear surface, stopwatch, pen, paper, etc.

How to Perform:

- Participants arc instructed to run 600 mts. in the fastest possible pace.
- The participants begin on signal, "ready, start" as they cross the finish line elapsed time should be announced to the participants.

Pic (A)



- Walking is permitted but the objective is to cover the distance in the shortest possible time.

Scaring:

- Time taken for completion of 600 mt.

(iv) Sit and Reach Flexibility Test

What does it measure:

Common measure of flexibility, and specifically measures the flexibility of the lower back and hamstring muscles. This test is important as because tightness in this area is implicated in lumbar lordosis, forward pelvic tilt and lower back pain

Purpose: To measure flexibility of Lower back & hamstring muscles.

How to Perform:

- This test involves sitting on the floor with legs stretched out straight ahead. Shoes should be removed The soles of the feet are placed flat against the Sit and Reach box. Both knees should be locked and pressed flat to the floor - the tester may assist by holding them down.



- With the palms facing downwards, and the hands on top of each other, the subject reaches forward along the measuring line as far as possible.
- Ensure that the hands remain at the same level, not one reaching further forward than the other. After some practice reaches, the subject reaches out and holds that position for at one-two seconds while the distance is recorded. Make sure there are no jerky movements.

Equipment Required:

Sit and Reach box with the following dimensions: 12" × 12" (sides) 12" × 10" (front and back) 12" × 21" (top) Inscribe the top panel with centimeter mm gradations. It is crucial that the vertical plane against which the subject's feet will be placed is exactly at the 23 cm mark. Flat clean cushioned surface/Gym Mats

Scoring:

- The score is recorded (difference between initial position and final position), in cm and mm. as the distance reached by the hand.

(v) Abdominal Partial Curl Up Test (30 Second)

What does it measure:

- The curl up test measures abdominal muscular strength and endurance of the abdominals and hip-flexors., important in back support and core stability.

Purpose : To measure abdominal muscular strength & endurance.

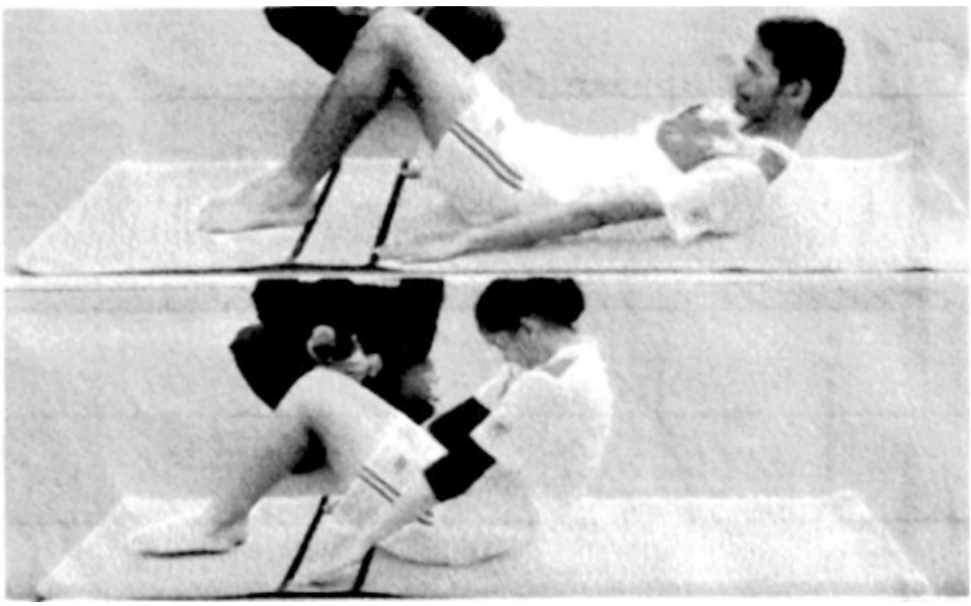
Equipment Required: flat clean cushioned surface with two parallel strips (6 inches apart). Stopwatch, Recording sheets, Pen, paper etc.

How to Perform:

- The subject lies on a cushioned, flat. clean surface with knees flexed, usually at 90 degrees, with hands straight on the sides (palms facing downwards) closer to the ground, parallel to the body.
- The subject raises the trunk in a smooth motion, keeping the arms in position, curling up the desired amount (at least 6 inches above/along the ground towards the parallel strip).
- The trunk is lowered back to the floor so that the shoulder blades or upper back touch the floor.

Scoring:

- Record the maximum number of complete & corrected Curl ups in a certain time period 30 seconds.



(vi) Push Ups for Boys

(vii) Modified Push Ups for Girls

What does it measure:

Upper body strength endurance, and trunk stability.

Purpose: To measure upper body strength endurance.

Equipment Required:

Flat clean cushioned surface/Gym mat/Yoga mat

How to Perform: Push-Ups

- A standard push up begins with the hands and toes touching the floor, the body and legs in a straight line, feet slightly apart, the arms at shoulder width apart, extended and at a right angles to the body.
- Keeping the back and knees straight, the subject lowers the body to a predetermined point, to touch some other object, or until there is a 90-dcgree angle at the elbows, then returns back to the starting position with the arms extended.



Push-ups



Modified Push-ups

- This action is repeated, and test continues until exhaustion, or until they can do no more in rhythm or have reached the target number of push-ups.

Modified Push-Ups

- For Girls: push-up technique is with the knees resting on the ground.

Scoring:

Record the number of correctly & completed pushups.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following

1. 600 M Run/Walk	A. Flexibility
2. Sit and Reach	B. Upper Muscular Strength
3. Push ups (Boys)	C. Speed and Coordination
4. Plate Tapping Test	D. Aerobic Capacity

(A) 1C, 2B, 3D, 4A
(B) **1D, 2A, 3B, 4C**
(C) 1B, 2C, 3D, 4A
(D) 1B, 2A, 3C, 4D

Q.2. Partial curl up test is used for

(A) To measure the explosive power of legs
(B) To measure agility and speed.
(C) **To measure abdominal strength**
(D) To measure acceleration speed

Q.3. Athlete speed (Acceleration) is measured by

(A) Modified push ups (Girls)
(B) 4 × 10 M shuttle Run
(C) **50 M Standing Start**
(D) Sit and Reach

Q.4. Modified push ups test is for

(A) Volleyball player
(B) Boys
(C) Cricket player
(D) **Girls**

Q.5. SAI Khelo India Fitness Test for Age Group 5-8 Years does not include

(a) Body Mass Index (BMI)

(b) Flamingo Balance Test

(c) **50mt Speed Test**

(d) Plate Tapping Test

Q.6. SAI Khelo India Fitness Test for Age Group 9-18 Years does not include

(a) Sit & Reach flexibility Test

(b) **Flamingo Balance Test**

(c) 50mt Speed Test

(d) Modified Push-Ups Test

Q.7. SAI Khelo India Fitness Test for Age Group 5-8 Years has how many tests items

(a) 2

(b) **3**

(c) 4

(d) 6

Q.8. What is the full form of B.M.I ?

(a) Body Management Index

(b) Body Mold Index

(c) **Body Mass Index**

(d) Body Motivation Index

Q.9. What is the range of healthy body mass index?

(a) 20-25

(b) 25-30

(c) **18.5-24.9**

(d) 30.0-34.9

Q.10. Gives below are the two statements labelled Assertion (A) & Reason (R)

Assertion (A): Sit and Reach test is used for measuring flexibility.

Reason (R): The Purpose of Sit and Reach test is to measuring the ability of an individual to reach as forward as possible.

In the context of above two statement, which one of the following is correct?

(A) **Both (A) and (R) are true and (R) is correct explanation of (A).**

(B) Both (A) and (R) are true but (R) is not correct explanation of (A).

(C) (A) is true, but (R) is false

(D) (A) is false, but (R) is true

Q.11. Tarun went to primary school on the occasion of his birthday. After assembly, class-IIIstudents were assembled in the ground. When he enquired, they replied that they have a physical fitness test.

(i) To measure balance, which one of the following is best?

(a) Body Mass Index

(b) Sit and Reach Test

(c) Plate Tapping Test

(d) **Flamingo Test**

(ii) The student were performing plate tapping test, this test measure

(a) Balance & Strength

(b) **Speed and Co-ordination**

(c) Body Composition

(d) Balance

(iii) Formula for B.M.I.

(a) $\frac{\textbf{Weight (Kg)}}{\textbf{Height (m) x Height (m)}}$ (b) $\frac{\text{Weight (Kms)}}{\text{Height (cm) x Height (cm)}}$

(c) $\frac{\text{Weight (gms)}}{\text{Height (m) x Height (m)}}$ (d) $\frac{\text{Weight (Kg)}}{\text{Height (cm) x Height (cm)}}$

Q.12. BMI is also know as

(a) **Quetelet index**

(b) Quote Index

(c) Fitness Index

(d) Obesity Index

Short Answer Questions (3 Marks) (80-100 Words)

Q.1. Briefly describe the process and scoring of the 50 m Speed Test and 600 m walk/Run test.

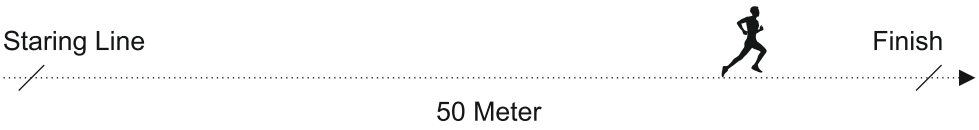
Ans. **50 M Speed Test**

Objective: To measure Speed ability

Material Required: Measuring Tape, Marking of 50 M Lanes with White Powder, Flat and Clear Surface, Stopwatch, Pen and Paper for Maintain Record/Score.

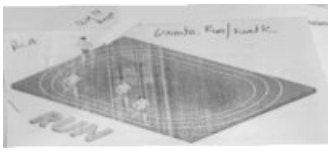
Procedure: The test involves running a single maximum sprint over 50 meters, with the time recorded, start from a stationary standing position (hands cannot touch the ground) with one foot in front of the other. The front foot must be behind the starting line. Once the subject is ready, the stater give the instructions “set” then “go” participant the teacher (tester) give the instructions"set"then go. participant should be encouraged to not slow down before crossing the finish line.

50 Meter Standing Start Run



Total Numbers of Trials: 3

Scoring: Best of three, time taken to cover 50 M distance is expressed in seconds.



600 M Walk/Run Test

Objective: To measure aerobic endurance ability

Material Required: Measuring Tape, Marking of Track with White Powder, Flat and Clear Surface, Stopwatch, Pen and Paper for Maintain Record/Score.

Procedure: 600 m walk and Run can be orgainzed on track subject runs a distance of 600 m. The subject takes a standing start from the starting line. The subject may walk in between. However, the purpose is to cover the 600 m distance in the shortest possible time when subject crosses the finish line.

Scoring: Subject's time taken to cover 600 M distance.

Q.2. What do you mean by B.M.I. Write down the scale of B.M.I.?

Ans. Body Mass Index measures the Body Composition i.e. the distribution of muscle and fat in thebody. BMI of any individual can be calculated with the help of the following formula:

$$\text{Body Mass Index (BMI)} = \frac{\text{Body Weight (Kgs)}}{\text{Height (m) x Height(m)}}$$

Where the weight of the individual's is measured in kilograms and the height of that individual is taken in meter.

B.M.I Norms

Category	BMI
Underweight	<18.5
Normal Weight	18.5-24.9
Overweight	25.0-29.9
Obesity Class I	30.0-34.9
Obesity Class II	35.0-39.9
Obesity Class III	>40.0

Q.3. Calculate the BMI of a male person whose body weight is

Ans. 70 kg and his height is 1.70 m. Also state the category in which he falls?

$$\text{Body weight} = 70 \text{ kg}$$

$$\text{Height} = 1.70 \text{ m}$$

$$\text{BMI} = \frac{\text{Weight}}{(\text{Height})^2}$$

$$= \frac{70}{(1.70)^2}$$

$$= \frac{70 \times 100 \times 100}{170 \times 170}$$

$$= \frac{700000}{28900} = 24.22 \text{ kg/m}^2$$

He falls in Normal Weight category

Q.4. Explain the Flamingo Balance Test in detail?

Ans. Flamingo Balance Test

Objective: Flamingo Balance Test measures the ability to balance successfully on a single leg. It also helps to measure the strength of leg, pelvic and trunk muscles for static balance.

Equipment Required: Non-Slippery even surface, Stop-Watch, beam/ brick.

Test Administration: The test will be performed as follows:

- Stand on the beam/ brick on your preferred leg.
- While balancing on your preferred leg, keep your free leg flexed at the knee and the foot to beheld close to the buttocks just like a flamingo.



Flamingo Balance Test

- Remain in this position for 60 seconds.
- The recorder shall start the stop watch when the participant acquires the flamingo position.
- The recorder will pause the stopwatch each time the participant loses balance (either by falling off the beam or letting goes of the foot being held) and resumes over until participant lose balance.
- Record the number of falls in 60 seconds of balancing.

Scoring: The total number of falls or loss of balance in 60 seconds of balancing is recorded as a score for flamingo balance test. If there are more than 15 falls in the first 30 seconds, the test is terminated.

Q. 5. How do you measure the co-ordination of primary school children? Explain the procedure of the Test in detail?

Ans: Plate Tapping Test

Objective: Plate Tapping Test is used to measure the speed and coordination of upper limb movement among primary school children.

Equipment Required: Table (adjustable height), 2 Yellow Discs (20cm diameter), Rectangle (30 x 20cm) and stopwatch.



Plate Tapping Test

Test Administration: The test will be performed as follows:

- The yellow discs are placed with their centers 60 cm apart on the table.
- The rectangle is placed equidistant between both discs.
- The Participant shall stand comfortably in front of the discs.
- The non-preferred hand shall be placed on the rectangle.
- On the command 'Go' the participant shall start tapping the yellow discs one after another by moving the preferred hand back and forth between the discs over the hand in the middle as quickly as possible.
- This action is repeated for 25 full cycles (50 taps).

Scoring: The time taken to complete 25 cycles is recorded in seconds.

Long Question Answer (5 Marks) (150-200 Words)

Q.1. Enlist motor fitness test and explain the process of any Two test.

Ans. Motor fitness test

1. 50 M Speed Test
2. 600 M Run/Walk Test
3. Sit and Reach Test
4. Abdominal Partial Curl Up
5. Push Ups (Boys)
6. Modified Push Ups (Girls)

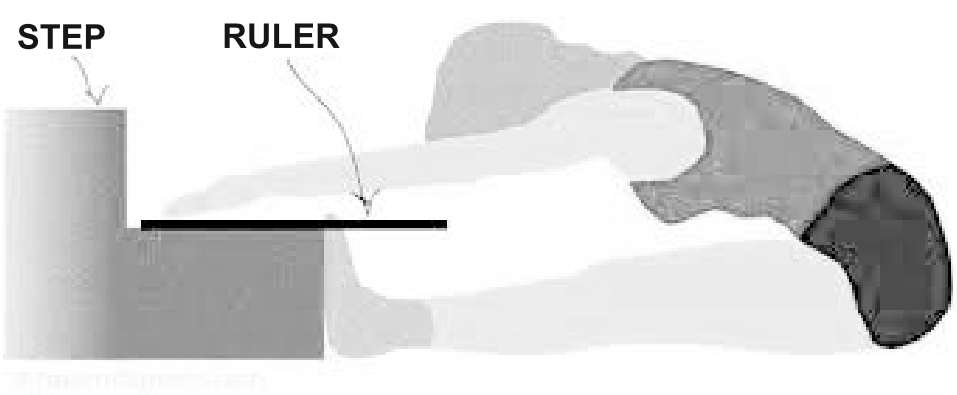
1. Sit and Reach Test

Objective: To measure the flexibility

Material Required: Sit and Reach Box with Measuring Scale, Pen and Paper for Maintain Record/Score.

Procedure:

- Student sits on the floor keeping his legs straight
- The soles of the feet are placed flat against the box
- Hands on top of each other, student reaches forward along the measuring line as far as possible, knees should be straight
- Student reaches out and holds that position for one to two seconds while the distance is recorded



Total Numbers of Trials: 3

Scoring: Best of three trials, record the distance. The score is recorded to the nearest centimeter or half inch as the distance reached by the hand (finger tips).

2. Partial Curl Up

Objective: To measure the abdominal strength

Material Required: Yoga/Exercise Mat, Flat and Clear Surface, Stopwatch, Pen and Paper for Maintain Record/ Score

Procedure: The starting position is lying on the back with the knees flexed and feet 12 inches from the buttocks. The feet cannot be held or rest against an object. Hands straight on the sides (Palms facing downwards). The subject raises the trunk in a smooth motion, keeping the arms in position, curling up the desired amount (at least 6 inches along/above the ground towards the parallel strip).



Scoring: Record the total number of complete and corrected partial curl - ups in a certain time period 30 seconds.

Practice Questions

Short Answer Questions (2 Marks) (40-60 Words)

Q.1. Enlist the SAI Khelo India Fitness Tests for Primary Classes and explain the purpose of any one Test? (1+1)

Q.2. Name any four tests for Age Group 9-18 yrs in SAI Khelo India Fitness Tests? (½ x 4)

Short Answer Questions (3 Marks) (80-100 Words)

Q.1. Explain procedure of any two tests of SAI Khelo India Fitness Tests? (1½ + 1½)

Q.2. Which test is used for speed and coordination? Explain in detail? (3)

Q.3. Explain procedure of push - ups (for boys) and modified push ups (for girls)? (1½ + 1½)

Long question (5 Marks)

Q.1. Explain in detail the procedure of any two test in SAI Khelo India fitness test? (2½ + 2½)

Q.2. Explain in detail the procedure and scoring of Abdominal Partial Curl Up Test and sit and Reach test. (2½ + 2½)

Practice Questions

Q1. Sports department of your school is conducting fitness tests for all the students of the school. As studies in chapter test and measurement in sports answer the following questions.

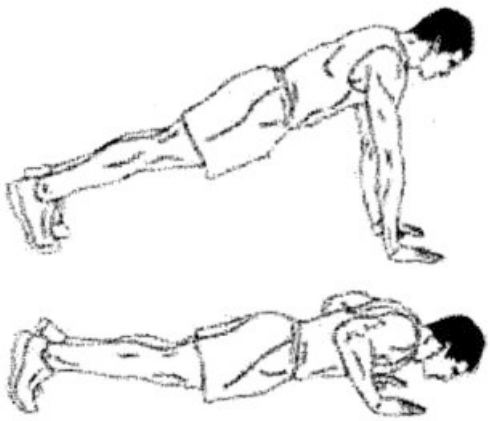
(i) Name the test items for class 1-3. _____

(ii) Name the test items for classes 4-12. _____

(iii) Which tests are common in both the categories 1 -3 & 4-12?

_____

Q2. Students of class XI were gathered on the playground during their games period and were informed that a fitness test will be conducted for them. Students had some questions related to the test items.



(i) what is the purpose of conducting Push-ups?

(ii) Which test will be conducted for speed?

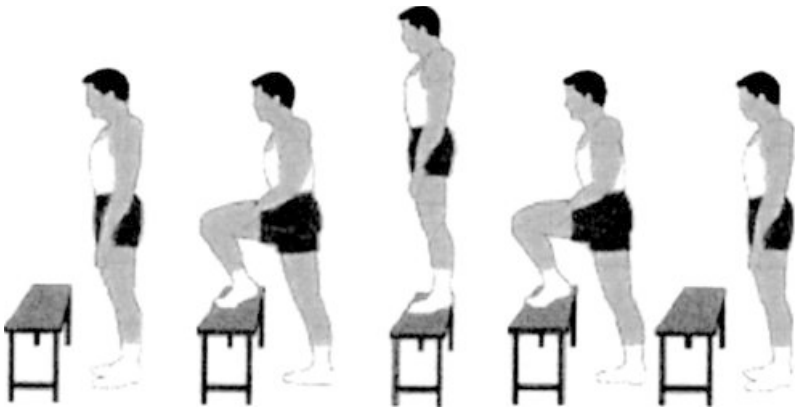
(iii) What is the time duration for performing Partial curl ups?

6.2 Measurement of Cardio Vascular Fitness: Harvard step Test

Cardio-vascular Fitness. Cardio-vascular 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.

Harvard Step Test

It is a cardiovascular fitness test. It is also called aerobic fitness test. It is used to measure the cardiovascular fitness or aerobic fitness by checking the recovery rate.



Harvard Step Test

The Harvard step test is a test of aerobic fitness, developed by Brouha et al. (1943)

Objective: To monitor the development of the athlete's cardiovascular system.

Required Resources : Bench with 45 cm height, Stopwatch, Assistant (Tester)

How to conduct the test?

This test requires the athlete to step up and down off a 20 inch (boy) 16 inch (girls) high gym bench for 5 minutes at a rate 30 steps/minute.

- The athlete warms 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), & 30 steps per minutes.
- The assistant stops the test after 5 minutes.
- The assistant measures the athlete's pulse rate after one minute finishing the test for 30 seconds (pulse 1 to 1.5 min)

Calculating of Fitness Index

$$\textbf{Fitness Index (F.I.)} = \frac{\text{Duration of exercise in Seconds} \times 100}{5.5 \times \text{pulse counts of 1-1.5 Min after exercise}}$$

Multiple Choice Questions MCQ (1 Marks)

Q1. In which year Harvard step test came into existence

(A) 1942 (B) 1943

(C) 1944 (D) 1941

Q.2. In Harvard step test, how much rest is given to the subject before taking pulse count (1 to 1.5 min)

(A) **1 min** (B) 1.5

(C) 30 sec (D) 2 min

Q.3 Gives below are the two statements labelled Assertion (A) & Reason (R)

Assertion (A): Harvard step test is a cardiovascular fitness test.

Reason (R): It measure cardiovascular fitness index only for female subject.

In the context of above two statement, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) Both (A) and (R) are true but (R) is not correct explanation of (A)

(C) (A) is true, but (R) is false

(D) (A) is false, but (R) is true

Short Answer Questions (3 words)

Q.1 What do you understand by cardiovascular fitness? How to calculate the fitness index of an individual.

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.

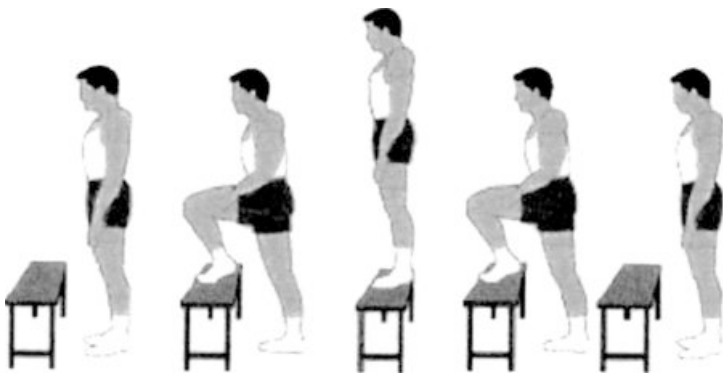
Calculating Fitness index

$$\textbf{Fitness Index (F.I.)} = \frac{\text{Duration of exercise in seconds} \times 100}{5.5 \times \text{Pulse Counts of 1 to 1.5 Min after exercise}}$$

Long Answer Questions (5 Marks)

Q.1. Explain Harvard Step Test in Details.

Ans. It is a cardiovascular fitness test. It is also called aerobic fitness test. It is used to measure the cardiovascular fitness or aerobic fitness by checking the recovery rate.



The Harvard step test is a test of aerobic fitness, developed by Brouha et al. (1943).

Objective: To monitor the development of the athlete's cardiovascular system.

Required Resources : Bench with 20 inch for boys, 16 inch for girls height, Stopwatch, Assistant (Tester)

How to conduct the test?

This test requires the athlete to step up and down off a 45 cm high bench for 5 minutes at a rate of 30 steps per minute.

- The athlete warms 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 bench once every two seconds for five minutes (150 steps)
- The assistant stops the test after 5 minutes.
- The assistant measures the athlete's pulse rate after one minute finishing the test for 30 seconds (pulse count 1 to 1.5 min)

Calculating Fitness Index

$$\textbf{Fitness Index (F.I.)} = \frac{\text{Duration of exercise in Seconds} \times 100}{5.5 \times \text{pulse counts of 1 to 1.5 Min after exercise}}$$

Example : A student completed his harvard step test of 5 minutes and his pulse count of 1 to 1.5 minute is 50. Calculate his fitness index.

$$\text{Fitness Index} = \frac{300 \times 100}{5.5 \times 50} = 109.09$$

Practice Question

Short Question (2 Marks)

Q.1. Which test is used for measuring cardiovascular fitness and aerobic endurance? (2)

Q.2. Explain the procedure of Harvard step test for girts _____

Short Question (3 marks)

Q.1. Explain computations of fitness index with example.

