

DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL

(2022-2023)

Class : XII

PHYSICAL EDUCATION

Under the Guidance of

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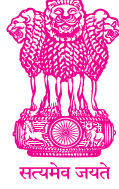
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Published at Delhi Bureau of Text Books, 25/2, Institutional Area, Pankha Road, New Delhi-58 by **Rajesh Kumar**, Secretary, Delhi Bureau of Text Books and Printed at: Supreme Offset Press, 133, Udhog Kendra Ext.-1, Greater Noida, U.P.

**ASHOK KUMAR
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MESSAGE

Remembering the words of John Dewey, "Education is not preparation for life, education is life itself, I highly commend the sincere efforts of the officials and subject experts from Directorate of Education involved in the development of Support Material for classes IX to XII for the session 2022-23.

The Support Material is a comprehensive, yet concise learning support tool to strengthen the subject competencies of the students. I am sure that this will help our students in performing to the best of their abilities.

I am sure that the Heads of School and teachers will motivate the students to utilise this material and the students will make optimum use of this Support Material to enrich themselves.

I would like to congratulate the team of the Examination Branch along with all the Subject Experts for their incessant and diligent efforts in making this material so useful for students.

I extend my Best Wishes to all the students for success in their future endeavours.

(Ashok Kumar)

HIMANSHU GUPTA, IAS
Director, Education & Sports



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MESSAGE

“A good education is a foundation for a better future.”

- Elizabeth Warren

Believing in this quote, Directorate of Education, GNCT of Delhi tries to fulfill its objective of providing quality education to all its students.

Keeping this aim in mind, every year support material is developed for the students of classes IX to XII. Our expert faculty members undertake the responsibility to review and update the Support Material incorporating the latest changes made by CBSE. This helps the students become familiar with the new approaches and methods, enabling them to become good at problem solving and critical thinking. This year too, I am positive that it will help our students to excel in academics.

The support material is the outcome of persistent and sincere efforts of our dedicated team of subject experts from the Directorate of Education. This Support Material has been especially prepared for the students. I believe its thoughtful and intelligent use will definitely lead to learning enhancement.

Lastly, I would like to applaud the entire team for their valuable contribution in making this Support Material so beneficial and practical for our students.

Best wishes to all the students for a bright future.

(HIMANSHU GUPTA)

Dr. RITA SHARMA
Additional Director of Education
(School/Exam)



Govt. of NCT of Delhi
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Old Secretariat, Delhi-110054
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D.O. No. PS/Addl.DE/Sch/2022/131
Dated: 01 सितम्बर, 2022

संदेश

शिक्षा निदेशालय, दिल्ली सरकार का महत्वपूर्ण लक्ष्य अपने विद्यार्थियों का सर्वांगीण विकास करना है। इस उद्देश्य को ध्यान में रखते हुए शिक्षा निदेशालय ने अपने विद्यार्थियों को उच्च कोटि के शैक्षणिक मानकों के अनुरूप विद्यार्थियों के स्तरानुकूल सहायक सामग्री कराने का प्रयास किया है। कोरोना काल के कठिनतम समय में भी शिक्षण अधिगम की प्रक्रिया को निर्बाध रूप से संचालित करने के लिए संबंधित समस्त अकादमि समूहों और क्रियान्वित करने वाले शिक्षकों को हार्दिक बधाई देती हूँ।

प्रत्येक वर्ष की भाँति इस वर्ष भी कक्षा 9वीं से कक्षा 12वीं तक की सहायक सामग्रियों में सी.बी.एस.ई के नवीनतम दिशा-निर्देशों के अनुसार पाठ्यक्रम में आवश्यक संशोधन किए गए हैं। साथ ही साथ मूल्यांकन से संबंधित आवश्यक निर्देश भी दिए गए हैं। इन सहायक सामग्रियों में कठिन से कठिन सामग्री को भी सरलतम रूप में प्रस्तुत किया गया है ताकि शिक्षा निदेशालय के विद्यार्थियों को इसका भरपूर लाभ मिल सके।

मुझे आशा है कि इन सहायक सामग्रियों के गहन और निरंतर अध्ययन के फलस्वरूप विद्यार्थियों में गुणात्मक शैक्षणिक संवर्धन का विस्तार उनके प्रदर्शन में भी परिलक्षित होगा। इस उत्कृष्ट सहायक सामग्री को तैयार करने में शामिल सभी अधिकारियों तथा शिक्षकों को हार्दिक बधाई देती हूँ तथा सभी विद्यार्थियों को उनके उज्ज्वल भविष्य की शुभकामनाएं देती हूँ।

रीता शर्मा
(रीता शर्मा)

DIRECTORATE OF EDUCATION
Govt. of NCT, Delhi

SUPPORT MATERIAL
(2022-2023)