Long Question (5 marks)

Q.1. What do you understand by cardio-vascular fitness? Explain Harvard step test in detail (2 + 3 = 5)

6.3 Basal Metabolic Rate (BMR): Basal Metabolic Rate (BMR) is the number of calories needed to perform the most basic functions of our body such as breathing, circulation, respiration etc. It is the minimum number of calories our body burns at rest.

There are many factors that affects BMR which includes: Age, Gender, Body Composition, Climate etc.

Computing Basal Metabolic Rate (BMR): The commonly used method to measure the Basal Metabolic Rate is Mifflin-St Jeor equation (1990) which is as follows:

For Men

BMR = (10x Weight in kg) + (6.25 x Height in cms)-
(5 x Age in years) + 5

For Women

BMR = (10x Weight in kg) + (6.25 x Height in cms)-
(5 x Age in years) - 161

Multiple Choice Questions (1 Marks)

Q.1. B.M.R. Stands for?

(a) Body Metabolic Rate (b) Body Mass Rate
(c) Basal Metabolic Rate (d) Basal Metabolic Rest

Very Short Answers (2 Marks)

Q.1. What do you understand by the term B.M.R.?

Ans. BMR is the number of calories burnt by the body to perform the basic life functions. A person at rest still requires energy for the functioning of all the internal organs, this energy is called as Basal Metabolic Rate.

Q.2. Enlist any four factors affecting B.M.R.?

Ans. I. Age
ii. Gender

iii. Body Composition
iv. Environment/ Climate
v. State of mind

Short Answer (3 Marks)

Q.1. Calculate the B.M.R. of a 15-year girl weighing 40 kg and 140 cms tall?

Age = 15 yrs,
Weight = 40 Kg
Height = 140 cms
Gender = Female (Women)

The Mifflin-St Jeo BMR Equation (1990) for women is as follows:

BMR = (10 x Weight in kg) + (6.25 x Height in cms) - (5 x Age in years) - 161
= (10 x 40) + (6.25 x 140) - (5 x 15) - 161
= (400) +(875) - (75) - 161
= 1275 - 236 = **1039 Kcal.**

Q2. Calculate the B.M.R. of a 17-year boy weighing 50 kg and 160 cms tall?

Age 17 Yrs,
Weight 50 Kg
Height 160cms
Gender M

The Mifflin-St Jeor BMR Equation (1990) for men is as follows:

BMR = (10 x Weight in kg) + (6.25 x Height in cms) -
= (5 x Age in years) + 5
= (10 x 50) + (6.25 x 160) - (5x 17) +5
= (500) + (1000) - (85) + 5 = 1505 - 85 = **1420 Kcal**

Practice Questions

Q1. A lady who is 30 years old has 80Kg body weight an 170 cms tall. Calculate her BMR?

Q2. Calculate the BMR of a 20 year old boy who has a weight of 65 Kg and is 165 cms tall?

6.4 Rikli and Jones (Senior Citizen Test)

Rikli and Jones developed the senior citizen fitness test in 2001. This test has proved to be beneficial for measuring fitness of senior citizens.

S. N	Test Items	Purpose/ Measure
1	Chair Stand Test	Lower Body Strength
2	Arm Curl Test	Upper Body Strength
3	Chair Sit & Reach Test	Lower Body Flexible
4	Back Scratch Test	Upper Body Flexible
5	Eight Foot Up & Go Test	Agility & Balance
6	Six Minute Walk Test	Aerobic Endurance

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following

1. Arm curl test	A. lower back flexibility
2. Back scratch test	B. upper body strength
3. Six minute walk test	D. cardio-vascular endurance
4. Chair sit and Reach test	C. upper body flexibility

(B) **1B, 2D, 3C, 4A** (A) 1C, 2B, 3D, 4A

(C) 1D, 2C, 3A, 4B (D) 1B, 2C, 3A, 4B

Q.2. Rikli and Jones senior citizen test was developed in

(A) 1990 (B) 2000

(C) **2001** (D) 2002

Q.3. What is the height of chair in chair stand test of senior citizen?

(A) 40 cm (B) 42 cm

(C) **44 cm** (D) 45 cm

Q.4. Rikli and Jones test is done for

(A) Children (B) Adult

(C) Men (D) **Senior Citizen**

Q.5. Six minute walk test measures

(A) **Endurance** (B) Flexibility

(C) Strength (D) Agility

Q.6. Which of the following is assessed by eight foot up and go test ?

(A) Endurance (B) Flexibility

(C) Strength (D) **Agility**

Q.7 Gives below are the two statements labelled Assertion & Reason (R)

Assertion (A) : Rikli and Jones develop the senior citizen fitness test in 2002.

Reason (R) : The senior citizen test is to measure the fitness abilities of senior citizen only.

In the context of above two statement, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) Both (A) and (R) are true but (R) is not correct explanation of (A).

(C) (A) is true, but (R) is false

(D) **(A) is false but (R) is true**

Short Question Answer (3 Marks)

Q.1. 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 daily lifestyle tasks 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. Palms should touch to body and the fingers should be downwards. Then bring 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.

Scoring:- 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).

Note : Practice two times and then test.

Q.2. 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 to perform various daily tasks such as climbing stairs, getting in and out of vehicle, bathtub or chair.

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

Instructions for Participants:-

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

Procedure : 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, at the start signal the participant stands up completely then back down. This is repeated for 30 seconds.



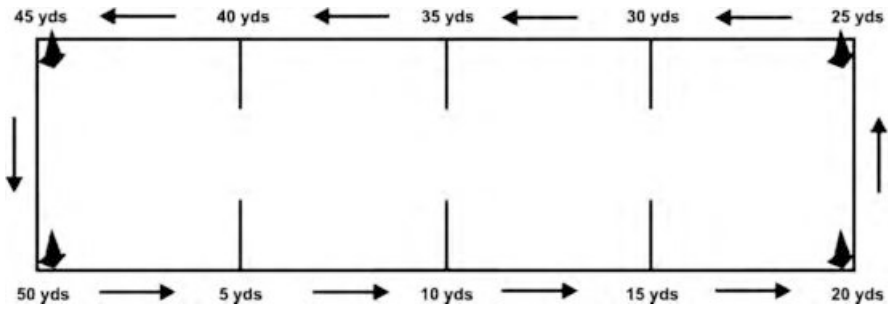
Scoring: Count the total number of complete chair stands. In case the participation has completed a full stand from the sitting position when the time is finished the final stand is counted in the total.

Q.3. Write the test which measure the aerobic fitness of senior citizen.

Ans. **Six Minute Walk Test**

Purpose: This test measure aerobic fitness of senior citizen.

Equipment Required: Measuring tape to mark out the track distances, stopwatch, cone.



Procedure:

- Participant will start walking after the command "Go" and continuosly walk on the track for 6 minutes.
- He/she has to cover maximum clistance in 6 minutes but without running.

Scoring:- Maximum distance coverd in 6 minutes.

Q.4. Discuss the test item of Rikli & Jone's to measure the upper body strength.

Ans. Arm Curl Test used is to measure the upper body strength of senior citizen

Equipment Required : Dumbells for men-8 pound, for women-5 pound
stopwatch, a straight-back chair with no arms.

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



Procedure :

- Test assistant will tell to begin the arm curl and will time for 30 seconds, using the stopwatch.
- Do as many curls as you 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 total number of arm curls performed in 30 seconds.

Q.5. Which test is used to measure the speed and agility of senior citizen? Write in detail.

Ans. **Eight Foot up and Go Test:**

This test is used for measuring the speed and agility of senior citizens.

Purpose : To assess speed, agility and balance while moving. These are important in performing various daily tasks 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 place cone, 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.



Number of Trials: 2

Scoring:- Time taken in seconds between command “Go” and return to the chair will be recorded.
(Best attempt of the two)

Q.6. Discuss chair sit and reach test in briefly.

Ans. **Chair sit and reach test**

This test is used to measure lower body flexibility. 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 two seconds.

Number of trials: 2

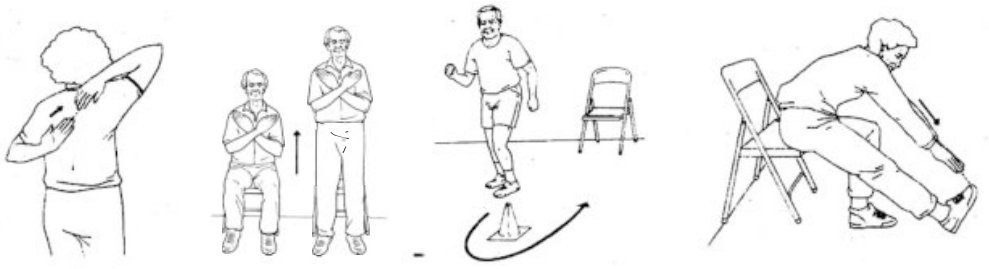
Scoring: The distance is measured between the tip of the fingertips and the toes. If the fingertips touch the toes then the score is zero. If they do not touch, measure the distance between the fingers and the toes (a negative score). If they overlap, measure by how much (a positive score).

Practice Question

Short Question (2 Marks)

Q.1. Explain the Procedure of the test which is used to measure aerobic endurance of senior citizen. (2)

Q.2. Identify the below given pictures and write the name of the test. (½ x 4 = 2)



(i)..... (ii)..... (iii)..... (iv).....

Short Question (3 Marks)

Q.1. Explain the procedure of test which is used to measure flexibility of senior citizen. (3)

Q.2. Explain Rikli and Jones test for upper body strength. (3)

Q.3. Your grandfather thinks the flexibility of his body has decreased. What test would you suggest him explain. (3)

Long Question (5 Marks)

Q.1. What is the fitness test for senior citizens and why is it necessary? **(2½ + 2½)**

Q.2. Explain Rikli and Jones test in details? **(5)**

Q.3. In your school a camp is set-up to analyses the fitness of senior citizen of your society and the management decides that they will conduct Rikli and Jones's senior citizen test. You are selected as a volunteer to measure the upper body strength. Write the name which test you would conduct to measure the upper body strength and also explain in detail the procedure of this administration along with scoring system. **(5)**

Practice Question

Q.1. Match the following

1. 600 M Run/Walk	A. Agility
2. 8 foot up to go	B. Rikli and Jones Test
3. Partial curl up test	C. Endurance
4. Six minute walk test	D. Abdominal strength Test

(A) 1D, 2C, 3B, 1A **(B) 1C, 2A, 3D, 4B (B)**

(C) 1A, 2D, 3D, 4C (D) 1D, 2B, 3A, 4C

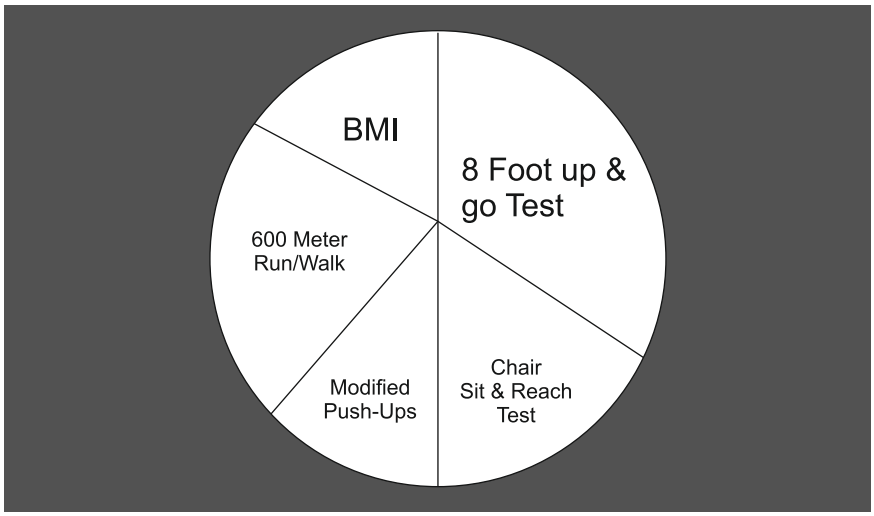
Q.2. Match the following

I. Chair stand test.	1. Lower Body strength
II. Arm curl test.	2. Body Composition
III. Back scratch test.	3. Upper body strength
IV. Body mass Index	4. Upper body flexibility

a) I-1, II-3, III-4, IV-2 a) I-2, II-3, III-1, IV-4

C) I-1, II-3, III-4, IV-4 d) I-2, II-3, III-4, IV-1

Q.3. Below given the different test items: **(1 x 3 = 3)**



On the basis of the data, answer the following question:

(i) which test items in used to measure aerobic endurance?

(A) 8 Foot up & go Test (B) Chair Sit & Reach Test

(C) **600 Meter Run/Walk** (D) BMI

(ii) which test items in used to measure Body Composition?

(A) **BMI** (B) Chair Sit & Reach Test

(C) 600 Meter Run/Walk (D) 8 Foot up & go Test

(iii) which test items is a part of Rikli and Jones Test?

(A) Push-up (B) **Chair Sit & Reach Test**

(C) 600 Meter Run/Walk (D) BMI

Q.4. Explain BMR with example. **(1+2)**

Long Question (5 Marks)

Q.1. What is the fitness test for senior citizens and why is it necessary? (2½ + 2½)

Q.2. Explain Rikli and Jones test in details? (5)

Practice Question

Q.1. Explain the test used to measure balance among children during exercise? (3)

Q.2. Differentiate between Push up test and Modified PushUps fitness test? ($_1$½ + $_1$½ = 3)

Q.3. Name and explain the procedure of the test used to measure the Aerobic Endurance (1 + 2 = 3)

Q.4. Explain in details chair sit and reach test and sit and reach test? (2½ + 2½ = 5)

6.5 Johnson-Metheny Test of Motor Educability

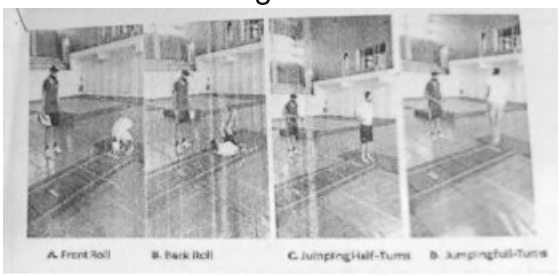
Johnson-Metheny Test battery is revised version of Johnson Educability Test which was designed in 1932. The purpose of the Johnson battery was to measure neuromuscular skill capacity which have ten items. In 1938 Methney studied the test and eliminated six items. The test battery consist of four motor stunts are given below:

(i) Front Roll

(ii) Back Roll

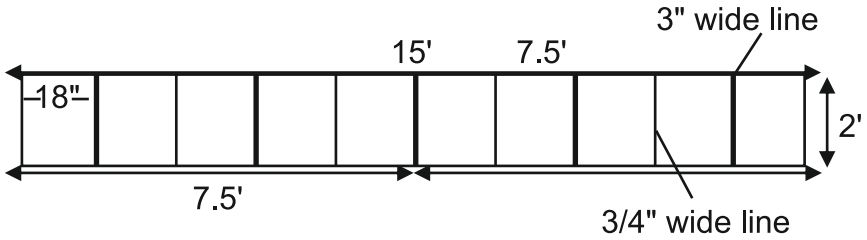
(iii) Jumping Half-Turns

(iv) Jumping Full-Turns



Note: All Four stunts are to be performed by the boys and only first three stunts for girls.

Test Area: Mat area length is 15 feet and it is 2 feet wide. The 15 feet length divided in to ten sections for 18" each. The width of transverse line is 3/4" and 3" alternatively. Centre of lines remains 18" apart. Another 3/4" wide line is marked lengthwise in the middle of the mat area.



Procedure:

1. **Front Roll:** Ignoring the long middle dividing line, the subject is asked to start outside the marked area and perform two front rolls, one up to 7.5" i.e. 3" wide centre line and the second in the other half of 7.5'. The subject is to perform the rolls without touching the limits or over reaching the zones mentioned above.

Scoring: Each correct roll gets 5 points, hence maximum of 10 points. Two points are deducted for over-reaching side line, right or left for each roll; one point is deducted for over reaching the end limit on each roll and full five points are deducted when the subject fails to perform a true front roll.

2. **Back Roll:** The test is similar to front roll both in performing and scoring. The subject is to start outside the marked chart area and is to perform two back rolls in the 2 feet lane area, one up to first half and the second back roll in the second half.

3. **Jumping Half Turns:** The subject is asked to start with feet on first 3" line, jump with both feet to second 3" wide line, executing a half turn either right or left; jump to third 3" line executing half turn in opposite direction to first half-turn and then to 4th and 5th 3" wide lines executing half turns, right or left alternatively.

   Scoring: Perfect execution of four jumps is worth ten points. Only 2 points are deducted for each wrong jump when the subject either does not land with both feet on the 3" line or turns the wrong way or both.

4. **Jumping Full Turns:** The subject is asked to start with the feet outside the marked area at about the centre of the lane. He is required to jump with feet together to second rectangular space, executing a full turn with the body either right or left; continue jumping to alternate rectangular spaces across the marked mat executing full turns, rotating body in the same direction, landing on both feet every time.

   Scoring: Perfect execution of five jumps is worth ten points. Two points are deducted, if the subject fails to keep balance on landing on both feet; turns too far or oversteps the squares.

Multiple Choice Questions MCQ (1 Marks)

Q1. Johnson- Metheny Test battery has _____ Items.

(A) 6 (B) 5

(C) 4 (D) 10

Q2. Johnson-Metheny Test battery does not consist of _____ motor stunts

(A) Front Roll (B) Back Roll

(C) Side Roll (D) Jumping Full- Turns

Short Answer Questions (3 Marks) (80-100 Words)

Q1. Explain the procedure of Jumping Half-Turns and Jumping Full- Turns in Johnson - Methney battery.

Q2. How can test motor educability?

UNIT - 7

Physiology & Injuries in Sports

UNIT - 7

Physiology & Injuries in Sports

Key Points :-

7.1. Physiological factors determining components of Physical Fitness

7.2. Effect of exercise on Muscular System

7.3. Effect of exercise on Cardio-Respiratory System.

7.4. Physiological changes due to ageing

7.5. Sports injuries: Classification

(Soft Tissue Injuries - Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green Stick, Comminuted, Transverse, Oblique & Impacted)

7.1. Physiological Factors Determining Components of Physical Fitness.

1. Strength

- Size of Muscle
- Morphology of Muscle
- Body Weight
- Intensity of Nerve Impulse (Force of Contraction of Motor Uint)
- Hypertrophy

2. Flexibility

- Age
- Gender
- Internal Environment
- Previous Injury
- Elasticity of Muscles
- Lifestyle (Active or Inactive)

3. Endurance

- Aerobic Capacity
- Lactic Acid Tolerance
- Movement Economic
- Muscle Composition **(Slow-Twitch (Type I)** Muscle Fibers)

4. Speed

- Muscular Strength
- Flexibility
- Explosive Power
- Mobility of Nervous System
- Muscle Composition **(Fast-Twitch (Type II)** Muscles Fiber

Multiple Choice Questions MCQ **(1 Marks)**

Q.1. Which physiological factor is specifically needed for Speed?

(A) Body Weight (B) Slow-Twitch Muscle Fibers

(C) Aerobics Capacity (D) **Fast-Twitch Muscle Fibers**

Q.2. Flexibility is not determined by which physiological factor?

(A) Muscle Strength (B) Age & Gender

(C) Injury (D) **Aerobic Capacity**

Q.3. Endurance is determined by which physiological factor?

(A) **Aerobic Capacity** (B) Flexibility

(C) Age, Gender (D) Injuries

Q.4. Strength is determined by which physiological factor?

(A) **Body Weight** (B) Muscle Coordination

(C) Joints (D) Muscle Stretching

Q.5. Match the following:

(1). Speed (A). Age & Gender

(2). Strength (B). Slow-Twitch Muscles Fibers

(3). Endurance (C). Muscle Size

(4). Flexibility (D). Fast-Twitch Muscles Fibers

(A). **1D, 2C, 3B, 4A** (B). 1C, 2B, 3A, 4D

(C). 1B, 2D, 3A, 4C (D). 1A, 2B, 3D, 4C

Q.6 Gives below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Hypertrophy of Muscles is one of the important physiological Factor for determining strength.

Reason (R) : Previous injury can affect the components of physical fitness.

In the context of above two statements, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) **Both (A) and (R) are true but (R) is not correct explanation of (A).**

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Short Answer Questions (3 Marks)

Q.1 Discuss the physiological factors, determinig 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 the muscle size can be improved with the help of weight training

2. Body weight: The individuals who are heavier are stronger then the individuals who are lighter for example the heavier weight lifters are heavier than Gymnastic or other games players.

3. **Muscle composition:** The Muscle which have more percentage of fast twitch fibers can produce more force 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 twich fibers is genetically determined and can not be changed through training.

4. **Intensity of the nerve impulse:** Stronger nerve impulse from central nervous system excite more number of motor units, the muscles will contract more strongly or it can said that the muscle will contract more strongly or muscle will produce more force or strength.

Q.2. Discuss the physiological factors, defermining 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 (phosphogen stock)
- Buffer capacity - muscles lactic acid accumlation
- Tolerance of lactic acid
- VO2 max. This is the quantity of oxygen, which active muscles use during exercise in one minute.

Long Answer Type Question (5 Marks)

Q.1 Discuss how physiological factors determining flexbility.

Ans. **1. Muscle strength :-** The muscle should have minimum level of strength to make the movement, especially 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 body environment :- Internal body 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 fibrocin on the effected area. Fibrous tissues are less elastic and can lead to limb shortening and lead to reduce flexibility.

5. Age and gender :- Flexbility 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 loosing extensibility.

7. Heredity :- Bony structures of joints length and flexibilities of the joint capsules and surrounding ligaments are genetic and can be altered by stretching programs.

Q.2. Describe the physiological factor determining the speed .

Ans. 1. **Explosive strength-** For every quick and explosive movement, explosive strength is required. 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 can produce more speed. The muscle composition is genetically determined. We can improve it by specific training methods.

3. **Mobility of nervous system-** Motor and sensory nerves of nervous system can be determined by the mobility of nervous system. By training we can limited extent in the mobility of nervous system because speed is determined to a great extent by genetic factors.

4. **Elasticity and Relaxing 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 ATP-PC system. The percentage of power and quantity in ATP and PC can be increased through training.

Practice Question

Short Question (2 Marks)

Q.1. List down the physiological factors that affect flexibility and strength. (1 + 1 = 2)

Q.2. Explain the physiological factors affecting flexibility. (2)

Short Question (3 Marks)

Q.1. List down the physiological factors that affect endurance. Explain any two. (1 + 2 = 3)

Q.2. Explain the physiological factors affecting flexibility (3)

Long Question (5 Marks)

Q.1. What are the component of physical fitness? Explain one in details with example. (1 + 4 = 5)

Q.2. Discuss what factors influence the speed of a person. (5)

7.2 Effects of Exercise on Muscular System.

Muscles are specialized tissue. which enables the body and its part to move and give shape to the body.

Effects of Exercise:-

- Increase Temperature of Muscle
- Delay in Muscles Fatigue
- Increase Blood Flow
- Hypertrophy of Muscles
- Good Shape & Size of Muscles
- Increase Muscle Mass
- Reduction of Excess Fat
- Maintain Good & Correct Body Posture
- Increase Nutrients Storage in Muscle
- Improve coordination, Power, Balance, Speed, Agility, Reaction Time, Flexibility and Endurance of Muscles.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Which of the following is a function of muscles?

(A) Oxygen intake (B) Oxygen Transport

(C) **Structure and support** (D) Blood flow

Q.2. Exercise not leads to

(A) Increase in size of muscles

(B) Better reaction time

(C) Increased muscle speed

(D) **Minute volume Decreases**

Q.3. Gives below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Exercise helps to maintain good shape and size of muscle.

Reason (R) : There are numerous benefits of regular exercise one of them is to increases the working efficiency of muscles.

In the context of above two statements, which one of the following is correct?

(A) **Both (A) and (R) are true and (R) is correct explanation of (A)**.

(B) Both (A) and (R) are true but (R) is not correct explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Short Answer Questions (3 Marks)

Q.4. Differentiate between Red fibres and White fibres.

Ans.

Slow Twitch Fibers (Red Fibers)	Fast Twitch Fibers (White Fibers)
The red fibers of muscles are mainly responsible for the endurance activities.	The white fibers of muscles are mainly responsible for the strength and speed activities.
The red fibers are produced energy by the nutrients in the presence of oxygen only	The white fibers are produced energy by the nutrients without the presence of oxygen only.

Long Answer Question (5 Marks)

Q.5. List the effects of exercise on muscular system and explian four in detail. (1+4=5)

Ans.

- Increase in shape of muscles
- Activation of inactive capillaries
- Muscles Remain in tone Position
- Increase in activeness of fibres
- Correct body posture
- Improves Reaction time
- Reduction in extra fat
- Increase in strength of connective tissues
- Efficiency in muscle movements
- Delay fatigue
- Enhances body figure
- Excercise prevents diseases

- **Muscle Hypertrophy-** Due to regular exercise a good growth in size of muscles.
- **Control Extra fat-** Regular exercise controls the extra fat of body. Exercise burns the extra calories.
- **Delay fatigue-** Regular exercise delay fatigue. This fatigue is mainly due to formation of carbon dioxide, lactic acid and acid phasphate.
- **Posture-** Regular exercise helps in improvement of body posture from various postural deformities by strengthening the muscles.
- **Strength and speed-** Regular exercise improve fitness components like Coordination, Power, Balance, Speed, Agility, Reaction Time, Flexibility and Endurance of Muscles.

Practice Question

Short Question (2 Marks) **(40 to 60 words)**

Q.1. Enlist four effects of exercise on muscular system. (2)

Short Question (3 Marks) **(80 to 100 words)**

Q.2. Explain any three effects of exercise on muscular system. (3)

Long Question (5 Marks) **(150 to 200 words)**

Q.3. Explain in detail the effects of exercise on muscular system.

(1x5=5)

7.3 Effect of exercise on cardio Respiratory system.

- Decrease in Resting heat Rate
- Increase the Efficiency of Heart and Lungs
- Increase the heart size and weight-
- Increase Cardiac Output and Stroke Volume
- Increase the Active Number of Capillaries
- Increase Good Cholesterol Level (HDL-High Density Lipoprotein
- Fast Recovery Period
- Delay Fatigue
- Increase Blood Flow in the Body
- Increase Tidal Volume
- Decrease in Rate of Respiration
- Strengthens Diaphragm Muscle
- Delay in Second Wind
- Prevention form Diseases
- Increase in Endurance
- Passive Alveoli Become Active
- Increase in Size of Lungs and Chest
- Increase in Vital capacity.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Cardiac output is.....

(A) **Blood pumped by heart per minute**

(B) Blood pumped per heart bead

(C) Blood pumped per minute during intense exercise

(D) Blood pumped per hour.

Q.2. Taking in oxygen from the atmosphere into the body is known as .....

(A) Exhalation (B) **Inhalation**

(C) Stroke value (D) Aerobic capacity

Q.3. Inhale of oxygen and exhale of carbon dioxide is called

(A) Circulation (B) Vital capacity

(C) **Respiration** (D) Aerobic capacity

Q.4. Gives below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Aerobic exercise play a vital role to enhance the efficiency of cardio respiratory functioning.

Reason (R) : Increase the level of LDL and decrease the level of HDL due to regular exercise.

In the context of above two statements, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) Both (A) and (R) are true but (R) is not correct explanation of (A).

(C) **(A) is true, but (R) is false**.

(D) (A) is false, but (R) is true.

Long Question Answer (5 Marks)

Q.1. Explain the five effect of exercise on the cardio-respiratory system.

Ans. Increase in heart rate :- When an individual starts exercise, his heart rate increases as per the intensity and duration of exercise.

Increase in stroke volume :- Stroke volume increases proportionally with exercise intensity. It is measured in ml/beat.

Increase in cardiac output :- Cardiac output increases proportionally with the intensity of exercise,it is measured in liter/ minute.

Increases in blood flow :- Cardio-vascular can distribute more blood to those tissues which have more demand of oxygen and nutrients.

Increase in blood pressure :- During the exercise, systolic blood pressure increases while diastolic blood pressure usually remains unchanged even during the intensive exercise.

Increase in vital capacity- It is the amount of air which an individual can inhale and exhale with maximum effort its capacity varies from 3500 cc. Due to exercise its capacity increases upto 5500 cc.

Increase in Residual air volume- Regular exercise increases the capacity of residual volume from normal capacity.

Passive Alveolus become Active- Regular exercise activates the unused alveolus because more oxygen is required in prolonged exercise of daily routine.

Increase Endurance - If exercises is performed regularly and for a longer period, it increases endurance. Any activity can be done for a longer period without taking any rest.

Practice Question

Short Answer Question **(2 Marks) (40 to 60 words)**

Q.1. Enlist the effects of exercise on the respiratory system. (2)

Q.2. Enlist the effects of exercise on the cardio-vascular system. (2)

Short Answer Question **(3 Marks) (80 to 100 words)**

Q.1. Explain any 3 effects of exercise on the respiratory system with examples. (3)

Q.2. Explain any 3 effects of exercise on the cardiovascular system with examples. (3)

Long Answer Question **(5 Marks) (150 to 200 words)**

Q.1. List down the effects of exercise on cardio-vascular system and explain any four. (1+4=5)

7.4 Physiological changes due to ageing

Ageing, an inevitable and extremely complex multifactorial process, is characterized by the progressive degeneration of organic systems and tissues. It is largely determined by genetics, and influenced by a wide range of environmental factors, such as diet, exercise, exposure to micro-organisms and pollutants.

"Ageing is a gradual and continuous irreversible process that results in structural and functional alternation"

1. Decrease Bone density.
2. Change in the capacity of Respiratory system.
3. Change in nervous system.
4. Decrease in Metabolism rate.
5. Decrease the capacity of Cardio - vascular system.
6. Low capacity of digestive system.
7. Loss in senses.
8. FIexibility decrease.
9. Physical activities slows down,
10. Muscular Strength,
11. Decrease Neural Function,
12. Endocrine Changes with Ageing-Decrease Hormones Secretion.

Multiple Choice Question (I Mark)

1. Men and women usually attain their highest strength levels between the ages of

   (a) 1 and 2 (b) 5 and 7

   (c) 7 and 11 **(d) 20 and 40**

2. It is a measure of the amount of minerals (mostly calcium and phosphorous) contained in a certain volume of bone,

(a) Body composition **(b) Bone Mass**

(c) Pulmonary function (d) Neural function

3. The chemical substances synthesized by specific host glands, secreted into the blood, and carried throughout the body are called_____

(a) hormones (b) sugar

(c) electrolytes (d) capillaries

4. It is a disease in which bone weakening increases the risk of a broken bone

(a) Measles **(b) Osteoporosis**

(c) Bullimia Nervosa (d) Beriberi

5. Decrease in size of a body part, cell, organ, or other tissue is called _____

(a) Myopia **(b) Atrophy**

(c) Hypertrophy (d) Obesity

6. Which of the following are not signs of aging

(a) Decrease in Bone Density

(b) Decrease flexibility

(c) Decrease in muscle size and strength

(d) Increase in flexibility

7. Match the following

1. Change in Nervous system	A. Calcium deficiency
2. Change in cardio - vascular system	B. Slow reaction time
3. Loss in senses	C. Reduction in cardiac output
4. Change in Bone Density	D. Loss of Hearing

(A) 1 B, 2C, 3D, 4A (B) 1A, 2C, 3B, 4D

(C) 1D, 2A, 3B, 4C (D) 1C, 2D, 3A, 4B

Long Question (5 Marks)

Q.1. Elucidate Physiological change due to Ageing?

Ans. Ageing in its broadest sense is the continuous and irreversible decline in the efficiency of various physiological functions. These change are notice able usually after 40's.

Factor's effects on ageing-

1. Heredity
2. Environment - Food
3. Social and Economic condition
4. Exercise

Physiological changes due to Ageing

1. **Muscular system-** Decrease in muscle Mass strength
2. **Change in nervous system -** Loss of sense like hearing, smell power, Capacity of doing work by (CNS) center nervous system also reduced to receive & transmit information.
3. **Digestive system-** Decrease in metabolism of body composition - Reduction in HCL acid, saliva, digestive enzymes and size of 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 muscles - 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 with advancing age - The airways and lung tissues become less elastic - Decrease oxygen uptake, oxygen exchange - Muscles of ribcage become weak

7. **Decrease in physical fitness component** Like :- Strength, speed, flexibility, endurance, co-ordination.

8. **Change in Urinary system-** Mass of the kidneys decreases which results in reduction in the rate of blood filtration. **-I**ncrease in residual urine.

Practice Questions

Q.1. Describe the changes in endocrine system due to ageing.

(0.5 x 4)

Q.2. Describe any three physiological change due to ageing?

(1x3)

Q.3. Explain physiological changes in digestive, respiratory and nervous system due to ageing? (1x3)

Q.4. Explain physiological changes in muscular, circulatory and skeleton system due to ageing? (1x3)

7.5 Sports Injuries:

Sports injuries are those injuries which usually occur to the sports person during training or sports competition.

Sports injuries are the situation of a sports person in which he/she is not able to participate in the sports events with same speed or strength.

Classification of Sports Injuries: Soft Tissue Injuries

- **Abrasion-** rubbing against a rough surface.
- **Contusion-** Blood capillaries ruptured & blood collects with in damaged tissue.
- **Laceration-** The irregular tear like wound caused by blunt trauma.

- **Incision -** Clean cut by sharp object.
- **Sprain-** Tearing of ligaments
- **Strain-** Tearing of tendon

Hard Tissue Injuries: Bone and Joint Injuries

Joint Injuries:

Dislocation- Injury to a joint, displacement of bone from its original place.

Example: Shoulder dislocation, hip dislocation, wrist dislocation, lower jaw dislocation, etc.

Bone Injuries:

Fractures

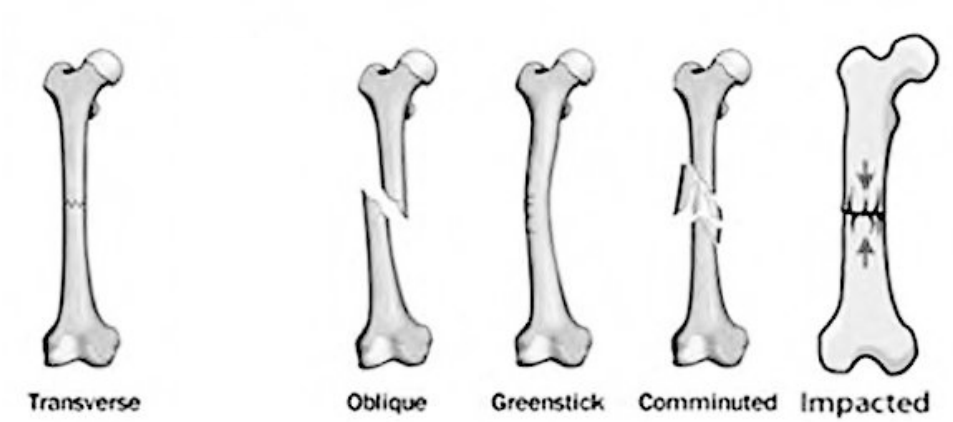
1 **Green Stick Fracture-** Occur most often during infancy and childhood when bones are soft

2 **Commiuted Fracture-** Bone broken into more than two Pieces

3 **Transverse Fracture-** Bone broken into right angle

4 **Oblique Fracture-** Bone broken diagonally

5 **Impacted Fracture-** One bone driven into another bone



(3) (4) (1) (2) (5)

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following

1. Abrasion	A. Joint Injuries
2. Green stick fracture	B. Soft tissue injuries
3. Shoulder Dislocation	C. Cause of sports injuries
4. Lack of fitness	D. Bone injuries

(A) 1D, 2A, 3C, 4B (B) 1B, 2A, 3C, 4D

(C) **1B, 2D, 3A, 4C** (D) 1A, 2D, 3B, 4C

Q.2. An ankle sprain is an example of which type of injury.

(A) Skin (B) Hard tissue

(C) **Soft tissue** (D) Bone

Q.3. Which of the following is not a type of fracture?

(A) Stress fracture (B) Oblique

(C) **Contusion** (D) Communated

Q.4. Gives below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Do Proper warming-up stretching and cooling down to avoid sports injuries.

Reason (R) : Sports injuries are only soft tissue & hard tissue injuries.

In the context of above two statements, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) **Both (A) and (R) are true but (R) is not correct** explanation of (A).

(C) (A) is true, but (R) is false.

(D) (A) is false, but (R) is true.

Short Answer Questions (3 Marks)

Q.1. Define soft tissue injuries in the sports.

Ans. Soft tissue refers to tissues that connect, support or surround other structures and organs of the body i.e. muscles, tendons, ligaments, fascial, nerves, fibrous tissue, blood vessels, etc. soft tissue injuries involve injuries to muscles, ligaments and tendons in the body.

Q.2. What do you mean by dislocation in joints? Explain any two dislocation in the body.

Ans. **Dislocation**

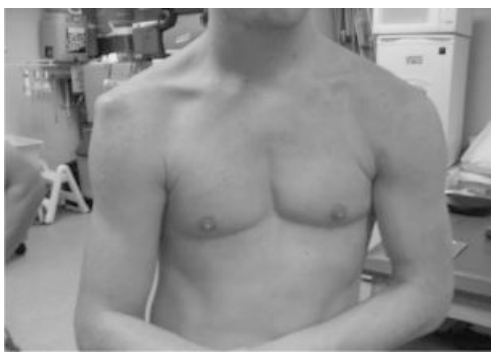
A dislocation is a separation of two bones where they meet at a joint. Joints are areas where two or more bones come together.

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.

   Example: Boxing, MMA etc.

2. **Dislocation of Shoulder Joint :** Dislocation of shoulder joint may occur due to sudden jerk or a fall on hard surface.The head of the humerus comes out from the socket.

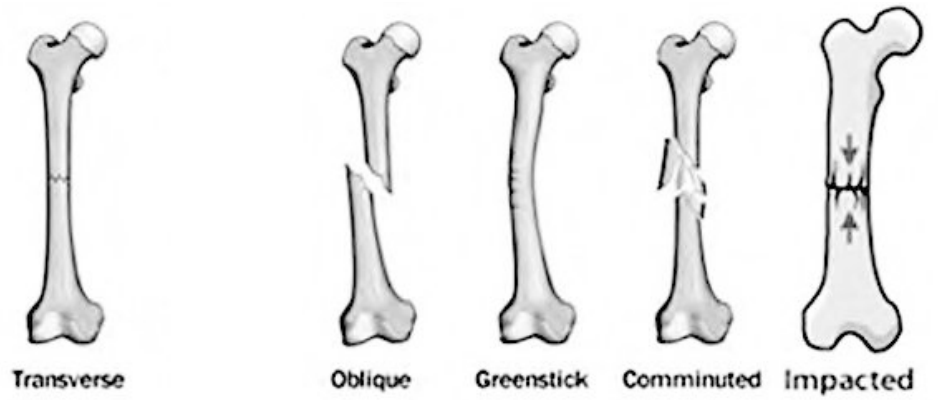
   Example: Judo, Wrestling etc.



Dislocation of Right Shoulder

Q.3. Enumerate the types of fractures. Write briefly about any three type of fracture.

Ans. 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 that occurs when a force is applied diagonally to a bone's long axis.

Impacted fracture: It is loss of continuity in the structure of bones. One bone driven into another bone.

Comminuted Fracture : A fracture in which the bone broken into more than two pieces.

Practice Questions

Very Short Question **(2 Marks)**

Q.1. Enlist the sports injuries.

Q.2. What is the difference between bone and joint injury?

Short Question **(3 Marks)**

Q.1. Describe the Soft tissue injuries?

Q.2. What is the different soft tissue and hard tissue injuries? Explain with example.

Long Question **(5 Marks)**

Q.1. Classify the sports injuries in detail.

Multiple Choice Questions MCQ **(1 Marks)**

Q.1. Match the following

1. Components of physical fitness	A. Incomplete & Bone Bend
2. Effect of exercies on Cardio-respiratory system	B. Flexibilty
3. Effect of exercise on muscular system	C. Increase inendurance
4. Green Stick Fracture	D. Improvement in body shape

(A) **1B, 2C, 3D , 4A** (B) 1C, 2D, 3A, 4B

(C) 1D, 2C, 3B, 4A (D) 1A, 2C, 3B, 4D

Short Questions **(2 Marks)**

Q.2. Identify the type of fracture and write their names.



(i) ..... (ii) ..... (iii) ..... (iv) .....

UNIT - 8

Biomechanics & Sports

UNIT - 8

Biomechanics & Sports

8.1. Newton's Law of Motion & its Application in Sports

8.2. Types of levers and their application in sports

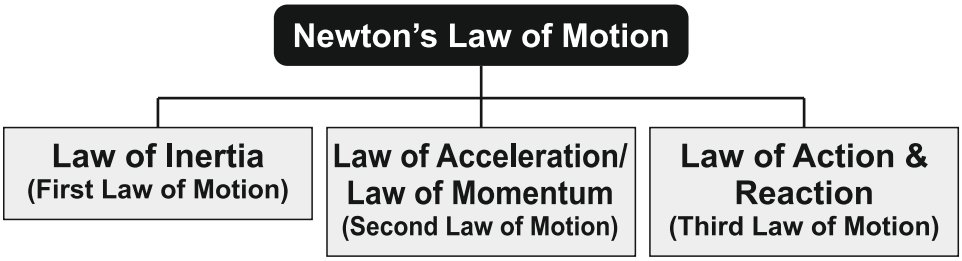
8.3. Equilibrium - Dynamic & Static and Centre of Gravity and its Application in Sports

8.4. Friction & Sports

8.5 Projectile in Sports

8.1. Newton's Law of Motion & its Application in Sports

Sir Issac Newton gave three laws of Motion which we see in our daily life activities. In sports, the application of Newton's Laws of Motion are used to understand the relationship between force and motion.



(a) Law of Inertia: 1st Law of Motion

Any object will remain in its state (in rest or in motion) until or unless an external force is applied on it.

For Ex-



1. A football in the state of rest will remain at rest until or unless a kick (external force) is applied on it.

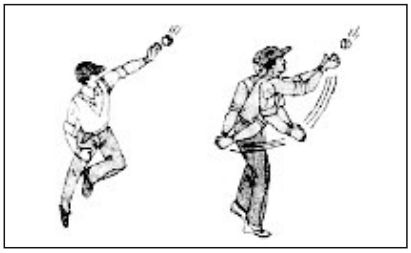
2. A rolling football (in motion) slows down and then stops (change in motion) often due to friction/ gravitation(external forces) between football and ground.

(b) Law of Acceleration/Momentum: 2nd Law of Motion The second law of motion is also known as "Law of Momentum".The rate of change of acceleration is directly proportional to the force applied on the object and inversely proportional to the mass of the object.

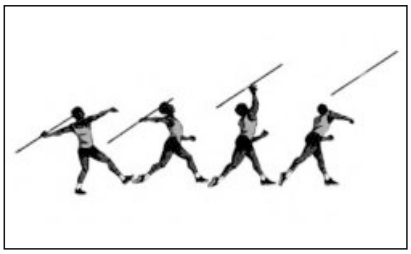
$$\textbf{Acceleration} \propto \frac{\textbf{Force}}{\textbf{Mass}}, \text{ Force = Mass × Acceleration}$$

The net force of an object is equal to the product of its mass For Ex-

1. In cricket, a ball thrown with double force will have higher acceleration as compared to the ball thrown with normal force.

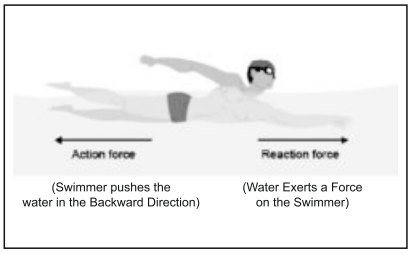


2. A javelin thrower needs more force to throw a javelin of 800gms than to throw a javelin of 600gms.

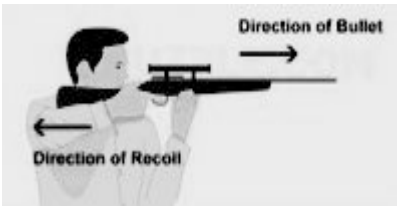


(c) Law of Action & Reaction Law (third law of Motion): For every action, there is an equal and opposite reaction.

For Ex-



1. While swimming, when we push the water backwards (action), our body moves forward (reaction)
2. In shooting, when the bullet is fired, the bullet moves forward (action) while the gun jerks backward (reaction)



3. When we walk, we exert force backward on the ground by pushing the ground by our foot and the same reaction force is exerted by the ground in the forwarding direction and this makes us enable to move.

MCQ | Objective Types Question Answer (1 Marks)

Q.1. Newton's II law is also known as

(a) Law of Action Reaction
(b) Law of Inertia
(c) Law of Acceleration
(d) Law of velocity

Q.2. In the long jump take off which law works

(a) I law of Newton
(b) II law of Newton
(c) III law of Newton
(d) Law of Conservation of Mass.

Q.3. What is the relationship between Acceleration and force?

(a) Directly proportional
(b) No relationship
(c) **Inversely proportional**
(d) Both a & c

Q.4. In equestrian, while riding, the horse and the rider are in motion but when the horse suddenly stops, the lower body of the rider comes to rest while the upper body remains in motion for some time. Which law of motion does this signify?

(a) **I law of Newton**

(b) II law of Newton

(c) III law of Newton

(d) Law of Conservation of Mass.

Q.5. Given below are two statements labelled Assertion (A) and Reason (R)

Assertion (A): There are three newton's law of motion.

Reason (R) : Third law of motion says, for every action, there is an equal and opposite reaction.

In the context of above two statements, which one of the following is correct?

A. Both (A) and (R) are true and (R) is correct explanation of (A).

B. Both (A) and (R) are true and (R) is not correct explanation of (A).

C. (A) is true and (R) is false.

D. (A) is false and (R) is true.

Short Answer Questions (3 Marks) (80-100 Words)

Q.1. Explain Newton's Second law of motion with suitable examples in games and sports.

- **Law of Acceleration/ Momentum: 2nd Law of Motion**

  The second law of motion is also known as "Law of Momentum".

  The rate of change of acceleration is directly proportional to the force applied on the object and inversely proportional to the mass of the object.

$$\text{Acceleration} \propto \frac{\text{Force}}{\text{Mass}} = \text{Force} = \text{Mass} \times \text{acceleration}$$

The net force of an object is equal to the product of its mass & acceleration For Ex-

1. In cricket, a ball thrown with double force will have higher acceleration as compared to the ball thrown with normal force.
2. A javelin thrower needs more force to throw a javelin of 800gms than to throw a javelin of 600gms.

Long Answer Question (5 Marks)

Q.1 With suitable examples explain the application of Newton's law in sports.

- **1st Law of Motion:** Law of Inertia- Any object will remain in its state (in rest or in motion) until or unless an external force is applied on it.

  Ex- A football in the state of rest will remain at rest until or unless a kick is applied on it.

- **2nd Law of Motion:** Law of Acceleration' Momentum-The rate of change of acceleration is directly proportional to the force applied on the object and inversely proportional to the mass of the object.

  Ex- A javelin thrower needs more force to throw a javelin of 800gms than to throw a javelin of 600gms.

- **3rd Law of Motion: Law of Action & Reaction-** For every action, there is an equal and opposite reaction.

  Ex- While swimming, when we push the water backwards, our body moves forward.

Practice Questions (3 Marks) (80-100 Words)

Q.1. Explain the first law of motion with suitable example. (1+2)

Q.2. Explain the second law of motion with suitable example. (1+2)

Q.3. Explain all three laws of motion. (1+1+1)

Q.4. To accelerate any object, what conditions shall be followed according to the newton's second law of motion. Explain with suitable examples. (2+1)

Practice Questions (5 Marks) (150-200 Words)

Q.1. State the three laws of motion with their applications in games and sports. (3+2)

Q.2. Explain how newtons laws of motion helps to enhance the sports performance. (5)

8.2 Types of Levers and their application in Sports

- Lever is a rigid bar in nature used to overcome resistance when force is applied.
- It is a mechanical device.
- It consists a fulcrum, a resistance arm & a force arm.

Fulcrum

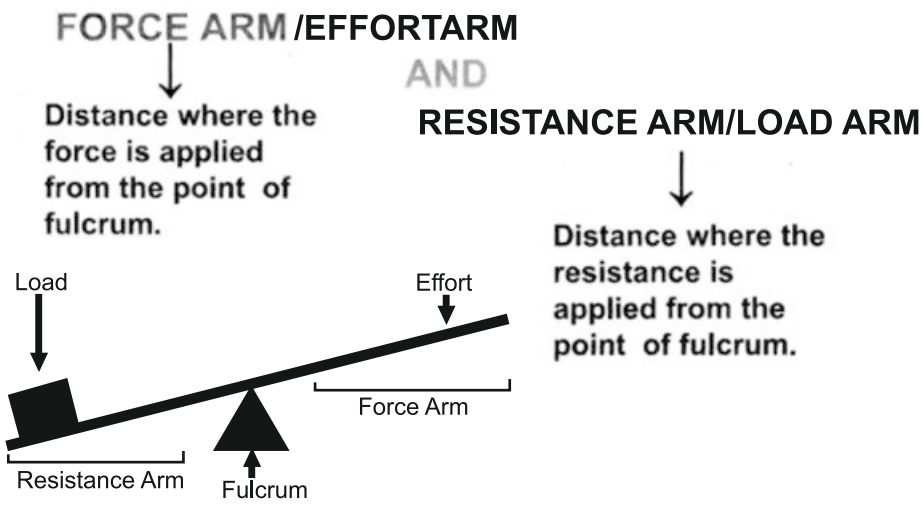
- It is the point at which lever rotates or turns.
- In human movement, the fulcrum is the joint.

Resistance Arm

- It is the point where the resistance is located. It is also known as load arm.

Force Arm

- It is the point at which the force is applied. It is also known as effort arm.



Lever is the human body's mechanism for movement, and although it may be viewed as a part of skeletal system, the role of the skeletal muscles in supplying the necessary force for fever action should be kept in mind.

Types of Lever

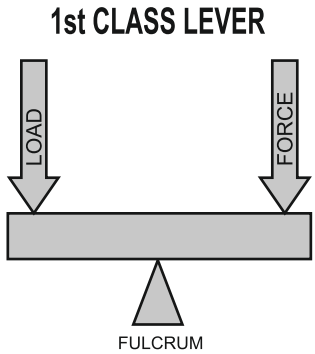
- Depending upon the positions of the parts of levers (i.e. fulcrum force arm & resistance arm). They can be classified into three types:

  (1) First class Lever

  (2) Second class Lever

  (3) Third class Lever

(1) **First-Class Lever:** A first class lever has the fulcrum between the force and the resistance. This class fulcrum may be moved about along the lever, thereby changing the relative lengths of the force arm and the resistance arm. If the fulcrum is placed close to the resistance, the force arm is length, and hand and less force need to be applied to move the resistance, but force must be applied through a long distance to lift the resistance a short distance. Conversely, a shortened force arm requires more excellent force application, but there is a gain in speed and range of motion at the resistance end.



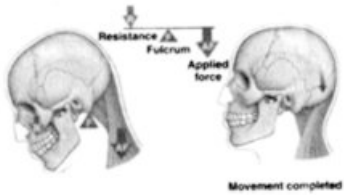
First-Class Lever

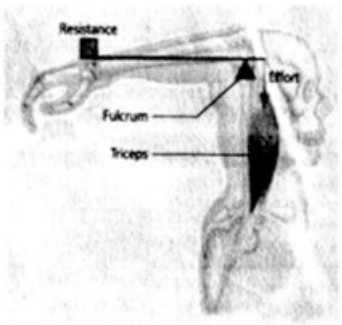
Examples of 1st class lever

Anatomical examples

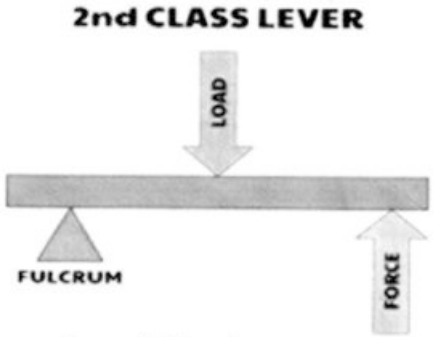
Flexion and Extension of Skull

Joint -fulcrum
The Skull -weight (resistance)
Neck Muscles -force



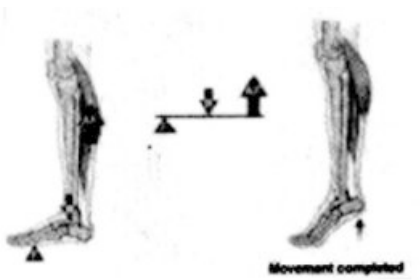
	
Triceps causing Extension at the elbow **Example:** When throwing a ball: ♦ Fulcrum = Elbow Joint ♦ Effort = Triceps ♦ Load = Arm/ball	V- sit-up position **Example:** When doing V-sit-up - Fulcrum = Hip joint Effort = Abdomen Load = Leg/Lower body

(2) **Second Class Lever:** A second class lever has the load resistance between the fulcrum and the force. In this class of levers, movement of the fulcrum will increase or decrease both the force arm and the resistance arm. The force arm is always the longer of the two, and therefore the force needed to lift resisting weight will always be less than the weight.

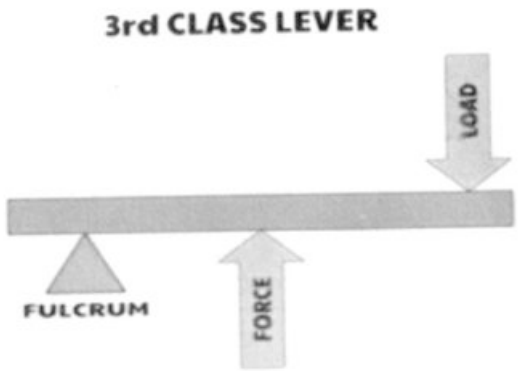


Second Class Lever

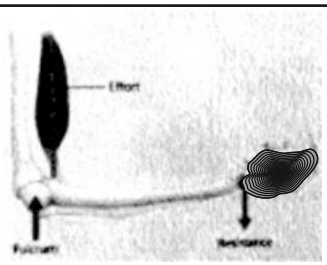
Examples of 2nd class lever

	
The foot acting as a whole is a second-class lever when the fulcrum is the ball of the foot, and the body weight is lifted to the toes by force at the heel. Example: When body raising on toes Fulcrum = Ball of the foot Effort = Gastrocnemius Load = Body weight	*Straight Pushups.* Example: When doing Push-ups Fulcrum = Ball of the foot Effort = Arm Muscle contraction. Load = Body weight

(3) Third Class Lever: A third-class lever has the force between the fulcrum and the resistance. In this class of lever, the force arm is always shorter than the resistance arm, and so a large amount of force must be applied, but the resistance is moved through a much longer range of motion than the force application. In the human body, the most common class of lever is the third. This is particularly important in the movements of the limps because the desired results are often those of speed or range of motion, albeit at the expense of force.



Examples of 3nd class lever

	
Bicep causing flexion at the elbow *Example: When Picking up the ball* *Fulcrum = Elbow joint* *Effort = Biceps* *Load = Arm/Weight*	*Sit-ups* Example: When doing Sit-ups Fulcrum = Hip joint Effort = Abdomen Load = Upper body

Application in Sports

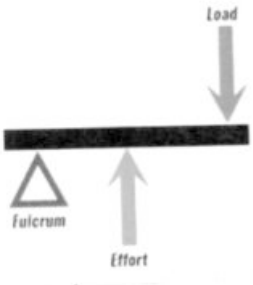
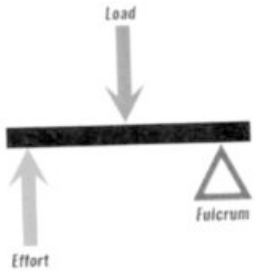
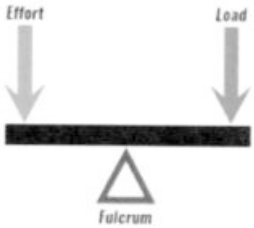
Human leverage for sports skills requires several levers;

throwing a ball involves levers at the shoulder, elbow & wrist joints. The longer the lever, the more effective it is in imparting velocity. A tennis player can hit a tennis ball harder with a straight-arm drive than with a bent elbow because the lever is longer and moves at a faster speed. Long levers produce more linear force and thus better performance in some sports such as baseball, hockey, golf, field hockey, etc. For quickness, it is desirable to have a short lever arm baseball catcher brings his hand back to his ear to secure a quick throw sprinter shortens his knee lever through flexion that almost catches his spikes in his gluteal muscles. A few examples of lever application in sports are:

- **Looking up/down or side-to-side (1st class) -** Your head is balanced on your atlantooccipital joint, which pivots, similarly to a see-saw.
- **Jumping - Plantar flexion of the foot (2nd class) -** The load is at the toes, the fulcrum is at the heel, and force is your weight which is anterior to your heel.
- **Cricket bat (2nd class) -** The fulcrum is the top of the handle, the load is the bat's body, and the force is closer to the neck of the handle.
- **Kicking - Lower limb (3rd class) -** The fulcrum at the knee joint, force at tibial tuberosity, (attachment of the quadriceps) load is the foot.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following:

List (I)		**List (II**
1. First Class Lever	(a)	
2. Second Class Lever	(b)	
3. Second Class Lever	(c)	
4. Third Class Lever	(d)	

(A) 1-a, 2-b, 3-c, 4-d **(B) 1-c, 2-d, 3-b, 4-a**

(C) 1-b, 2-a, 3-c, 4-d (D) 1-d, 2-c, 3-a, 4-b

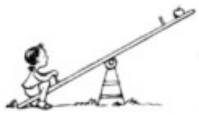
Q.2. The three basic components of a lever are

(A) Mass, weight & velocity.

(B) Force, Fulcrum & Load

(C) Fulcrum, Resistance & Effort

(D) Both b and c.

Q.3  **What type of lever is depicted in the picture?**

(A) 1st Class lever (B) 2nd Class lever

(C) 3rd Class lever (D) None of the above

Q.4 Push up is an example of which lever?

(A) Class-I (B) Class-III

(C) Class-II (D) Law of Effect

Q.5 In the human body, the most common class of lever.

(A) 1st Class lever

(B) 2nd Class lever

(C) 3rd Class lever

(D) None of the above

Short Question (2 Marks)

Q1. Define Lever.

Q2. Draw 3 types of levers used in sports.

Long Questions (5 Marks)

Q1. With the help of suitable examples, discuss the application of 1st class, 2nd class and 3rd class lever in sports.

Q2. What do you mean by lever? Explain with the help of diagrams.

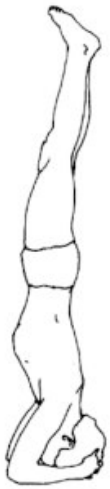
8.3 Equilibrium : Dynamic & Static and Centre of Gravity and its Application in Sports

Equilibrium: A state of an object. when all forces acting upon it results in no change in motion of that object.



Or

When sum of all forces acting upon a body is Zero, the body remains in a state of equilibrium.



There are two kinds of equilibrium:

1. **Dynamic Equilibrium:** When sum of all the forces acting upon a body is zero, while the body is in motion, a state of dynamic equilibrium is achieved. For Ex- Riding a Cycle, Cart-Wheel or Somersault in gymnastics

2. **Static Equilibrium:** When sum of all the forces acting upon a body is zero, while the body is in static position, a state of static equilibrium is achieved. For Ex- Hand Stand in gymnastics, Sirsasana in Yoga.

- **Centre of Gravity:** It is an imaginary point in a body, where weight is evenly distributed and all sides of the object are balanced. In normal standing position (anatomical position), the CG is on the navel. The CG shifts as we move.

Principles of Equilibrium and its Application in Sports:

1. **Broader Base:** Broader the base, greater the stability in static equilibrium. For Ex- during wrestling match, the wrestlers stand with legs open to create a broader base for greater stability and static equilibrium.

2 **Lower Centre of Gravity:** The lower the Centre of Gravity (CG), the greater the stability. For Ex- during wrestling match, the wrestlers bend a bit forward to lower down their CG for greater stability and static equilibrium.

3 **Body Mass (Inertia):** An athlete with higher body mass (inertia) tends to have greater stability then an athlete with lighter body mass (inertia). For Ex- it is difficult to move a heavier person as compared to lighter person. This is why competitions in combat sports like wrestling, boxing, judo etc. are organised indifferent weight categories.

4. **Centre of Gravity falls within the base of support:** Stability is higher when the Centre of Gravity (CG) falls within the base of support. For Ex- performing handstand or cartwheel in gymnastics.

Multiple Choice Question MCQ (1 Marks)

Q.1. Static stability is important in—

(a) **Shooting** (b) Football

(c) Volleyball (d) Judo

Q.2. It is a point in body around which the weight is evenly distributed —

(a) Dynamic equilibrium (b) Static equilibrium

(c) **Centre of gravity** (d) Buoyancy

Q.3. Which of the following will have greater stability—

(a) Spiking position (b) Standing start for 1500 m race

(c) **stance of a golfer** (d) tackling in football.

Short Answer Questions (3 Marks) (80-100 Words)

Q.1. Explain Dynamic Equilibrium.

Ans.

- When sum of all the forces acting upon a body is zero, while the body is in motion, a state of dynamic equilibrium is achieved.
- In other words, dynamic equilibrium is maintaining balance while in motion



- For Ex-
  - o Riding a Cycle,
  - o Performing Cart-Wheel or Somersault in gymnastics
  - o Jump shot in basketball

Q.2. What is Static Equilibrium?

Ans.

- When sum of all the forces acting upon a body is zero, while the body is in static position a state of static equilibrium is achieved.
- In other words, static equilibrium is maintaining balance when no motion takes places
- For Ex-
  - o Performing Hand Stand in gymnastics,
  - o Performing Sirsasana in Yoga.
  - o Shooting Position in Archery/ Shooting.



Q.3. What is Centre of Gravity. Explain its application in Games and Sports?

Ans.

- Centre of Gravity: It is an imaginary point in a body, where weight is evenly distributed and all sides of the object are balanced. In normal standing position(anatomical position), the CG is on the navel. The CG shifts as we move.
- **Application in sports:**
  - Centre of Gravity plays a vital role in games and sports. Since, it keeps on shifting while we move, athletes acquire certain position in order to gain higher stability and equilibrium to perform efficiently and effectively.
  - An athlete bends their legs to lower his/her centre of gravity resulting ingreater stability for the athlete such as wrestling, judo etc.
  - While performing cartwheel, handstand etc, the CG shall come perpendicular to the base of support.
  - While performing jumps, a jumper's centre of gravity must lie on the base of support for greater stability while take-off.

Q.4. What is difference between Static and Dynamic Equilibrium?

Ans.

Static Equilibrium	Dynamic Equilibrium
1. When sum of all the forces acting upon a body is zero, while the body is in static position a state of static equilibrium is achieved.	1. When sum of all the forces acting upon a body is Zero, while the body is in motion, a state of dynamic equilibrium is achieved.

Static Equilibrium	Dynamic Equilibrium
2. In other words, static equilibrium is maintaining balance when no motion takes places. 3. For Ex- • Performing Hand Stand in gymnastics, • Performing Sirsasana in Yoga. • Shooting Position in Archery/ Shooting.	2. In other words, dynamic equilibrium is maintaining balance while in motion. 3. For Ex- • Riding a Cycle, • Performing Cart-Wheel or Somersault in gymnastics • Jump shot in basketball

Long Answer Questions (5 Marks)

Q.1. Explain the Application of principles of equilibrium in the field of sports?

Equillibrium is defined as a state of balance or a stable situation , where opposite forces cancel each other out and where no changes are occurring.

1.Broader the base, the greater the stability : Broadening the base of support helps an athelete to acheive greater stability .
Example,while standing spreading the feet in the direction of movement provide stability. Where a stance is required , using both hands and feet creates the widest base.

2.Body weight is directly proportional to stability: The athelete or an object which weighs more will have greater stability.
Example, it is difficult to move a heavier person than a lighter one, Combative sports like , judo, wrestling ,taekwondo and boxing are played according to the body weight principle.

3.Lower the Centre of gravity,higher the stability: when a player does an activity that needs stability , the player usually lowers their centre of gravity by bending.
Example, when a player bends his knees while running, he can stop sooner and more efficiently. Similarly , a wrestler half sits to maintain his stability. Even a shot-put thrower bends his knees in the end so that he may avoid a foul.

4.**The nearer the centre of gravity to the centre of the base of support the more will be the stability:** if the centre of gravity extends beyond the base of support , balance is lost Keeping the body weight centered over the base will support and help maintain stability.
Example ,when a gymnast walks on a balance beam one requires a small base of support. During the performance ,if the balance is lost the gymnast raises the arm or legs on the opposite sides to shift the centre of gravity back towards the base of support.

5.**Direction of acting force:** During a competition ,if the direction of an acting/ applied force is known, stability can be increased by moving the line of gravity as close as possible to the edge of the base where the force is expected.
Example , when in a judo match the judoka shifts his foot in the line of direction of the force applied by the applied by the opponent to use the force of the opponent as a counter force to throw force down.

Practice Questions

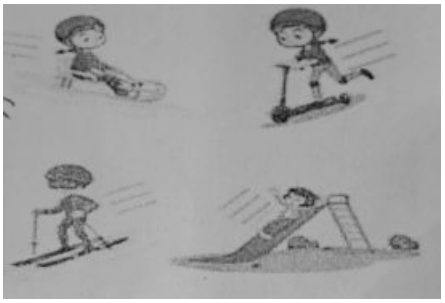
1. What do you understand by equilibrium ?
2. What are the types of equilibrium ? Give suitable examples of the type of equilibrium applied to sports / games.
3. Define the centre of gravity.

Answer the following questions in 150-200 words.

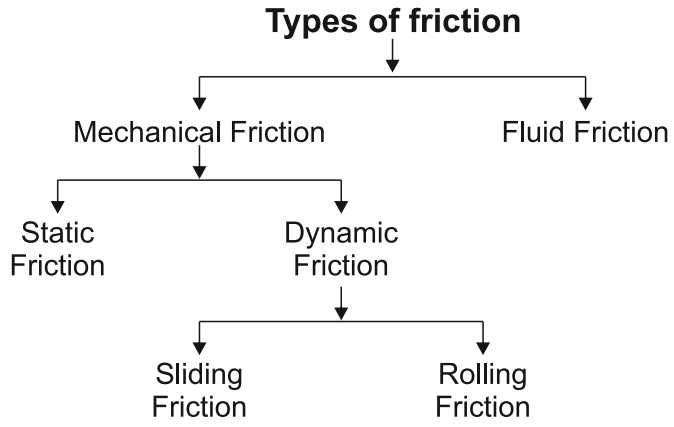
1. Why do wrestlers spread their arms, knees, and legs on the mat when they fall ?
2. Discuss the importance of the centre of gravity in sports with suitable examples.
3. Elucidate the Principles of Equilibrium in sports with suitable examples ?

8.4 Friction & Sports

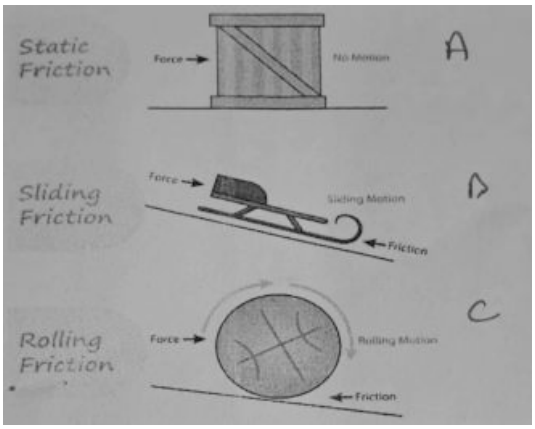
- Friction is defined as a resistance force when one object/ surface moves over another object/ surface.
- Friction force always act in the opposite direction of the applied force/ motion.
- Ex- a rolling ball stops after a while because of the friction (resistance) of ground/ surface.



- Friction in Sports examples-
  - In football, the field is grassy and hence players wear studs/ to increase friction for greater stability to make quick movements.
  - In gymnastics, lime powder is used to reduce friction for a better grip.
- It is also called as necessary evil as it is essential in games and sports and has both harmful and beneficial effects.
- Friction depends upon the properties of the two surfaces.
  - Rough Surface produces more friction.
  - Smooth Surface roduces less friction.



- **Static Friction:** Friction that exists before an object starts to move.
- **Dynamic/ Kinetic Friction:** Friction that exists when the object is actually moving.
  - o **Rolling Friction:** Friction when an object is rolling on the surface.
  - o **Sliding Friction:** Friction when an object slides over the surface.
- **Fluid Friction (Air/ Water):** Friction when the object movement is hindered due to resistance of water or air. For Ex- swimming/ diving in water, discus and javelin floating in air.



MCQ | Objective Types Question Answer

Q.1. The force which opposes the relative motion between the surfaces of two object is known as?

(a) **Frictional force** (b) Gravitational force

(c) Applied force (d) Tension force

Q.2. The force produced when the surfaces of two objects comes to contract of each other & tends to move but there is no relative motion between them is known as

(a) **Static friction** (b) Sliding friction

(c) Rolling friction (d) Fluid friction

Q.3. The Friction force acts in a/an ___direction to the direction of motion of an object.

(a) **opposite** (b) same

(c) downward (d) diagonal

Q.4. Among the following sports, in which friction plays the least important role?

(a) Car Race (b) Football

(c) Hockey (d) **Ice Skating**

Q.5. Friction is a -

(a) Magnetic Force (b) Non-contact Force

(c) **Contact Force** (d) Couple Force

Q.6. Given below are two statements labelled Assertion (A) and Reason (R)

Assertion (A): Friction is a force that occurs when two surfaces oppose each other.

Reason (R): Pushing a wall is known as static friction. In the context of above two statements, which one of the following is correct?

(A) Both (A) and (R) are true and (R) is correct explanation of (A).

(B) **Both (A) and (R) are true and (R) is not correct explanation of (A).**

(C) (A) is true and (R) is false.

(D) (A) is false and (R) is true.

Short/ Long Answer type Question **(5 marks)**

Q.1. Differentiate between advantage & disadvantage of friction in the field of sports.

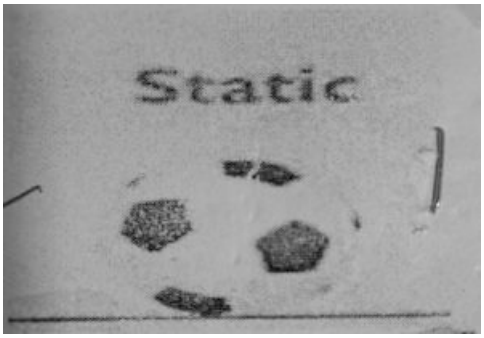
Ans.

Advantages	Disadvantages
1. Helps to maintain the position of object 2. Helps to Move faster with stability with the use of spikes/ studs. 3. Helps to maintain the grip comfortably with the use of lime powder 4 Prevents wear and tear of muscles aswell as equipment's	1. Higher friction leads to wear and tear of the equipment. For ex- in cycling, higher friction leads to wear & tear of tyres 2. Higher friction slows down the speed of motion 3. Higher friction requires more energy to perform motion. 4 Lower friction leads to unstable movement which may lead to injuries

Q.2. **What is Friction? Discuss various types of Friction.**
(1 + 2 Marks)

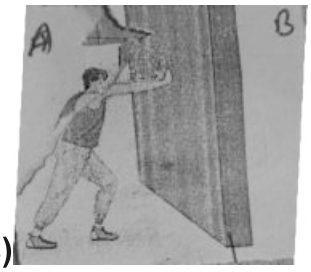
Ans. • Friction is defined as a resistance force when one object/ surface moves over another object/ surface. It always acts in the opposite direction of the applied force.

Type of frictions:



- **Static friction:** The opposite force that comes into play when one body is actually not moving over the surface of another body. When force friction, hence object is in no motion.
- **Dynamic Friction:** Friction that exists when the object is actually moving. Dynamic frictions of two types.

- **Rolling Friction:** The opposing force that comes into play when body is actually rolling over the surface of another body. For example, hockey/cricket ball rolling on the ground experiences rolling friction.
- **Sliding Friction:** The opposite force that comes into play when one body is actually slide over the surface of other body for example ice skater is skating.



Short Answers Questions (2 Marks) (30-50 Words)

Q.1. Define Friction and Name its types .

Q.2. What is Air Resistance?

Q.3. Explain Rolling & slidinp friction

Long Answers Questions (5 Marks) (150-200 Words)

Q.1. How friction is advantageous and disadvantageous in the field of games and sports ? Explain with suitable example?

Q.2. Differentiate among Static , Dynamic & fluid friction.

8.5 Projectile in Sports

Projectile: A projectile is anybody or object which is thrown or jumped into the air with only gravity and air resistance acting upon it. For Ex-

- A Javelin released in the air or a discus thrown in the air or
- An athlete performing long jump.
- A baseball which has been pitched, batted or thrown.

Parabola or Trajectory: Once a person or an object left the ground and follow a flight path in air before comes back down to earth. 'This flight path is called as Parabola or Trajectory. For ex- the path covered by shotput when released from the

hand of an athlete to the point of landing in the field is called as parabola of shotput throw.

MCQ | Objective Types Question Answer

Q.1. To cover maximum horizontal distance, at what angle an object should be released?

(A) 30° (B) **45°** (C) 60° (D) 90°

Q.2. To cover maximum vertical distance, at what angle an object should be released?

(A) 30° (B) 45° (C) 60° (D) **90°**

Short/ Long Answer type Question (3 marks)

Q.1. What do you mean by projectile? Discuss any two factors affecting projectile trajectory?

Ans.

- A projectile is anybody or object which is thrown or jumped into the air with only gravity and air resistance acting upon it. For Ex-
  - A Javelin released in the air or a discus thrown in the air or
  - An athlete performing long jump.

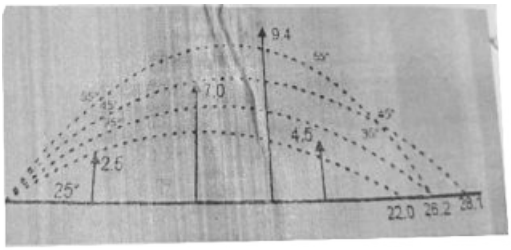
Factors affecting Projectile Trajectory

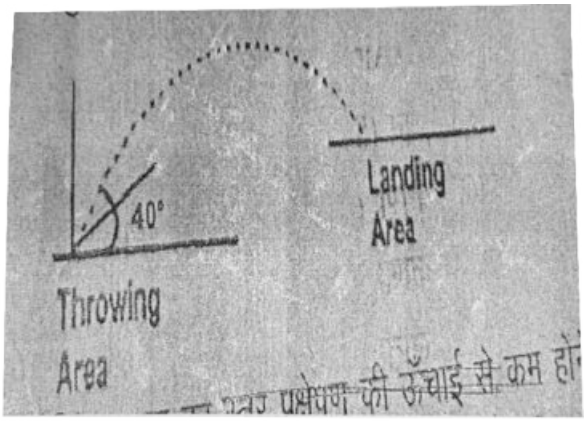
- **Angle of Projection:** An object when projected at different angles covers different distances. When an object is projected at an angle of 45° it covers maximum horizontal distance, while an object projected at an angle of 90°covers maximum vertical distance.
- **Height of Projection:** (he higher the level of projection, the higher the distance will be covered in the flight as it will provide a longer flight time which will increases the horizontal displacement. Taller discus thrower can throw farther then the shorter discus thrower if thrown with same force and at same angle·

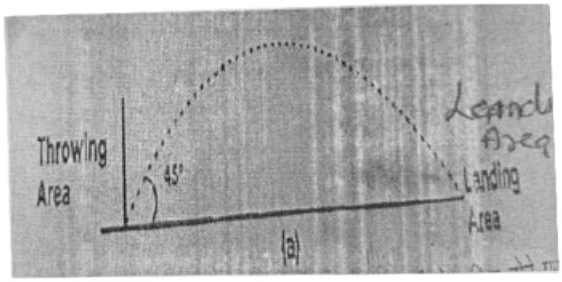
Q.2. Explain any various factors affecting the projectile? (5 marks)

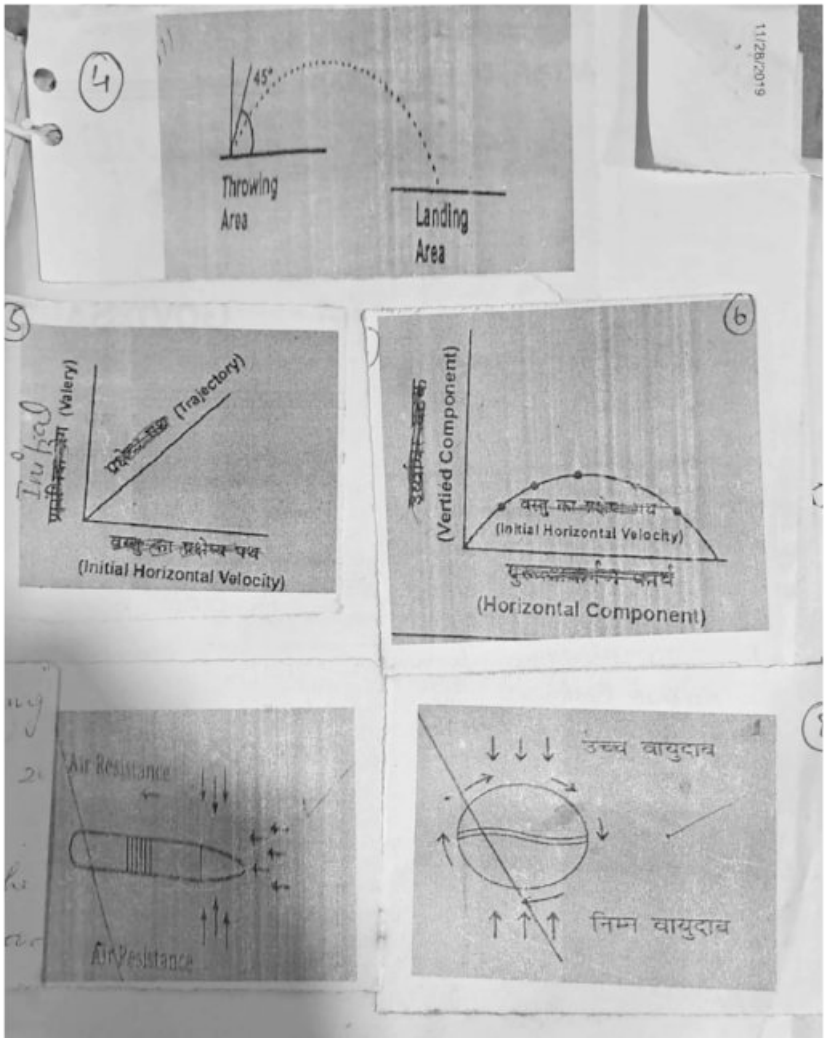
Ans.

- **Angle of Projection:** An object when projected at different angles covers different distances. When an object is projected at an angle of 45° it covers maximum horizontal distance, while an object projected at an angle of 90°covers maximum vertical distance.
- **Height of Projection:** The higher the level of projection, the higher the distance will be covered in the flight as it will provide a longer flight time which will increases the horizontal displacement. 'Taller discus thrower can throw farther then the shorter discus thrower if thrown with same force and at same angle.
- **Initial Velocity:** It refers to how fast the object is released/ thrown. The initial velocity is determined by the muscle force. If the object is thrown with greater force the object will tend to increase the length of the flight and therefore the distance covered.
- **Gravity:** Gravity effects the projectile by decreasing the length of flight. The higher the mass of an object the greater the influence of the gravity on it. For Ex- A cricket ball can be thrown at greater distance as compared to a shotput when thrown at same angle of projection. same height of projection and with same initial velocity·
- **Air Resistance:** Air resistance slow downs the projectile of an object in the Air. The factors that determine the amount of air resistance acting on a projectile are: mass, surface area, type of surface of an object.
- **Spin :** The amount and direction of spin acting on a projection will directly affect the direction a projectile will travel .


9.4
7.0
4.5
2.6
25°
22.0 26.2 28.1


40°
Landing
Area
Throwing
Area


Throwing
Area
45°
Landing
Area


4
45°
Throwing
Area
Landing
Area
5
(Trajectory)
(Initial Horizontal Velocity)
6
(Vertical Component)
(Initial Horizontal Velocity)
(Horizontal Component)
Air Resistance
Air Resistance
उच्च वायुदाब
निम्न वायुदाब

UNIT - 9

Psychology & Sports

UNIT - 9

Psychology & Sports

9.1 Personality; its definition & types (Jung Classification & Big FIve Theory)

9.2 Motivation its type & techniques

9.3 Exercise Adherence: Reasons, Benefits & Strategies for Enhancing it

9.4 Meaning, Concept & Types of Aggressions in Sports

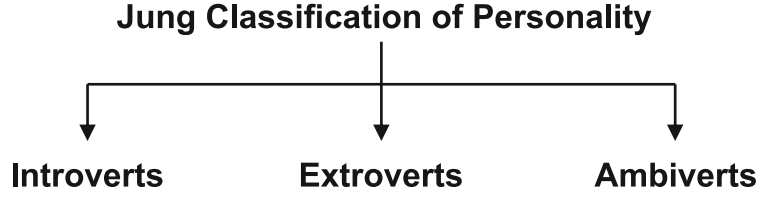
9.5 Psychological Attributes in Sports – Self-Esteem, Mental Imagery, Self-Talk, Goal Setting

9.1 Personality:

The word personality is derived from the latin word 'Persona', which means 'the mask'. So we say that personality is a mask that is used by an individual to deal with the society or the environment. Personality covers all the physical, mental, social, emotional interest and behavioural qualities of an individual.

"It is the integration of an individual's most characterstics structure, mode of behaviour, interest, attitudes, capacities, aptitudes, and abilities.

Personality: Includes the physical, mental, social and emotional qualities, interest and behavior of an individual".



Big five personality theory

1. Openness
2. Conscientiousness
3. Extraversion
4. Agreeableness
5. Neuroticism

1. Openness
- Social
- Imaginative
- Interest
- Curiousity
- Creativity
- Emotional

2. Conscientiousness
- Self discipline
- Dedicated
- Hard worker
- Aspirant

3. Extraversion
- Energetic
- Positiveness
- Accepting nature
- Social
- Talkative
- Friendly

4. Agreeableness
- Cooperative
- Managed
- Soft hearted

5. Neuroticism
- Angryness
- depression
- worried

Multiple Choice Questions:

Q.1. The word personality is derived from the latin word _____.

(A) **Persona** (B) Endomorphy

(C) Perjona (D) Person

Q.2. Traits of High-self confidence, social, friendly, confident etc lies in

(A) Ambivert (B) **Extrovert**

(C) Introvert (D) Ectomorphic

Q.3. Traits of Extrovert, Introvert and Ambivert are given by ____.

(A) **Jung** (B) Sheldon

(C) Big-5 (D) Eysean

Q.4. Big-5 theory is also known as _____.

(A) **Five factor model** (B) Five traits model

(C) Five personality model (D) Five temperanent model.

Short Answer Type Question

Q.1. Explain the jungs classification of human personality.

Ans. Accordig to carl a. Jung's human personality can be classified into three catagory.

1. **Introvert:** If an individual is motivated or energised by the internal world of thoughts, feelings and reflections is known as Introvert. They are having poor self confidence, moody, unsocial, quiet and Pessimisst.
2. **Extrovert:** This kind of individual associated with external world of object and other people. They believe in action, social settings, interacting. They are friendly, confident responsive and lively leader.
3. **Ambivert:** This kind of people have the mix trait of Introvert and Extrovert: They are having few friends.

Long Answer Question (5 Marks)

Q.1. Define personality, write any four traits of Big-5 theory of personality in detail. (1 + 4 = 5)

Ans. The word personality is derived from the latin word “Persona” means “Mask”. But it has the broader meaning like Biological-Appearance, Psycholgical-Tolerance and sociological-Character. The following are the traits of Big-5 personality

1. **Openness Traits:** The assessment 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 learn new changes & concept

2. **Conscientionsuess:** The assessment of this trait show 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. **Extraversion:** 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

Practice Questions

1. Differentiate between expavert & neuroticism on the basis of features.
2. Detail possiability, differentiate between Impotent & expqvert
3. Explain Big 5 theory of Personality.

9.2 Motivation and its types

Motivation is derived from a Latin word 'Motivus' which means a moving cause. The things that we do or don't do has a motive behind it. Motivation has two dimensions i.e. objective and direction. Objective can be understood as 'why' we want to do something whereas; direction can be understood as the 'what' of the action or behaviour. Motivation helps an individual to stay focused and persistent in achieving its goal. Therefore, both objective and direction should be in line with the goal. To achieve any goal, person should have a desire and that desire in turn pushes an individual to initiate the tasks in the direction of the goal.

Motivation are broadly categorised in two categories:

1. Intrinsic Motivation

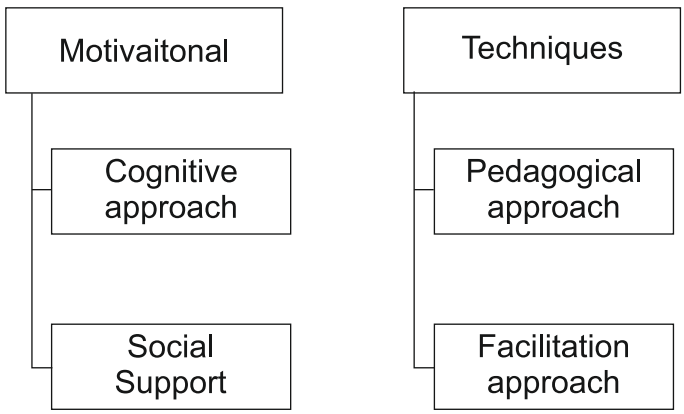
2. Extrinsic Motivation

Intrinsic Motivation: When an individual drive motivation from within to achieve goals. When an individual gets satisfaction or enjoy doing something and that are not influenced by any external factor and purely done by the individuals own will. Suppose you

study by yourself and you don't need anyone to tell you to study than that means you are intrinsically motivated to get good result in your studies.

Extrinsic Motivation: When individuals drive motivation externally rather than their own instinct and impulse than that is extrinsic motivation. Suppose you study because your parents promised you that they would buy you something, so here you are motivated by the external factor i.e. prize or gift and not your urge to study.

Motivation techniques: An individual need to stay motivated to achieve their goals. If someone feels that they are comfortable in their situation and their needs are being satisfied than they will not try to change their behaviour but if there is lack of satisfaction then they will try to achieve their level of satisfaction by changing their behaviour and these techniques are helpful in doing the same.



1. **Cognitive approach:** This approach is related to the goal setting theory that means that people will be motivated to do those tasks where the probability of success is higher. Key points of this approach are as follows.

   a. Time bound
   b. Complexity level of the task
   c. Specificity of the task
   d. Defined purpose of the task

2. **Pedagogical approach:** This approach has three points that is

to make the task enjoyable, making players a part of the decision-making and lastly taking up the valuable feedback from the players.

3. **Social support:** This technique is based on the principle of positive social support, if you have like-minded people around you who wants to study or stay fit then you will also show same results in terms of motivation and vice versa.

4. **Facilitation approach:** This approach is used to motivate an individually extrinsically where awards, prizes or recognition is given to keep them motivated.

Motivation and Sports: As we have discussed earlier that motivation is the initial step to achieve any goal. In sports to stay motivated for the longer period is a difficult task. Basic four motives can be identified towards behaviour in sports:

1. Physical wellbeing
2. Psychological wellbeing
3. Performance achievement
4. Status and power

The above motives are intrinsically derived to participate in the sports and exercise. Coaches use extrinsic motivation whenever it is needed to get results and achieve goals.

Practice Questions

Tick the correct answers.

1. Motivation that drives individuals to naturally pursue actions that provide fun, joy, pleasure or challenge is called

   (a) Extrinsic Motivation (b) Amotivation

   (c) Intrinsic Motivation (d) Cognitive Motivation

2. Motivation through reward or praise is known as

   • (a) Intrinsic Motivation (b) Extrinsic Motivation

(c) Pedagogical Motivation (d) Facilitation Motivation

3. Which of the following is NOT a feature of Intrinsic Motivation?

(a) goals (b) feedback

(c) needs (d) attitudes

Answer the following questions in 150-200 words.

1. How can a coach strategize in motivating an athlete to keep performing?

2. How does motivating a sports person affect games and sports and how do games and sports influence a player's motivation?

9.3 Exercise Adherence: Reasons, Benefits & Strategies for enhancing it

Exercise adherence simply means to find reasons to exercise even in the scenarios where it is easy to quit. Exercise adherence is initiating physical activity and keep on maintaining the workout regime continuously. Once an individual start exercising and motivate itself to exercise for a period without getting an external motivation, we can see exercise adherence in an individual. Exercise adherence can happen for reasons such as:

Reasons to exercise:

1. **To decrease the chance of illness or getting a disease:** it has seen in many studies that those individuals who involve in daily physical activity are less likely to get ill.

2. **To stay fit and maintain good physique:** many individuals exercise so they can look good and they can take proper diet with proper rest.

3. **Mental relaxation:** People use exercise to relax as it has proven that exercising releases certain hormones that helps in metal relaxation.

4. **Recreation:** Exercise is a best way of spending time and people use it as a way of recreation, this in turn helps them to be active and creative

5. **Socialization:** Playing games and exercise with other helps in socializing and make an individual confident and helps in improving self-esteem.

Benefits of Exercise:

1. Physical benefits:
    a. Maintaining the healthy weight.
    b. Reduce the risk of cardiovascular diseases.
    c. Increase muscle strength.
    d. Decrease the risk of some type of cancers.
2. Psychological benefits:
    a. Increase confidence
    b. Increase self-esteem
    c. Decrease stress level.
    d. Increase memory retention.
3. Mental benefits:
    a. Improves mental health
    b. Improves attention
    c. Increase happiness
4. Social benefits:
    a. Increase social cohesion
    b. Build leadership qualities.
5. Other benefits:
    a. Increase goal motivation.
    b. Improved lifestyle.

These are some examples of the benefits of exercise, now we will study the **strategies to Exercise adherence**:

It has seen in studies that people initiate exercising but continuing it is a difficult part and many people fails in this process. So let's see some of the strategies to exercise adherence.

1. Goal setting: it is important to set realistic and achievable goal,
2. Variation: it is important to add variety in the exercise to avoid boredom.
3. Social Support: It is important to stay with the social group or individual who has the same goals and motivates you to exercise.
4. Reinforcement: The principle of reinforcement suggest that positive behaviour should be rewarded as it has been an effective tool in exercise adherence.
5. Feedback: There should be continuous feedback, so the reasons can be found out that affect exercise adherence.
6. Problem solving: After the feedback, important steps should be taken to eliminate the reasons affecting exercise adherence.
7. Health risk appraisal: continuous monitoring of health can lead to motivation in exercise adherence and the goals can be setup according to it.
8. Health Education: it is important to educate everyone about the health so they can take necessary steps towards the healthy lifestyle and motivate towards exercise adherence.

PRACTICE QUESTIONS

Tick the correct answers.

1. Which of the following is effective for prevention of Coronary Heart Disease?

a. Regular exercise b. Sedentary lifestyle

c. Medicine d. Dieting

2. Which one of the following is NOT a result of regular exercise?

a. Increased bone density b. Increased cholesterol level

c. Strong immune system. d. Increased longevity.

3. Normally people do not adhere to a regular exercising programme due to

   a. lack of proper goals b. adding a variety of exercises

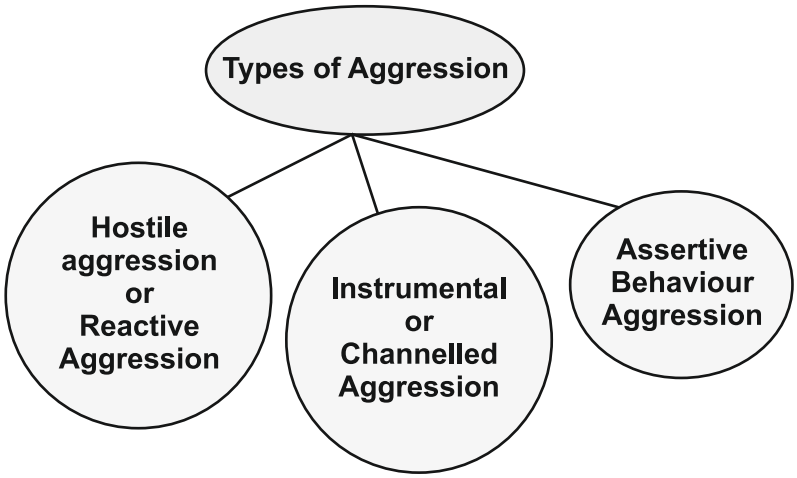
   c. social support enhancement d. feedback from instructor

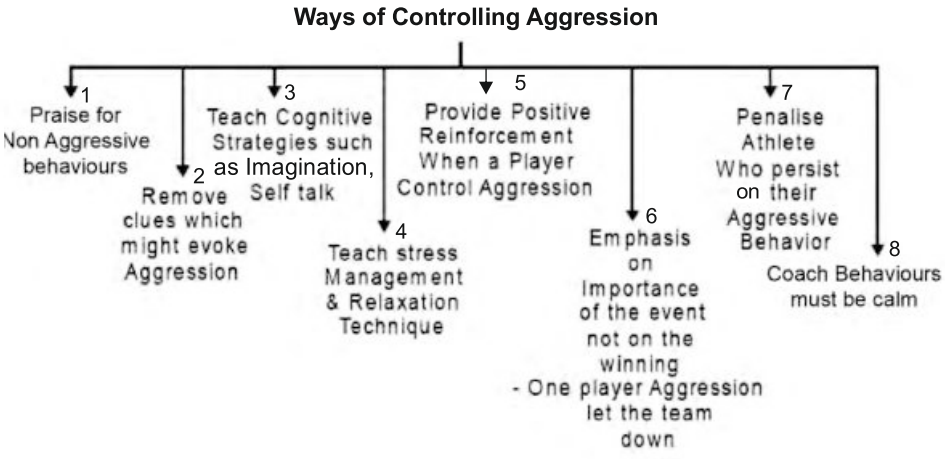
Answer the following questions in 150-200 words.

1. Mention the strategies to enhance exercise adherence.
2. What are the psychological benefits of exercise?
3. Explain the various reasons to exercise.

9.4 Aggression

It is a physical or verbal behavior which is directed towards the goal of harming other living being either physically or psychologically.





The term aggression refers to a range of behaviours that can result in both physical and psychological harm to yourself, others, or objects in the environment. This type of behavior centers on harming another person either physically or mentally.

Concept: The concept of aggression is important to nursing because further knowledge of aggression can be helped to generate a better theoretical model to drive more effective, and intervention and prevention approaches.

Psychologist have given different views related to aggression As per instinct theory, aggression is an inbuilt emotion in human being as per social learning theory, it is acquired, frustration theory pointed out that frustration is the cause of aggression.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Behaviour Carried out with intention of harming other person is known as.

(A) Stress (B) Motivation

(C) **Aggression** (D) Tension

Q.2. Any physical behaviour intentionally aimed to injure other is known as—

(A) **hostile aggression** (B) instrumental aggression

(C) assertive aggression (D) negative aggression

Q.3. Unintentional physical harm is known as

(A) hostile aggression (B) **instrumental aggression**

(C) assertive aggression (D) negative aggression

Q.4. Verbal behaviour which harm the living being is known as

(A) Hostile aggression (B) Instrumental aggression

(C) **Assertive aggression** (D) Negative aggression

Long Answer Question

Q.1. Write the meaning and concept of aggression Describe the types of aggression in sports.

Meaning

Ans. Any physical or verbal behavior that is intended to harm another either physically or psychologically intentionally or unintentionally.

Concept

Different psychologists have given different meaning to the term aggression. As per instinct theory, aggression is an inbuilt emotion in human being, as per social learning theory, it is acquired. Frustration theory point out that frustration is the cause of aggression.

There are three types of Aggression in sports.

(a) **Hostile Aggression:** Any physical behaviour which is aimed to physically injure the living being intentionally is known a 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 psychological to living being. In this only legitimate forces are used.

Practice Questions

Q.1 Verbal behaviour which is used to harm the opponent is known as _____.

(A) Assertive aggression (B) Instrumental aggression

(C) Hostile aggression (D) Negative aggression

Q.2 Define personality Explain any one types of Jung's classification of personality. (1 + 1 = 2)

Q.3 Write a note on Jung's classification of personality. (1 x 3 = 3)

Q.4 Define Aggression. Write any two types of aggression in sports. (1 + 2 = 3)

Q.5 Discuss about the concept of Aggression. Write the types of aggression often seen in sports. (2 + 3 = 5)

9.5 Psychological Attributes



Self esteem refers to the overall evaluation of one's value. In other words, the judgments any individual makes about them selves, their abilities, potential, skills, accomplishment how others perceive them, etc. are all a part of one'e self esteem. Self esteem and participation in sports are related i.e., those with a high self esteem are likely to be involved in sports and vice versa. Sports activities foster a sense of autonomy personal effectiveness, belongingness, mastery,etc. all of which is associated with increased levels of self esteem. Sports activities involve development of new skills, practice interaction, decision making, challenges and success. These essential elements of sports activities lead to conditions where self esteem can grow. However, sports activities may also lead to reduced self esteem if individuals are excessively concerned with issue such as losses, body image, pressure to perform, bullying, etc.

Mental Imagery



As the name suggests, mental imagery involves visualising or imagining oneself in a specific environment, performing specific tasks.

This multi sensory procedure can be used to familiarise athletes with new routines, places, etc; enhance motivation; reduce negative self talk and thoughts; master skills and increase focus and attention. For example, before racing in a sprint, the sprinter may visualise their body geared up to run on the

starting line, they may imagine their running movements and then imagine finishing the race in the first place. Please note that mental imagery involve a all senses, for example the sprinter may not not 'see' their actions but also feel the ground beneath their feet, the air, the sound of their feet hitting the ground, the joy of securing the first place etc. In other words, one needs to 'move through the actions. This can be performed during training and before and after performances. It can be performed individually or even as a team. Mental imagery can also be combined with relaxation techniques to promote rest, well being and optimal arousal.

Goal Setting



Goals refer to the aim or purpose of any action. The fulfilment of goals can be made more efficient by conscious attempts at engaging in and sustaining goal setting activities. Goal setting is found to be effective by directing attention towards the task, increasing effort and developing persistence. In addition to this, goals which are not too easy or too difficult are more likely to be achieved. Goal setting techniques are associated with increased motivation, confidence, productivity and performance. For instance in football one could set a short term goal of scoring more than 5 goals and the long term goal of winning the national championship. Individual goals could involve improving kicking, passing and dribbling skills while team goals could involve increased communication and coordination. Furthermore, goal setting in sports can be divided into three types of goals- outcome goals (winning a tournament), performance goals (completing a race in 12 seconds) and process goals (improving form).

Self talk: The inner dialogue individuals engage in either internally or out is referred to as self talk. It is found to help in regulating one's emotions and thoughts, strengthening one's belief in achieving a goal and increasing concentration,

motivation and performance. Self talk may be positive or negative. Examples of self-talk include, "I can score the goal', "lam capable of finishing the race" and "keep going".

These are examples of motivational self talk. Another type of self-talk is instructional which may include statements like "swing your arm now' or "take a breath, point and then shoot.

Multiple choice question

Q.1 Overall evaluation of one's value

A) Imagery B) **Self esteem**

C) Self talk D) Goal setting

Q.2 The inner dialogue individuals engage in either internally or out loud is referred to as

A) **Self talk** B) goal setting

C) imagery D) Self esteem

Q.3 Goal setting techniques are associated with

A) increased, productivity B) increased confidence

C) increased motivation D) **All of these**

Q.4 visualising or imagining oneself in a specific environment, performing specific tasks. is known as

A) Self talk B) **Mental imagery**

C) Self esteem D) All of these

Short answer question

Q.1 Briefly explain about 'self talk' with examples

The inner dialogue individuals engage in either internally or out loud is referred to as self talk. Self talk may be positive or negative

Examples of self-talk include, "I can score the goal", 'I am capable of finishing the race and keep going".

Q.2 What is the importance of goal setting?

The fulfilment of goals can be made more efficient by conscious attempts at engaging in and sustaining goal setting activities. Goal setting is found to be effective by directing attention towards the task, increasing effort and developing persistence. In addition to this, goals which are not too easy or too difficult are more likely to be achieved. Goal setting techniques are associated with increased motivation, confidence, productivity and performance.

Q.3 Brefly explain about Mental imagery.

mental imagery involves visualising or imagining oneself in a specific environment, performing specific tasks. This multi sensory procedure can be used to familiarise athletes with new routines, places, etc; enhance motivation; reduce negative self talk and thoughts; master skills and increase focus and attention.

Q.4 Participation in sports activities help in increasing our self esteem. How?

Sports activities foster a sense of autonomy, personal effectiveness, belongingness, mastery, etc. all of which is associated with increased levels of self esteem. Sports activities involve development of new skills, practice, social interaction, decision making. challenges and success. These essential elements. of sports activities lead to conditions where self esteem can grow.

UNIT - 10

Training in Sports

UNIT - 10

Training in Sports

Key Points-

10.1 Concept of Talent Identification and Talent Development in Sports

10.2 Introduction to Sports Training Cycle-Micro, Meso, Macro Cycle

10.3 Types and method to Develop - Strength, Endurance and Speed

10.4 Types and Method to Develop - Flexibility and Coordinative Ability

10.5 Circuit Training-Introduction & its Importance

10.1 CONCEPT OF TALENT IDENTIFICATION AND TALENT DEVELOPMENT IN SPORTS

"Talent identification in sports refers to the search for young athletes who have the potential to become an elite athlete in the future "

In other words,

"Talent identification in sports is the process of recognizing players who have the Potential to excel in a particular sport."

Importance of Talent Identification in Sports

1. It helps in discovery and recognition of the hidden talent.
2. Early selection enables young athletes to develop their talent, so that by the time they reach international competition they have already attained high levels of performance.
3. Early determination of an athlete's areas of strength helps to identify the discipline which will best suit them and make training plans accordingly.

4. It helps to develop top class future athletes,
5. It increase athletes' confidence if they have been identified as Possessing superior capabilities.
6. It helps to create a group of talented athletes which in turn increases the competitiveness
7. It is a blessing for those youngsters who don't realize that what special talent/qualities they possess related to a particular sport .

Parameters to Identify Talents in Sports

1. **Physical characteristics** such as- size, strength ,maturation level.
2. **Physiological characteristics** such as- speed, agility, and fitness
3. **Knowledge of technical skills** related to game/sport
4. **Attitude and desire** towards the particular sport.
5. **Understanding and perception** related to games/Sports.

Concept of Talented Development in Sports

Talent development refers to the whole Process through which abilities and skills of talented young players are further nurtured and enhanced.

Multiple Choice Questions (1 mark)

Q1. What is the main objective of "Khelo India Programme"?

a) To collect funds b) T o provide degree
c) **To search talent** d) To aware Nation

Q2. Under National Talent Search Programme. How many students are selected every year?

a) 500 b) **1000**
c) 1500 d) 200

Q 3. When was National Talent Search Programme started?

a) 2010 b) 2016

c) **2018** d) 2021

Q 4. Name Association who works for National Sports talent search-

a) Olympics Association b) **Sports Authority of india**

C) Sports Federation d) School

SHORT ANSWER QUESTIONS

Q.1 What is the role of Sports authority of India in talent search?

Ans. Sports Authority of India (SAI) under "Khelo India Programme" to search Talent and develop those skills in them by giving them the platform to show and perform their skills and abilities. Those students who perform extraordinary in these completion are awarded and acknowledged and also given chance to be selected under this scheme. Selected students are given training by the expert coaches.

Q. 2 What is Talent Identification in sports?

Ans. Talent identification in Sports refers to the search for young athletes who have the potential to become an elite athlete in the future. Under National Sports Talent Identification in sports scheme students are selected on the basis of their Interests and skills proficiencies.

Q.3 What are the main objectives of Sports talent Development ?

Ans. Objectives of Sports Talent Development

1. To search sports talent at grass root level.
2. To select students on the basis of their size, physical abilities, physical disabilities and interest of the student.
3. To promote sports academies at school level, district level and state level.
4. To avail sports facilities to the students.

5. To give platform to sports talent.
6. To provide financial support to underprivileged students.
7 Personal development of student.
8. Community development of society.
9. National Development.
10. Employment Opportunity Development.

Q.4 What is Concept of Talented Development in Sports?

Ans. Talent development in Sports refers to the whole Process through which abilities and skills of talented young players are further nurtured and enhanced.

Q.5 Name the stages of Talented Development in Sports?

Ans. 1. Stage of Initiation,
2. Stage of Development,
3. Stage of Perfection.

Practice Questions

1. Explain Talent Identification and Talent Development in reference to Sports.
2. What is Talent Identification? Explain the importance of Talent Identification in sports?
3. Explain about criteria used for Talent Identification in detail.
4. Explain the different stages of talent development in sports.

10.2 Introduction to Sports Training Cycle-Micro, Meso, Macro Cycle

"Sports Training Cycle refers to combination of training regimes of different duration which an athlete follows to attain peak performance during competition."

Sports Training Cycle -

1. Microcycle (also known as Weekly cycle)
2. Mesocycle (also known as Monthly cycle)
3. Macrocycle (also known as Yearly cycle)

Multiple Choice question (1Mark)

Q1. Preparation of Sports Talent for a long time for any Sports Events is called-

a) Testing
b) **Training**
c) Inspection
d) Review

Q2. Which of the following is not a criteria for identification of talent in sports?

a) Body composition
b) Psychological perception
c) **Technical thinking**
d) Training

Q3. The shortest period of Sports training is called-

a) **Microcycle**
b) Mesocycle
c) Macrocycle
d) Annual cycle

Q4. The longest period of training is called-

a) Microcycle
b) Mesocycle
c) **Macrocycle**
d) Merocycle

Q5. The duration of meso cycle is.....

a) 2-3 weeks
b) 3-4 weeks
c) **3-8 weeks**
d) 1 week

Q6. What is the first stage of periodization?

a) **Preparation Phase**
b) Competition Phase
c) Transition Phase
d) Training Phase

SHORT ANSWER QUESTION

Q.1 Define Macro Cycle?

Ans. A macro cycle is an annual plan (more than 52 week) that works towards peaking for the goal competition of the year. There are three phases in the macro cycle: preparation, competitive, and transition.

Q.2 Explain Meso Cycle?

Ans. A meso cycle represents a phase of training with a duration of between 2-6 weeks . A meso cycle can also be defined as a number of continuous weeks where the training program emphasize the same type of physical adaptations, for example muscle mass and anaerobic capacity. During the preparatory phase, a meso cycle commonly consists of 4-6 micro-cycles.

Q.3 What is Periodization?

Ans. Periodization is the process of dividing the training plan into specific time blocks, where each block has a particular goal and provides different types of stress/overload on body. This helps to create some hard training periods and some easier periods to facilitate recovery. Periodization also helps to develop different physiological abilities during various phases of training.

Q.4 What is Micro Cycle?

Ans. A term 'micro-cycle' can be traced from Greek term "mikros", means small. A micro-cycle refers to a weekly training program. It is smallest training period up to 7 days. A micro-cycle is probably the most important and a functional tool of planning because its structure and content determine the quality of the training.

Practice Questions

Q.1. What is the difference between Micro and Meso Cycle?

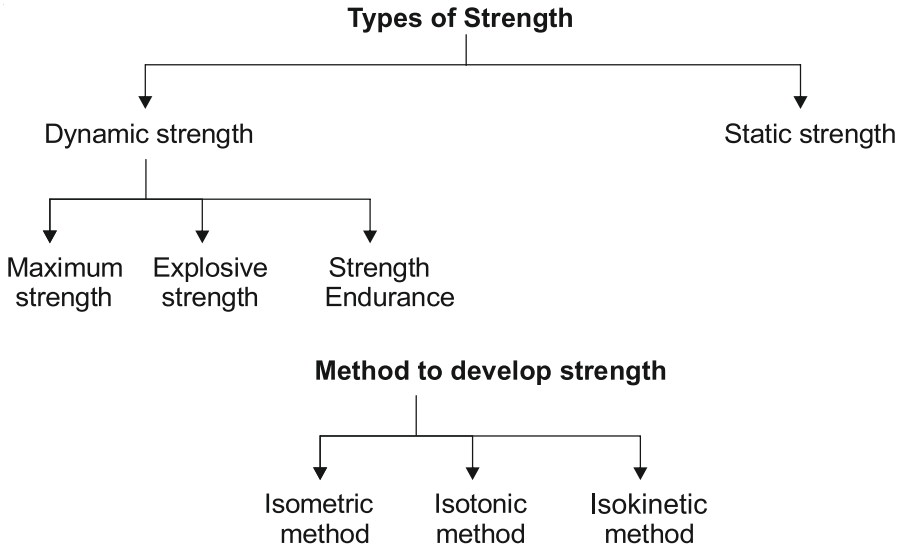
Q.2. Explain Macro Cycle in detail

Q.3. Define Sports Training Cycle.

Q.4. What do you mean by sports periodization?

10.3 Types and Method to Develop - Strength

It is the ability to act or to over come the resistance.



Multiple Choice Questions MCQ (1 Marks)

Q.1 The method in which there will be no change in the length of the muscle is known as

(A) **Isometric method**

(B) Isotonic method

(C) Isokinetic method

(D) Fartlek method

Q.2 Name of the ability which help to over come the resistance with speed is known as

(A) Maximum strength

(B) **Explosive strength**

(C) strength endurance

(D) static strength

Q.3 Pushing a wall is an example of-

(A) **Isometric** (B) Isotonic

(C) Fartiek (D) Isokinetic

Q.4 When the length of the muscle changes, It is called _____ exercises.

(A) Isokinetic (B) Isometric

(C) **Isotonic** (D) Intraval

Q.5 Swimming is an example of which exercise.

(A) Isotonic (B) Isokinetic

(C) Isometric (D) Explosive Strength

Short Answer Questions (2 Marks)

Q.1 What is strength? Explain its types. (1 + 1 = 2)

Ans. Strength is an ability to act against a resistance. The following are its types.

(a) **Maximum strength:** - Ability to act a against maximum resistance

(b) **Explosive strength:** Ability to act aganist resistance with speed

(c) **Strength Endurance:** Ability to act against resistance under condition of fatigue.

Long Answer Questions (5 Marks)

Q.1. What are the methods for developing strength?

Or

Write the difference between Isometric, Isotonic and Isokinetic exercises.

Ans. **Strength** - It is the capacity of the whole body or of any of its parts to exert force.

There are two types of strength - Dynamic and 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 exercise 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.

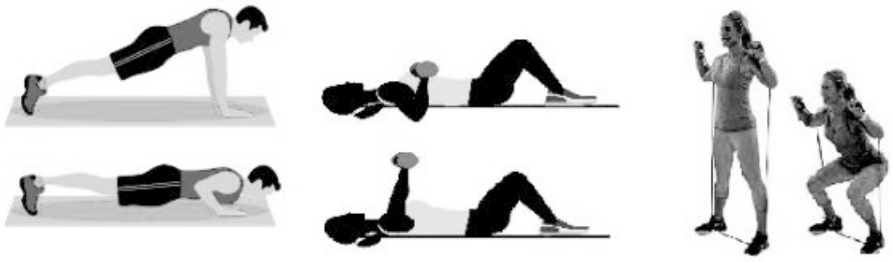
Work done = Force X Distance moved

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. Example When we throw a ball, jump, run, weight training, these type of contraction occurs. These Type of exercise is widely seen in games and sports. We can do these exercise with equipment or without equipment. These increase the length of the 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.





Practice Question

Q.1. Write any two types of strength. (1 + 1 = 2)

Q.2. Differentiate between Isotonic and Isometric strength (any two) (1 + 1 = 2)

Q.3. What do you understand by explosive strength and maximum strength. (3)

Q.4. What is strength? Name the training method to improve the strength & explain any one of them. (1+2=3)

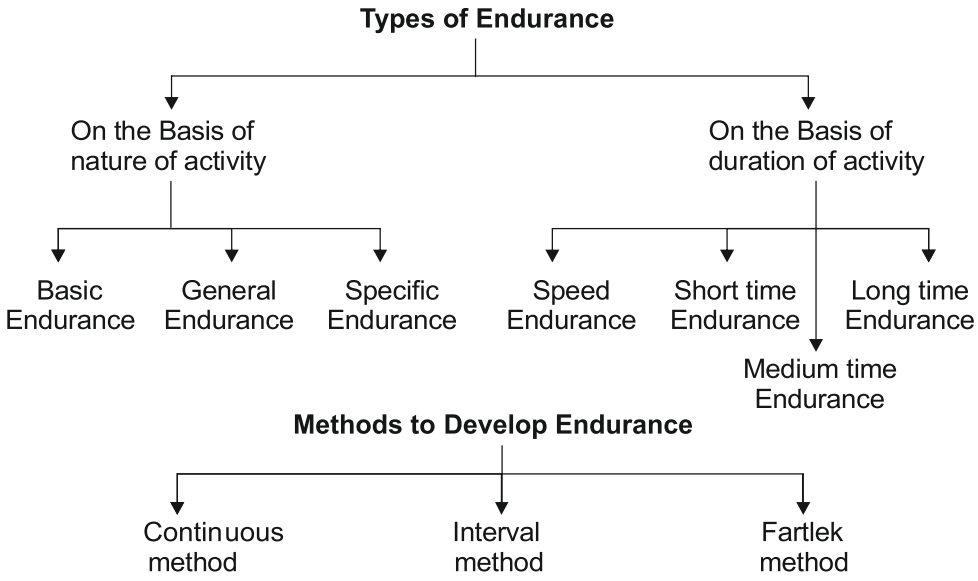
Q.5. What is strength? Explain isometric method in detail? (1+2=3)

Q.6. Explain the Advance training method to develop strength. (3)

Q.7. Explain Isometric, isotonic and Isokinetic method to develop strength. (3)

10.3 Types and Method to Develop-Endurance

It is ability to continue the activity under the condition of fatigue or for a long time.



Multiple Choice Questions MCQ (1 Marks)

Q.1. Which is not the training method to develop Endurance?

(A) Fartlek method (B) **Post iso metric stretch method**

(C) Continuous method (D) Interval method

Q.2. Speed play is another name of which method.

(A) **Fartlek method** (B) Continuous method

(C) Interval method (D) Isokinetic method

Q.3. Given below are the two statements labeled Assertion (A) & Reason (R).

Assertion (A): It the ability to work during fatigue.

Reason (R): Fartlek training improves endurance.

In the context of above two statement, which one of the following is correct.

(A) Both (A) & (R) true & (R) is the correct explanation of (A)

(B) Both (A) & (R) true, but (R) is not the correct explanation of (A).

(C) (A) is true but (R) is false.

(D) (A) is false but (R) is true.

Short Answer Questions (2 Marks)

Q.1. Differentiate between Interval and Fartlek training.

Ans. **(1 + 1 = 2)**

Fartlek Training	Interval Training
1. There is change of pace 2. Timing is 15 to 45 minutes 3. There is no rest period 4. It is done continuously	1. No change of pace 2. Distance from 30 to 150 meters 3. Rest period is there 4. Here is interval between training

Short Answer Type Questions (3 Marks)

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 his/her pace. Himself/herself according to surrounding (Hills, River, Forest, Mud etc.)



This method helps in development of endurance of the sports person. Athlete changes his/her speed according. So it is self-disciplined in nature. The heart rate fluctuate between 140 - 180 beats/ minute Fartlek training involves varying our pace throughout run. Alternating between fast and slow pace.

Q.2 Briefly explain the types of endurance.

or

"Endurance is one of the most important factor for high performance in games and sports" Explain

Ans. On the basis of nature of activity

1. **Basic Endurance :-** It is the ability of an Individual to do the movement in which large no. of body and muscles involve at slow pace for a duration such as Walking, Jogging, Swimming at a moderate speed.

2. **General Endurance :-** It is the ability of an individual to resist fatigue satisfactorily caused by different type of activities. such as cinrotric & aerobic movement etc.

3. **Specific Endurance :-** It is the ability of an individual to complete the task without any fatigue. It's requirement depends upon the nature of activity (Games and Sports) requirement of specific endurance of a boxer is different from that of a wrestler.

B On the basis of duration of activity

- **Speed Endurance :-** It 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, Merathon Race etc.
- **The medium term endurance :-** It is the activity lasting from 2.min to 11 minutes. Ex. 1500 & 3000 mts.
- **Long term Endurance :-** It is needed for those sports which require more than 11 minutes time ex. 5000m to 1000m cross country race, moreathons etc.

(any three)

Long Answer Questions (5 Marks)

Q.1. Differentiate between the continuous method and interval method. Describe its advantages.

Ans. **Continuous Method :-** In continuous 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 sports man should be between 140-160 beats per minutes. For fast continuous method the heart rate of an athlete should be increased about 175 - 180/b Min.

Its duration of exercise should be more than 30 minutes. Ex. running walking, cycling, cross-country race etc.



Advantages :

- Doing work continuously in spite of being tired strengthens the will to work.
- According to this method increases the red blood cells in muscles.
- In this method the working efficiency of heart and lungs get enhanced.
- In this method Glycogen in muscles and liver gets increased.
- Player develop self discipline and self confidence. Apart from this their will power also gets enhanced.

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 rate should go up to18 beat/ min. and when the heart rate comes down to 120-130beats/ 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 :-

- If an athlete perform these exercise in proper way then it will help to improve the working capacity in short time.
- This method has a positive effect on both respiratory system and circulatory system.
- The trainer can observe a player easily. The player in short time can enhance his endurance.
- The player comes to learn about the effect of his training.
- If the player mistake in executing the coach/ trainer can give him useful suggestion during recovery time. Thus, the players moral may be boosted.

Practice Question

Q.1. Write any two types of endurance on the basis of nature of activity. (1 + 1 = 2)

Q.2. Write any two types of endurance on the basis of duration of activity. (1 + 1 = 2)

Q.3. What is Endurance? Explain its types. (1+2=3)

Q.4. Describe the types on endurance on the basis of time with suitable example. (1+2=3)

Q.5. Write down the method to develop endurance? Explain one of them. (1+2=3)

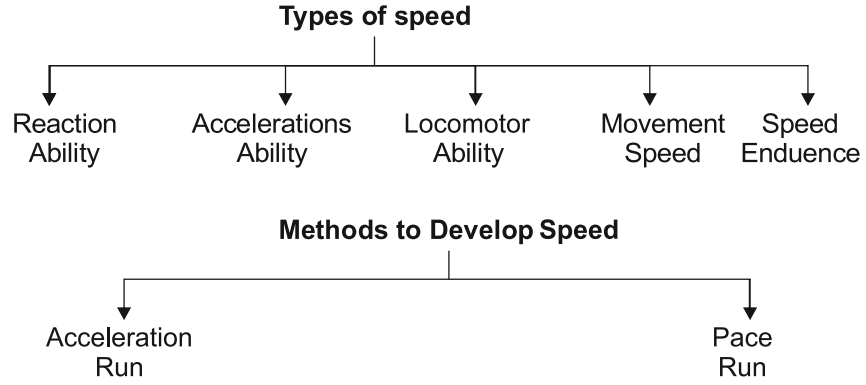
Q.6. Explain Fartlek method with its parameter. (3)

Q.7. What is Endurance? Enlist the methods to Develop endurance and explain any one of them in detail. (1+1+3=5)

Q.8. Explain any two methods to devlop the ability helps an individual to continue it activity under the condition of fatigue. (2½+2½=5)

10.3 Types and Method to Develop-Speed

It is the ability to do movement as quick as possible.



Multiple Choice Questions MCQ (1 Marks)

Q.1. Which is not the type of speed ability

(A) Reaction speed (B) Movement speed

(C) Speed Endurance (D) **Speed Play**

Q.2. The ability which is helpful to Maintain maximum speed for long time

(A) Reaction Ability (B) **Locomotor Ability**

(C) Speed Endurance ability (D) Movement speed ability

Q.3. Given below are the two statements labeled Assertion (A) & Reason (R).

Assertion (A): Endurance is the ability to resist the fatigue.

Reason (R): Speed in the ability to do movements as quick as possible.

(A) Both (A) & (R) are true & (R) is the correct explanation of (A).

(B) **Both (A) & (R) are true, but (R) is not the correct explanation of (A).**

(C) (A) is true but (R) is false.

(D) (A) is false but (R) is true.

Short Answer Type Questions (3 Marks)

Q.1. Explain the types of speed Ability?

Ans.1. Reaction ability: It is the ability to act against a signal.

2. **Acceleration ability:** It is the ability to achieve max speed in minimum possible time.
3. **Movement speed ability :** It is the ability to do a single small movement in minimum possible time.
4. **Locomotor ability:** It is the ability to maintain max speed as long as possible.
5. **Speed Endurance:** It is the ability to do the movement as quick as possible under the condition of fatigue.

Long Answer Type Question (5 Marks)

Q.1. Differentiate between pace run and acceleration run.

Or

Explain about acceleration Run and pace run.

Or

Beifly explain the methods for improving speed.

Ans. **Pace run:** Pace run means running the whole distance with a constant speed. Generally 800 metre and above races are included in pace races. An athlete can run a distance of 300 metre. at full speed but in longer races such a 800 mtr. or above, he must conserve athlete energy by reducing the speed. Example-If there is a runner of 800m race. His/her best time is 1 minute 40 seconds. So he/her 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 run 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 mt. sprint of 6-12 times. The maximum speed should be achieved within 5-6 sec. Sufficient intervals should be provided between the repetitions.

Practice Question

Q.1. Write any two method to improve speed. (3)

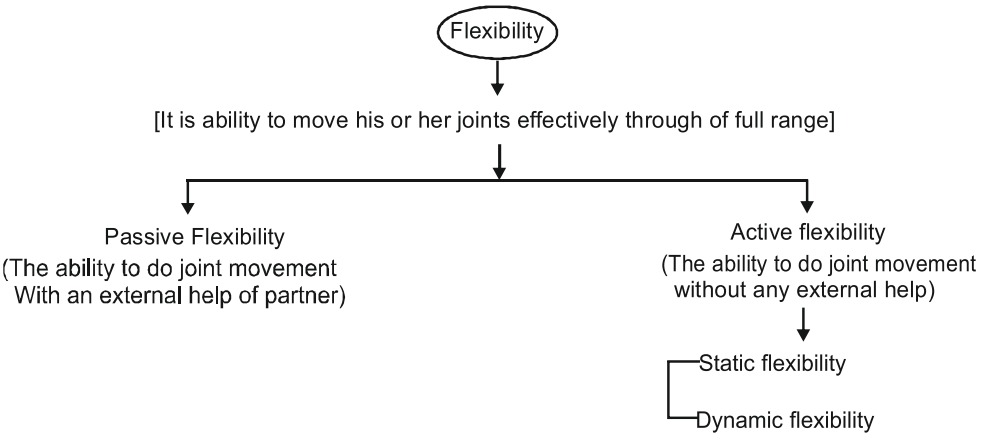
Q.2. Explain pace run method. (3)

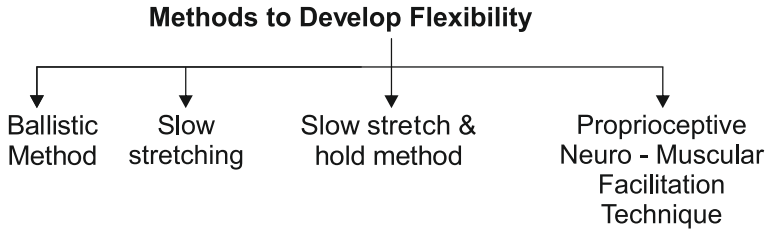
Q.3. Explain Acceleration run method. (3)

Q.4. What is speed? Discuss the methods to develop speed ability. (1 + 2 + 2 =5)

Q.5. Discuss the types of speed. Explain any one method to develop speed. (1 + 4 + =5)

10.4 Types and Method to Develop-Flexibility





Multiple Choice Questions MCQ (1 Marks)

Q.1. The ability which helps to the movement with greater range is known?

(A) Endurance (B) Strength

(C) **Flexibility** (D) Speed

Q.2. Which is not the method to improve flexibility?

(A) Ballistic method

(B) Slow stretch and hold method

(C) PNF method

(D) **Slow continuous method**

Q.3. Which is the most latest method to improve flexibility?

(A) Ballistic method

(B) Slow stretch & hold method

(C) PNF Technique

(D) Iso tonic method

Short Answer Questions (2 Marks)

Q.1. What do you mean by flexibility? Write any one type of it.

Or **1 + 1 = 2**

What is the difference between active and 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 less 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.

Short Answer type question (3 Marks)

Q.1. What are the methods to develop flexibility? Explain.

Or **(1 x 3 = 3)**

What is the difference between ballistic method and post Isometric method? (1 ½ + 1 ½ = 3)

Ans. To maintain flexibility in games and sports stretching exercises should be done. By following methods, one can improve their flexibility.

- **Slow Stretch and 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.This method is also use 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 exercise. Due to stretching of the muscle can be done in a rhythm.
- **Post - Isometric Stretch Method -** This method is based on the principle of proprio- Ceptive neuro- muscular facilitation means, If a muscle is contracted maximally for a few seconds, isometrically. It 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.

Question (3 Marks)

Q.1. Write the two types of flexibility.

Q.2. Enlist the methods to develop flexibility & explain any one of them.

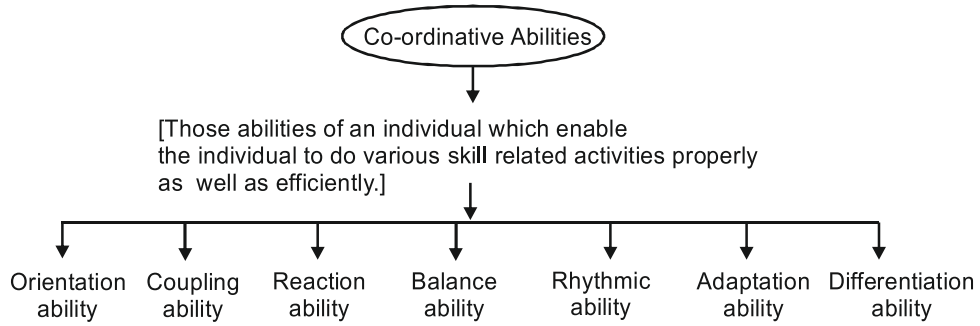
Q.3. Discuss post Iso-metric stretch method (PNF technique).

Q.4. Discuss Ballisitic method.

Q.5. Discuss slow stretch & hold method.

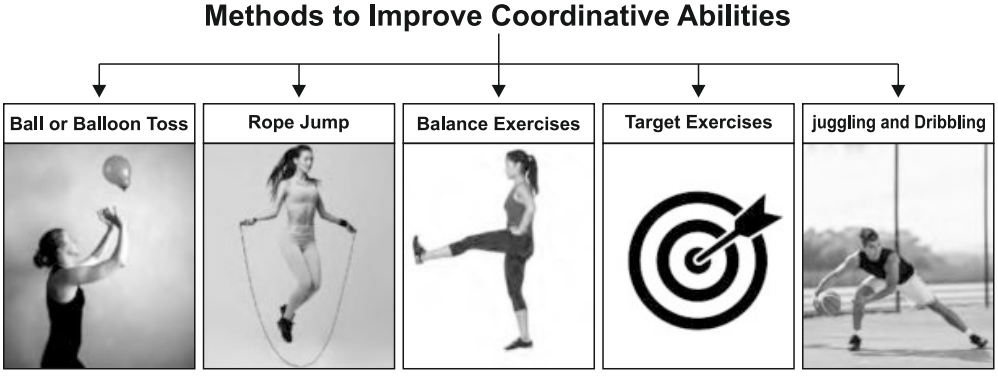
Q.6. Define flexibility? Explain its type & one method to develop flexibility.

10.4 Types and Method to Develop-Coordinative Ability

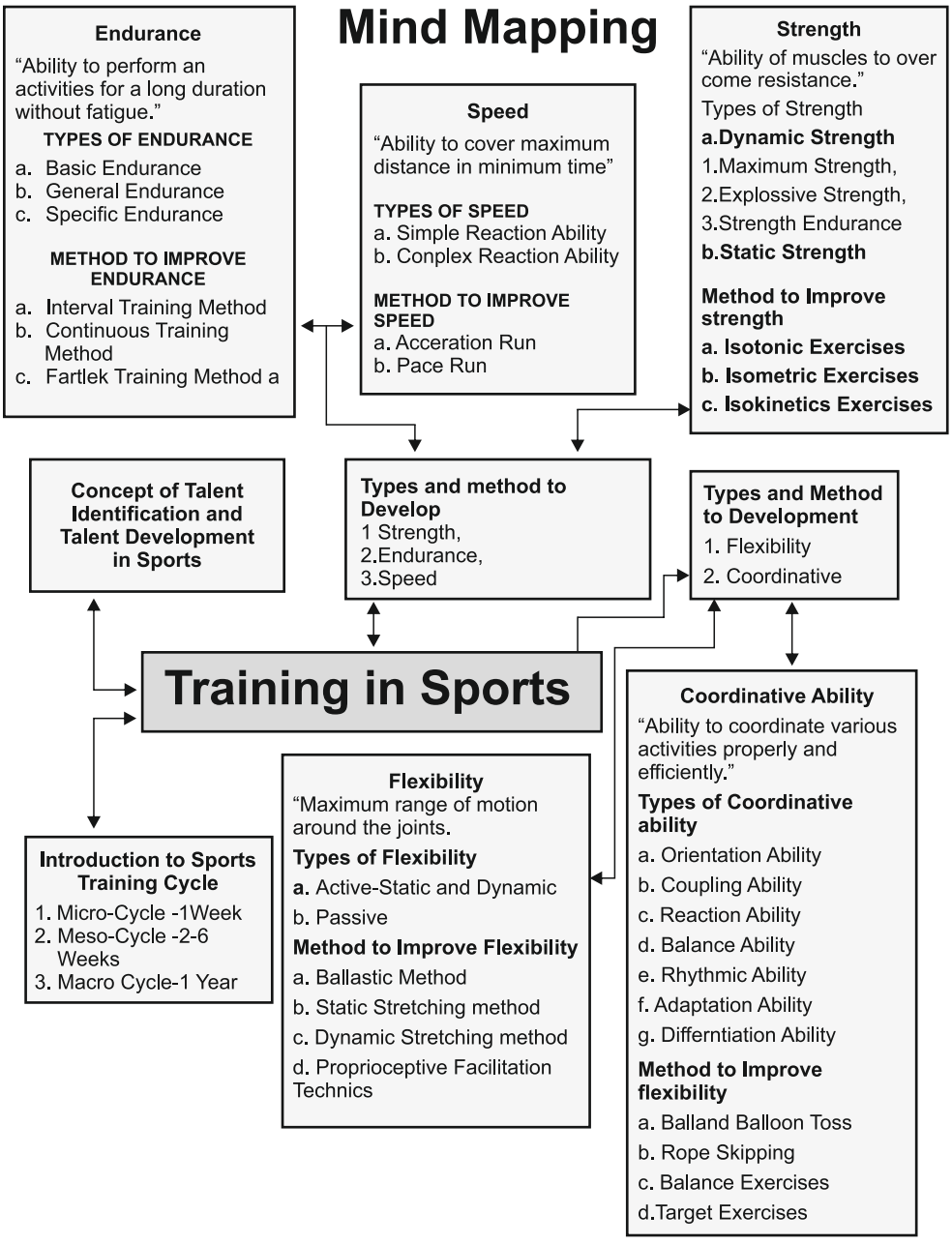


Methods to Improve Coordinative Abilities

Following exercises are considered to be the best one to improve coordinative ability of a person-



Mind Mapping



Multiple Choice Questions MCQ (1 Marks)

Q.1. Ability which help to change on the spot, predecided movement.

(A) Differentiation ability (B) Coupling ability

(C) Rhythm ability (D) **Adaptation ability**

Q.2. Ability help to make hormony among the different body parts & then related movements.

(A) Reaction Ability (B) Adaptation ability

(C) **Differentiation ability** (D) Balance ability

Q.3. Ability to coordinate body part movement with one another and in relation to a definite goal oriented body movement is know as-

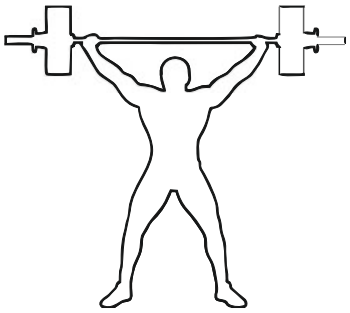
(A) Balance ability (B) Adaptation

(C) Rhythm ability (D) **Coupling ability**

Short Answer Questions (2 Marks)

Q.1. Identify the fitness component and write their name-

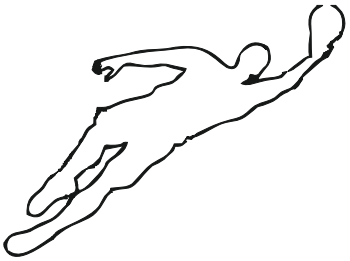
(½ + 4 = 2)

(A) 

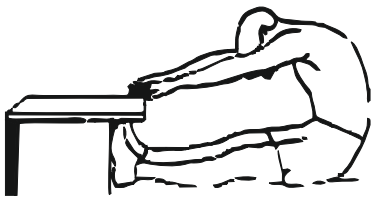
_____

(B) 

_____

(C) 

_____

(D) 

_____

Short Answer type Question (3 Marks)

Q.1. Discuss Reaction Ability.

Ans. Reaction ability is the ability which help to react against an signal. These are two types.

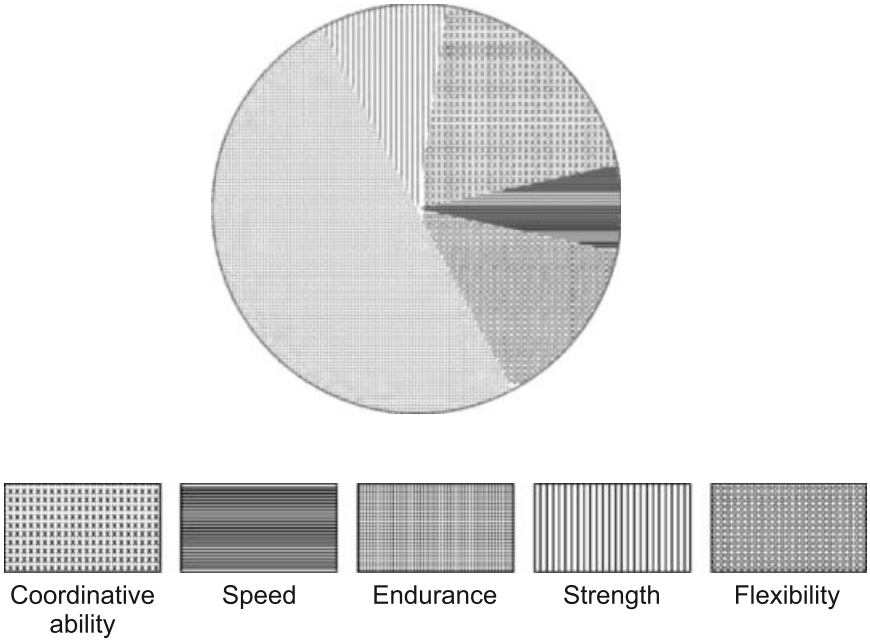
(a) **Simple Reaction ability.** That ability help to react against the known signal.

(b) **Complex Reaction ability:** That ability which help to react against the unknown singal.

Example:

- **Simple Reaction ability:** Reaction of Batsman according to the coming Ball.
- **Complex Reaction Ability:** Do the aerobic exercise according to unknown music.

Q.2. Discuss Below given is the fitness component data of a school going student-



On the basis of the above data answer the following Question:-

(i) Which fintness component school should focus to improve

(A) **Speed**

(B) Coordinative ability

(C) Flexibility

(D) Strength

(ii) Which component of physical fitness was more common in student:-

(A) Speed
(B) Strength
(C) Flexibility
(D) **Endurance**

(iii) It is the ability overcome the resistance:-

(A) **Strength**
(B) Speed
(C) Flexibility
(D) Endurance

Q.3 During the long jump of Sunil, his coach found that he lacked strength in his leg which prevented him to perform well. He advised him to follow the methods to develop strength.

Based on this case answer the following question

(i) Which exercise is suitable for leg strength-

(A) Push-up **(B) Depth-Jump**
(C) Cool-up (D) Bench Press

(ii) There is no change in the length of the muscles is called _____ exercise.

(A) Isometric (B) Isotonic
(C) Isokinetic (D) Continous

(iii) Which exercise is not for developing strength.

(A) Push-up (B) Depth-Jump
(C) Cool-up (D) Bench Press

Long Answer Type Questions (5 Marks)

Q.1. What are co-ordinative abilities in sports? Enlist the type of co-ordinative abilities. Explain any two of them.

Ans. Co-ordinative 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.

Co-ordinative abilities primarily depend upon the central nervous system. In sports, the co-ordinative abilities are following:-

- Differentiation ability
- Orientation ability
- Coupling ability
- Reaction ability
- Balance ability
- Rhythm ability
- Adaptation ability

1. **Orientation ability :-** It is ability of a person to adjust himself as per the time and condition of place. This ability has Different importance in each game.

2. **Coupling ability :-** It is the ability of a player to move his physical organs in order to do his activities. For example. Coordination between hands and eyes, feet and eyes etc. Example in Volleyball the smasher smashes the ball according to the lift of the ball and blockers co-ordinating the movements of his hands head and feet.

3. **Reaction ability :-** It is the ability to react quickly and effectively to a signal. There are two types of reaction ability, simple and complex reaction ability.

4. **Balance ability :-** Balance ability to keep body and its parts is a relatively stable position in both static and dynamic condition. It means to regain balance quickly after disturbing movements.

5. **Rhythm ability :-** It is the ability to understand the rhythm of movement and to do the movement with the required rhythm. It some sports like gymnastic, the athlete has to recognise on external rhythm given in the form of music and to express it in his movements.

6. **Adaptation ability :-** It is ability to adjust or bring about an effective change in the movement on the basis of changes or anticipated changes in the situation.

7. **Differentiation ability :-** The ability to attain a high degree of accuracy and economy of separate body movements and movement phase in a motor action is called Differentiation ability.

Q.2. Explain the methos of coordination ability improvements.

Ans. 1. Ball or Balloon Toss: This coordination exercise helps to improve coordination between hands, head, and other body part. This exercise is started by bumping a balloon or ball in the air and the try to catch it. Since the balloon floats slowly and ball moves quickely in the air, the participant has to quickely change the movement and angles of his/her body parts in an attempt to catch the ball or balloon. This hand -eye coordination exercise also helps to improve reaction time as everytime the participant has to move in different directions to catch the ball or balloon.

2. **Rope jump:** This exercise aims to improve coordination between hand, foot and eye movements. This exercise is started by hopping over the rope from one foot to the other. As the participant gains the rhythm he/she can gradually increase the speed. Jumping over the rope is not only an excellent drill to improve hands, eye coordination, it also improves foot speed, and helps to maintain control and rhythm in case of fatigue.

3. **Balance Exercises:** Balance is necessary for execution of various coordinative movements such as-standing, walking, running, etc. This exercise aims to improve ability to maintain balance as long as possible. This exercise begins by standing on both feet. Then slowly lift one leg as high as your hip to create a 90-degree angle. If the participant begin to feel shaky, then he/she should try to hold the position as long as possible. To increase the difficulty level of the exercise the participant can also use dumbles. The longer participant can maintain the balance, the better coordination ability he/she will have.

4. **Target Exercises:** Target practice is one of the staple drills for hand-eye coordination. Though it looks easy it's actually a really complex and challenging task of aiming and throwing at a target. This exercise starts by standing close to a target and hitting it accurately. Then slowly progress by moving further away from the target. For added difficulty level, try to aim at target from different angles instead of hitting in a straight line (or directly in front).

   Another option to improve your hand-eye coordination is to throw objects through an opening. Participant can use hoops, rings, or items with small to large opening as target. The smaller the opening the higher the difficulty level is.

5. **Juggling and Dribbling:** Juggling and dribbling helps to improve hand-eye coordination by enhancing control, rhythm, and timing. Juggling, begins by tossing two balls in air in a circular motion. Once the participant ables to maintain the

rhythm he/she may add in a third ball. Dribbling exercise helps to enhance speed while concentrating on the ball. Dribbling requires a good amount of time and practice, this coordination exercise also helps to improve hand-eye movements.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following

(a) Explosive Strength	(i) Endurance
(b) Continuous method	(ii) To over come Resistance with speed
(c) Post Isometric Strength Method	(iii) coordinative Abilities
(d) help to do movement effectively	(iv) Flexibility

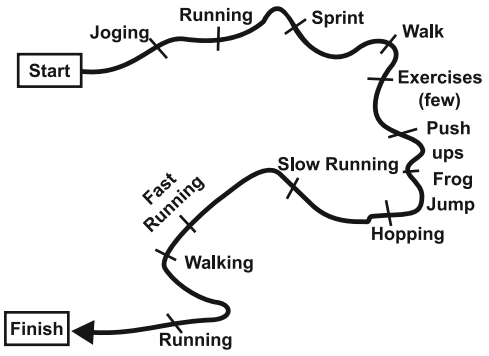
(A) a – iv, b – iii, c – ii, d – i

(B) a – ii, b – i, c – iii, d – iv

(C) a – ii, b – i, c – iv, d – iii

(D) a – i, b – ii, c – iv, d – iii,

Q.2.



(i) The above picture, shows which of the following training method-

a) Pace runs b) Fartlek c) Isometric d) Isotonic

(ii) The above shows training method helps to increase-

a) Strength b) Speed **c) Endurance** d) Flexibility

(iii) This training method was developed by

a) Holmer b) Fartlek c) Robert d) Johnson

Q.3. Match the following (1 Marks)

(a) Isometric method	(i) Heart rate 140 b/mt 180 b/m
(b) Fartlek method	(ii) Speed
(c) Circuit training	(iii) Length of muscle remains same
(d) Pace Run method	(iv) to exercise with out any break

(A) a – iv, b – iii, c – ii, d – i

(B) a – i, b – iii, c – ii, d – iv

(C) a – iii, b – i, c – ii, d – iv

(D) a – iii, b – i, c – iv, d – ii

Q.4. What is Endurance? Explain any one method to develop Endurance? **(1 + 2 = 3)**

Q.5. Differentiate between active and passive flexibility. **(1 + 1 = 2)**

Q.6. Differentiate between Isotonic and Isometric. **(1 + 1 = 2)**

Q.7. What is flexibility? Explain post iso metric strength method to develop flexibility. **(1 + 2 = 3)**

Q.8. Explain fartlek training method. **(1 + 2 = 3)**

Q.9. What is strength? Discuss the isotonic & Isokinetic method to develop strength training. **(1 + 2 + 2 = 5)**

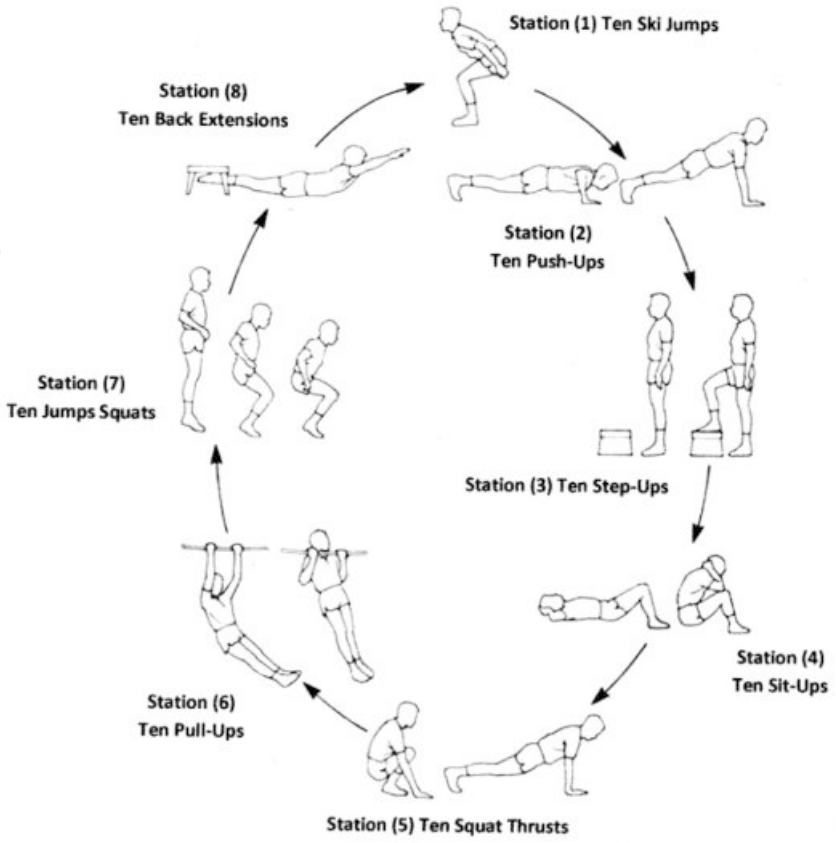
Q.10. Write short note on following.

(a) Methods to develop endurance (any two)

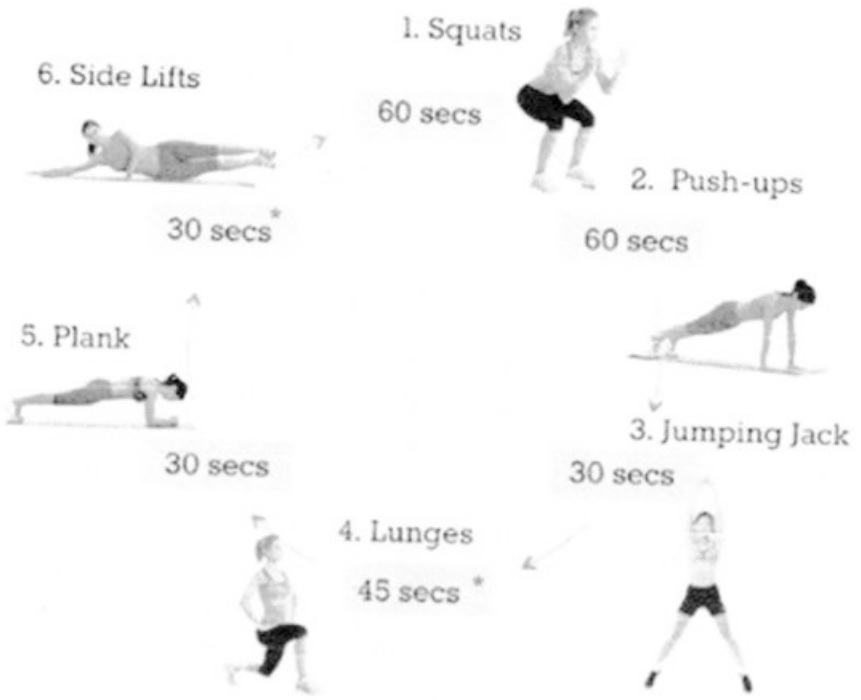
(b) Methods to develop flexibility (any two) **(2½ × 2 = 5)**

10.5 Circuit Training -Introduction & its importance

- Circuit training is a form of body conditioning that involves endurance training, strength training, speed training, high-intensity aerobics, and exercises performed in a circuit.
- Circuit training is a workout method that involves rotating through several different exercises for a certain amount of time or number of repetitions, with little to no rest.
- Circuit training is a type of exercise that involves performing a series of exercises in a specific order, with minimal rest in between. The exercises are usually performed for a set amount of time or a set number of repetitions, and the circuit may be repeated multiple times.



Example of Eight Station Training



Example of Six Station Training

- It is also known as station training,

Importance of Circuit Training

Circuit training is a popular form of exercise because it can be customized to meet the needs of a wide range of individuals, from beginners to advanced athletes. It also provides a variety of benefits, including:

- **Improved cardiovascular health:** Circuit training can be an effective way to improve your heart health by elevating your heart rate and challenging your cardiovascular system.
- **Increased strength and endurance:** By performing a variety of exercises with minimal rest, circuit training can help you build both muscular strength and endurance.

- **Time-efficient:** Because circuit training involves performing multiple exercises in a short period of time, it can be a time-efficient way to get a full-body workout.
- **Versatile:** Circuit training can be performed using a variety of equipment, including weights, resistance bands, and bodyweight exercises. This makes it a versatile form of exercise that can be performed at home, at the gym, or even outdoors.

Overall, circuit training is a great way to improve your fitness, build strength and endurance, and challenge vourself in a fun and effective way.

Multiple Choice Questions MCQ (1 Marks)

Q1. Which of the following method develops Speed, Strength and Endurance together?

(A)Pace Training Method

(B) Circuit Training Method

(C) Interval Training Method

(D) PNF Training Method

Short Answer Questions (2 Marks)

Q2. What is circuit training?

Ans: Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building and muscular endurance.

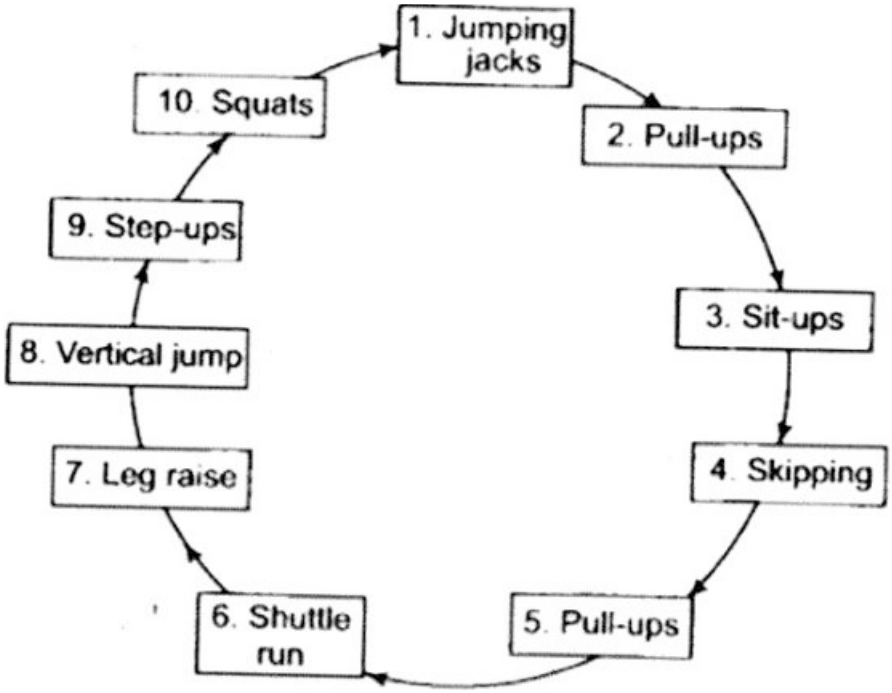
Long Answer Questions (5 Marks)

Q3. Draw ten stations circuit training programme for improving the jumping ability of a player.

Ans: Circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It targets strength building and muscular endurance. An exercise circuit' is one completion

of all prescribed exercise in the programme. When a circuit is complete, one begins the first exercise again for the new circuit. A specific circuit, however, can consist of several exercises involving the same muscle groups.

An example of circuit training is given below



Practice Questions

Multiple Choice Questions MCQ (1 Marks)

Q1. Training program which made up of different activities in station for developing all round fitness is known as:

(A) Set training

(B) Circuit training

(C) Interval training

(D) Cross training

Q2. Which type of workout focuses on resistance training?

(A) Flexibility training

(B) Circuit training

(C) Interval training

(D) Cardio Vascular Endurance

Short Answer Questions (3 Marks)

Q3. Define Circuit training. Draw a circuit training plan of 6 stations.

Long Answer Questions (5 Marks)

Q4. Describe any five importance of circuit training in your daily life.

PHYSICAL EDUCATION -XII

PRACTICE PAPER-2025-26

SECTION A

Q1.The number of teams playing in a knockout tournament is 15. Calculate the number of Byes to be given.

(A) 3 (B) 4

(C) 2 (D) 1

Q2. Given below are the two statements labelled as Assertion (A) and reason (R).

Assertion (A): Proprioceptive neuromuscular facilitation (PNF) technique develops flexibility in the shortest possible time.

A. B Reason (R): This method involves the use of muscle contraction before the stretch in an attempt to achieve maximum muscle relaxation.

In the context of the above two statements, which one of the following is correct?

A. Both (A) and (R) are true and (R) is the correct explanation of (A).

B. Both (A) and (R) are true, but (R) is not the correct explanation of (A).

C. (A) is true, but (R) is false.

D. (A) is false, but (R) is true

Q3. Match List – I with List – II and select the correct answer from the code given below:

List-I			List-II	
(i)	extrovert		(1)	emotional instability
(ii)	ambivert		(2)	optimistic
(iii)	introvert		(3)	unsocial
(iv)	neuroticism		(4)	Moody, confident

		Code		
	(i)	(ii)	(iii)	(iv)
A	3	2	4	1
B	2	4	1	3
C	4	3	1	2
D	3	4	2	1

Q4. The amount of oxygen which can be absorbed and consumed by the working muscle from the blood is called ----------

A. Aerobic capacity

B. Intake of oxygen
C. Uptake of oxygen
D. Oxygen transport
E.

Q5. Identify this Asana.



A. Halasana B Ardha Halasana
C Paschimottanasana D Bhujangasana

For visually impaired

Halasana is performed in——---

(A) Standing pose (B) Supine pose
(C) Prone position (D) Sitting position

Q6---------- is an explosive strength.

A. Ability of the muscle to overcome a particular resistance with high speed.

B. Capacity of the individual to maintain strength for a long period.

C. The greatest possible strength that our body system can exert in a single effort.

D. Muscular tension is developed without any visible movement.

Q7.. Mr. Subhash, the PET of Sarvodaya School organised an intramural tournament of football for 04 houses of the school. The total number of matches played in the tournament were 06. From the following, identify the formula used in this tournament to calculate the number of matches.

A. $(n+1)(n+1)$ B. $\frac{(N-1)}{2}$

C. $\frac{N(N-1)}{2}$ D. $\frac{N(N+1)}{2}$

Q8. Which of the following is not a feature of intrinsic motivation?

(A) Goals. (B)Feedback..

(C) Needs.. (D)Attitudes.

Q9. Who will have more stability

A. A person standing with both the feet together

B. A person standing on both the feet apart

C. A Volleyball player in defence position

D. A person lying on the floor

Q. 10. Match List – I with List – II and select the correct answer from the code given below:

List-I		List-II	
(i)	.Dryness of eyes.	(1)	Deficiency of calcium.
(ii)	Anaemia.	(2)	Deficiency of vitamin A.
(iii)	Decreased bone density.	(3)	Lack of water during dieting.
(iv)	Night blindness.	(4)	Deficiency of Iron.

		Code		
	(i)	(ii)	(iii)	(iv)
A	3	2	4	1
B	2	4	1	3
C	4	3	2	1
D	3	4	1	2

Q11. Which of the following is not a part of female athlete Triad:

A. Eating disorder B. Amenorrhea

C. Kyphosis D. Osteoporosis

Q12. Practice of which of the following asanas helps in preventing Asthma?

A. Halasana
B. Uttan Mandukasana
C. Paschimottanasana
D. Pawanmuktasana

Q13. The number of teams playing in a knockout tournament is 15. Calculate the number of Byes to be given.

(A) 3 (B) 4
(C) 2 (D) 1

Q14. Identify the incorrect physiological factor about flexibility

A. flexibility is decreased due to injury
B. 10 minutes in hot temperature increases flexibility
C. Flexibility of person increases with age
D. Muscle strength can enhance flexibility

Q15. Children with special needs are required to use special equipment to learn physical activities. Which of the following statement is appropriate regarding the inclusion of children with special needs:

A. Change in equipment. B. Separate classroom.
C. Change in the sports field. D. Change in rules

Q16. Given below are the two statements labelled Assertion (A) and reason (R).

A. Assertion (A): Regular exercise helps to control weight by using up excess calories.

B Reason (R): The process of losing weight could be easier and more pleasant if you get support from others.

In the context of the above two statements, which one of the following is correct?

A. Both (A) and (R) are true and (R) is the correct explanation of (A).

B. Both ((A) and (R) are true, but (R) is not the correct explanation of (A).

C. (A) is true, but (R) is false.

D. (A) is false, but (R) is true.

Q17. A test to measure speed and coordination of limb movement of 5 to 8 year old is——-----

A. Body Mass Index B. Plate Tapping

C. Flamingo Balance Test D. Sit & Reach Test

Q18. Sideways curvature of the spine is known as——----------

A. Scoliosis B. Kyphosis

C. Lordosis D. Round Shoulders

SECTION B

Q19. Point all the physiological factors for endurance. 1/2x4=2

Q20. Give your suggestions to reduce aggression in sports. 1/2x4=2

Q21. Explain isometric exercises with examples. 1+1=2

Q22. Define fracture. Enlist any four types of fractures. 1+¼=2

Q23. Explain the procedure and scoring of push ups tests for boys. 1.5+½=2

Q24. Suggest any two methods to maintain healthy body weight. 1+1=2

SECTION C

Q25. Explain the benefits of physical activities for the children with special needs. 1+1+1=3

Q26. Which kind of diet should be given to the sports person after the competition? 1+1+1=3

Q27. Explain the objectives of intramural tournaments. 1+1+1=3

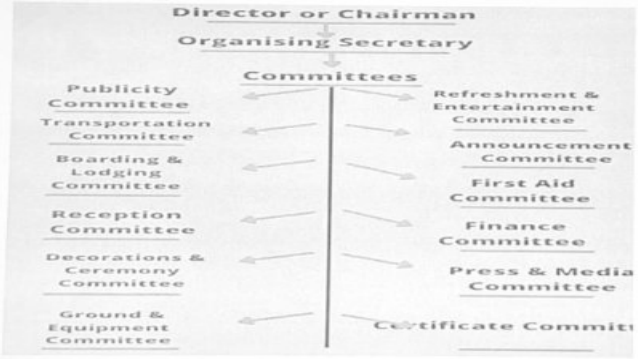
Q28. Elaborate the characteristics of OPENNESS and NEUROTICISM domains of Big Five Theory.

Q29. What are the effects of exercises on the muscular system?

Q30. Suggest corrective measures for Kyphosis, Lordosis and Scoliosis.

SECTION D

Q31. While organising sports events for the Annual Sports Day, Ranjita and Raghav being the captain and vice captain of sports, formed various committees as shown below.



On the basis of above picture, answer the following questions:

(i) Which committee will ensure the printing of certificates with the name of the institution, logo and dates?

A. Reception committee B. Certificate committee

C. Press and media committee D. refreshment committee

(ii) Which committee is responsible for making ground with proper marking?

A. Ground and equipment committee B. Decoration and ceremony committee

C. Publicity committee D. Reception committee

(iii) An aerobics demonstration will arrive one day in advance to the programme who will look after the arrangement of their stay?

A. Certificate committee B. First- aid committee

C. Lodging and boarding committee D Finance committee

(iv) Who will make the report of the programme for printing in newspapers?

A. Announcement committee B. . Certificate committee

C. Publicity committee D Press and media committee

OR

State the function of the announcement committee. For visually impaired

state the functions of the committee those work before the tournament for the smooth functioning





Q32. Geeta and Babita both were going to participate in the Special Olympic Athletics Meet for the children with special needs. They were given separate events according to their abilities in the Divisioning process. Geeta was adamant to stand with her sister only. Their special education teacher pacified and explained to her. On the basis of this case study answer the following questions:

(i) Which of the following is not a criteria for divisioning process

(A) Gender (B) Weight

(C) Age (D) Ability

(ii) When did the Special Olympic Games start?

A. (A) 1968 (B) 1924

(C) 1948 (D) 1920

(iii)Who started the Special Olympics?

(A) Ludwig Guttmann (B) Kennedy Shriver

(C) Parie De Coubertin (D) Thierry Darnis

(iv) Name the organisation that takes care of Special games in India.

(A) Indian Olympic association (B) International Olympic Association

(C) Special Olympic Association (D) Special Olympic Bharat

OR

What is the oath of the Special Olympic Games?

(A Perri De Equitas.

(B) Let me win , If I can not win then let me be brave in my attempt

(C Faster, Higher, Stronger, Communiter

(D) Happiness for all

Q33. Ratna is a goalkeeper of the state football team. Once she reached the camp late for coaching and without warming up, entered the ground.5 minutes into the game, the ball came towards her and she went to kick the ball. She fell a sprain in her hamstring. She immediately bent down in pain and had to leave the ground.

(i) Sprain is a.-------- Injury.

(A) Soft tissue injury. (B) Hard tissue.
(C) Bone (D) Joint.

(ii) Identify the symptoms of sprain from the following options.

(A) Headache. (B)Bleeding.
(C) Tearing of the ligament. (D) Breakage of bone.

(iii) Select the appropriate type of treatment for sprain from the following options.

(A) Taking rest. (B)Tying the wounded area..
(C) PRICE Treatment.. (D) RICE Treatment

(iv) Injuries can be avoided by.....

(A) Proper warming up. (B)Proper technique of the game..
(C) Appropriate equipment for the game.. (D) All of these.

SECTION E

Q34. Discuss the asanas helpful for a person suffering from diabetes. Write the procedure and contraindications of Mandukasana.

Q35. Make a list of the test items of Rikili & Jones senior citizen fitness test. Explain the procedure of 6 metre walk test and 8 foot up and go test.

Q36. Define speed. Explain the methods to develop speed.

Q37. With the help of suitable examples, discuss how understanding projectile motion helps in performing better in sports.

SAMPLE PAPER

2023-24

PHYSICAL EDUCATION (048)

Time Allowed: 3hrs Max. Marks:70

GENERAL INSTRUCTIONS:

1) The question paper consists of 5 sections and 37 Questions.
2) Section A consists of question 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.
3) Sections B consist of questions 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.
4) Sections C consist of Question 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.
5) Sections D consist of Question 31-33 carrying 4 marks each and are case studies. There is internal choice available.
6) Section E consists of Question 34-37 carrying 5 marks each and are short answer types and should not exceed 200-300 words. Attempt any 3.

(SECTION-A)

Q.1 The three basic components of lever are_____.

(a) Load, force and Mass
(b) Mass, Load and fulcrum
(c) fulcrum, Resistance and Efforts
(d) Mass, Force and Velocity

Q.2 Which asana is not used for cure diabetes.

(a) Bhujangasana
(b) Shavasana
(c) Ardhmatseyandrasana
(d) mandukasana

Q.3 Given below are the two Statement labelled assertion (A) and Reason (R)

Assertion: Saturated fats should be limited to less than 7% of the daily calorie intake.

Reason: Saturated fats increase LDL(bad) cholesterol level which can lead to heart disease.

In the context of the above two statements, which one code is correct?

(a) Both (A) and (R) are true and (R) of the correct explanation of (A)
(b) Both (A) and (R) are true and (R) is not correct explanation of (A)
(c) (A) is true but (R) is false
(d) (A) is false but (R) is true

The protective and regulatory nutrient is_____.

(a) Carbohydrates
(b) Fats
(c) Vitamins
(d) Protein

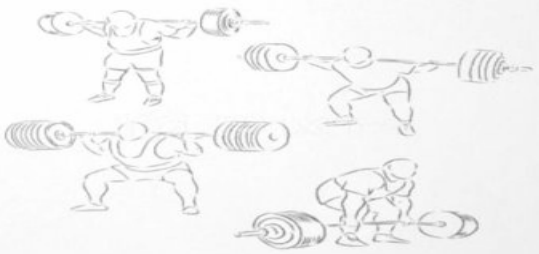
Q.4 Lordosis is a deformity of ---------

(a) Lower back
(b) Lower legs
(c) Upper back
(d) Knees

Q.5 Select the odd factor related to intramural Tournaments .

(a) Within the boundary wall of institute
(b) Intra-school level
(c) Inside Institute
(d) Outside the boundary wall of institute

Q.6 Identify the sports training Method.



(a) Isometric training Method
(b) Isotonic training Method
(c) Isokinetic Method
(d) Static Strength Method

For Visually Impaired Students

Which of the following is not an example of "Isotonic Strength"?

(a) Pushing a wall
(b) Pull up
(c) Push up
(d) Lifting Weights continuously

Q.7 Which is one of the results of physical activities in children with special needs?

(a) Improvement in confidence
(b) Increase in stress
(c)Increase in depression
(d) Bad leg-eye coordination

Q.8 A woman measures his Body Mass Index is 29, he belongs Which category?

(a) Under Weight
(b) Normal Weight
(c) Obesity
(d) Over Weight

Q.9 Ludwig Guttmunn is associated with_____.

(a) Special Olympic Games
(b) Asian Games
(c) Paralympic Games
(d) Deaflympic Games

Q.10 Why the game of football and Hockey are played on grassy surface?
(a) to increase friction
(b) to Decrease speed
(c) to increase flexibility
(d) to increase endurance

Q.11 Given below are the two Statement labelled assertion (A) and Reason (R)

Assertion: Aerobic Exercises are the example of Rhythmic Co-ordination Abilities.

Reason: Eye -Muscle Co-ordination is essential for Effectively Activities.

In the context of the above two statements, which one code is correct?

(e) Both (A) and (R) are true and (R) of the correct explanation of (A)
(f) Both (A) and (R) are true and (R) is not correct explanation of (A)
(g) (A) is true but (R) is false
(h) (A) is false but (R) is true

Q.12 Match List– I with List– II and select the correct answer from the code given below:

List I	List II
I Finance Committee	1 To provide medical assistance
II Technical committee	2 To provide boarding and lodging facility
III Transport committee	Rules and regulation
IV First aid committee	4 To provide monetary assistance

Code

	I	II	III	IV
a	3	4	2	1
b	4	1	2	3
c	2	3	4	1
d	1	2	3	4

Q.13 Choose the odd one:

(a) Openness (b) Extraversion
(c) Neuroticism (d) Introvert

Q.14 Knock knee is a postural deformity related with----------.

(a) Shoulder (b) Legs
(c) Hand (d) Back Bone

Q.15 Identify the Newton's Law of Motion from the picture?

(a) Law of Reaction (b)Law of Equilibrium
(c) Law of inertia (d) Law of Acceleration

Only For Visually Impaired Students

Newton's second law of Motion is _____.

(a) Speed = Distance x Time
(b) Force = Mass x Acceleration
(c) Force = Mass x momentum
(d) Acceleration =Mass x Volume

Q.16 "The Joy and happiness for all the children of the world" belongs to _____.

(a) Summer Olympic Games
(b) Special Olympic Games
(c) Summer Asian Games
(d) Paralympic Games

.17 Match List – I with List – II and select the correct answer from the code

List I	List II
I Upper Body Strength	1 Modified Push-Up Test
II Endurance	2 50mtrs Dash
III Lower Body Flexibility	3 600m run/walk test
IV Speed	4 Sit and Reach Test

CODE

	I	II	III	IV
a	1	4	2	3
b	4	1	2	3
c	2	3	4	1
d	1	3	4	2

Q.18 Rubbing away of the skin is known as_____.

(a) Contusion
(b) Incision
(c) Abrasion
(d) Fracture

(Section-B)

Q.19 Write the benefits of Shalbhasana (1+1)

Q.20 Suggest exercise for upto the age of 18 years of age old children. (1.5x4)

Q.21 Write a short note on Special Olympic Bharat. (1+1)

Q.22 Differentiate between Bye and seeding. (2)

Q.23 Why are minerals necessary for health? (0.5x4)

Q.24 State any four types of coordinative abilities. (1+0.5x2)

(Section-C)

Q.25 Explain Female Athlete Triad. (1x3)

Q.26 Write the strategies adopted in designing activities for Children with Special Needs. (1x3)

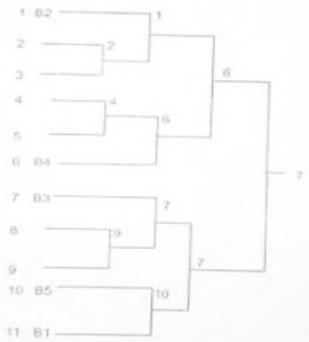
Q.27 Define Soft Tissues Injuries in sports? Discuss the preventive measures of Soft Tissues Injuries? (1+0.5x4)

Q.28 Explain Carl Jung's classification of Personality. (1x3)

Q.29 What is Harvard Step Test? Write its Purpose. (3)

Q.30 Explain equilibrium with sports examples. (1x3)

(Section-D)



On the basis of the fixture given above, answer the following questions:

(i) Total number of matches in second round ———
(A) 10 (B0 04
(C)09 (D) 05

(ii) Number of matches played can be calculated by the formula _____
(A) N+1 (B) N(N-1)
(C) N-!/2 (D) N-1

(iii) The method followed in drawing the fixture is _____
(A) Staircase (B) Cyclic
(C) knock out (D) Tabular

(iv) A privilege given to a team to play at a higher round is called _____
(A) Bye (B) seeding
(C)walk over (D) challange
or
In this type of tournament, a team one defeated gets_____
For visually impaired

In the zonal volleyball tournament . 13 teams came to participate. The tournament was organised on knockout basis. On the given information answer the following questions-

(i) Total number of "bye" will be ———
(A) 04 (B0 5
(C) 02 (D) 03

(ii) Number of matches played can be calculated by the formula _____
(B) N+1 (B) N(N-1)
(C) N-!/2 (D) N-1

(iii) Select the appropriate option about knockout tournament from the following
(A) this is a time saving tournament
(B) it needs lots of funds to organise
(C) All the teams get a chance to play with each other
(D) Players get multiple chances to showcase their talent,

(iv) A privilege given to a team to play at a higher round is called _____
(A) Bye (B) seeding
(C)walk over (D) challenge

OR

If there were 20 teams in the tournament then -------number of rounds will be there in the tournament.
A) 04 (B0 5
(C) 02 (D) 03

32. Study the diagram given below 4x1=4



Image-1 Image-2 Image-3

On the basis of your knowledge and study of the above, answer the following questions.

(a) What type of fracture do you see in Figure-1?
(A) compound (B) transverse
(C) oblique (D) impacted

(b) When a bone breaks diagonally, as shown in Figure 2, it is known as
(A) communited (B) transverse
(C) oblique (D) impacted

(c) Fracture occurs when the force of the injury causes the broken ends of the bones to press together.
(A) compound (B) transverse
(C) oblique (D) impacted

(d) In which type of fracture, the bone breaks, splits or is crushed into many pieces?
(A) compound (B) transverse
(C) communited (D) impacted

For visually impaired

Hard tissues injuries

An injury to the body's skeletal system is known as a hard tissue injury. These injuries occur when a bone fractures, meaning the bone either cracks or breaks. On the basis of your knowledge and study of the above, answer the following questions

(i) A fracture in the young pliable bone, where the bone bends
(A) compound (B)green stick
(C)) transverse (D) impacted

(ii) When a bone breaks diagonally, it is known as
(A) communited (B) transverse
(C) oblique (D) impacted

(iii) Fracture occurs when the force of the injury causes the broken ends of the bones to press together.
(A) compound (B) transverse
(C) oblique (D) impacted

(iv) In which type of fracture, the bone breaks, splits or is crushed into many pieces?
(A) compound (B) transverse
(C) communited (D) impacted

Or

(ii) When there is a straight break in the bone, it is known as
(A) transverse (B communited
(C) oblique (D) impacted



Q.33
On the basis of the picture given above, answer the following questions:
(A) Identify this asana that is used to cure Hypertension
(A) trikonasana (B) chakrasana
(C) bhungasana (D) ushtrasana

(B) Consumption of which food items should be restricted to control hypertension?
(A) water (B) salt
(C) vegitables (D)milk

(C) Which of the following can be used for preventing hypertension.
(A) kapalbhati (B) chakrasana
(C) shitali pranayama (D) ardhmatsaendrasana

(D) State any two harmful effects of Hypertension.
OR
State any two causes of Hypertension.
A yoga instructor is teaching ANULOM VILOM pranayama to a group of students. She demonstrates the correct posture and hand position. After explaining the technique, she asks the students to practice while she observes and provides guidance. Based on this information answer the following question
For visually impaired
(i) What is the correct hand position for practicing anulom vilom
(A) left hand in Chin mudra

(B) left hand in Janana mudra
(C) both hands on the knees
(D) hands in Anjali mudra

(ii) how many counts should the students inhale through each nostril
(A) 3 counts
(B) 5 counts
(C)8 counts
(D)10 counts

(iii) Which of the following is not a benefit of anulom vilom Pranayama

(A) improves focus and attention
(B) strengthens the immune system
(C) increases blood pressure
(D) balances left and right brain hemispheres

(vi) how long should the instructor recommend practicing anuloma vilom
(A) 1 to 2 minute
(B) 3 to 5 minute
(C) 7 to 10 minutes
(D) 15 to 20 minute
Or
Anulom vilom is performed in------- position
(A) Sitting
(B) Standing
(C) Supine
(D) prone

(Section-E)

Q.34 Define Strength? Describe any 2 methods to develop strength. (1+4)

Q.35 Briefly explain the personality traits of Big five theory. (5)

Q.36 Define Hypertension. Write the procedure and contradiction of Shitali pranayama. (1+2+2)

Q.37 Define healthy weight. Suggest action plan to maintain healthy weight. (1x5)

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