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 हैं, 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 एतद्वारा 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.**

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
Dr. Leena Vyas SPE (PE & NI)
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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/HFF3UIIH254>



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

Link: <https://youtu.be/zrzP2Pkz2oM>



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

Link: <https://youtu.be/TQcUmeCIIb4>



Unit (3): Yoga and Lifestyle (Part-A)

Link: <https://youtu.be/ohxP-HOwg5Y>



Unit (3): Yoga and Lifestyle (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/66hH4rtogts>



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>



PHYSICAL EDUCATION (048)
Class XII (2022-23)

Theory

Max. Marks 70

Unit1 Management of Sporting Events

- ♦ Functions of Sports vents Management (Planning, Organising, Staffing, Directing & Controlling)
- ♦ Various Committees & their Responsibilities (pre; during & post)
- ♦ Fixtures and its Procedures — Knock-Out (Bye & Sceding) & League (Staircase & Cyclic)

Unit II Children & Women in Sports

- ♦ Common Postural Deformities - Knock Knee; Bow Legs, Flat Foot; Round Shoulders; Lordosis, Kyphosis and Scoliosis and their corrective measures
- ♦ Special consideration (Menarche & Menstrual Dysfunction)
- ♦ Female Athletes Triad (Osteoporosis, Amenorrhea, Eating Disorders)

Unit III Yoga as Preventive measure for Lifestyle Disease

- ♦ Obesity: Procedure, Benefits & Contraindications for Tadasana, Katichakrasana, Pavanmuktasana, Matsayasana, Halasana, Pachimottansana, Ardha - Matsyendrasana, Dhanurasana, Ushtrasana, Suryabedhan pranayama.
- ♦ Diabete: Procedure, Benefits & Contraindications for Katichakrasana, Pavanmuktasana, Bhujangasana, Shalabhasana, Dhanurasana, Supta-vajarasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gomukasana, Yogmudra, Ushtrasana, Kapalabhati.
- ♦ Asthma: Procedure, Benefits & Contraindications for Tadasana, Urdhwahastottansana, UttanMandukasana, Bhujangasana, Dhanurasana, Ushtrasana, Vakrasana, Kapalabhati, Gomukhasana Matsyaasana, Anuloma-Viloma.
- ♦ Hypertension Procedure, Benefits & Contraindications for Tadasana, Katichakransan, Uttanpadasana, Ardha Halusana, Sarala Matyasana, Gomukhasana, UttanMandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadi-shodhanapranayam, Sitlipranayam.

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

- ♦ Organizations promoting Disability Sports (Special Olympics; Paralympics; Deaflympics)
- ♦ 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 and Non-Nutritive Components of Diet

Unit VI Test & Measurement in Sports

- ♦ Fitness Test-SAI Khelo India Fitness Test in school:
 - Age group 5-8 yrs/ class 1-3; BMI, Flamingo Balance Test, Plate Tapping Test
 - Age group 9-18yrs/ 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)
- ♦ 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

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
- ♦ Sports injuries: Classification (Soft Tissue Injuries - Abrasion, Contusion, Laceration, Incision, Sprain & Strain; Bone & Joint Injuries - Dislocation, Fractures - Green stick, Comminuted, Transverse Oblique & Impacted)

Unit VIII Biomechanics & Sports

- ♦ Newton's Law of Motion & its 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)
- ♦ 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

Practical

Max. Marks 300

1. Physical Fitness Test: SAI Khelo India Test, Brockport Physical Fitness Test (BPFT)* 6 Marks
2. Proficiency in Games and Sports (Skill of any one IOA recognised Sport/Game of Choice)** 7 Marks
03. Yogic Practices 7 Marks
04. Record Pile*** 5 Marks
05. Viva Voce (Health/Games & Sports/Yoga) 5 Marks

* 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) :

**CWSN (Children With Special Needs - Divyang): Bocce/Boccia , Sitting Volleyball, Wheel Chair Basketball, Unified Badminton, Unified Basketball, Unified Football, Blind Cricket, Goalball, Floorball, Wheel Chair Races and Throws, or any other Sports/Game of choice.

***Children With Special Needs can also opt any one Sport Game from the Ist as alternative to YogicPractices. However, the Sport(Game must be different from Test - 'Proficiency in Games and Sports

***Record File shall include:

- Practical-1: Fitness tests administration.
- Practical-2: Procedure for Asanas, Benefits & Contraindication for any two Asanas for eachlifestyle 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 & their Responsibilities (pre; during & post)
- 1.3 Fixtures and its Procedures -Knock-Out (Bye & Seeding) & League (Staircase & Cyclic)

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

- **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.

- Ans.** (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.....

- Ans.** (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.

- Ans.** (A) **Planning** (B) Staffing
(C) Supervision (D) Budgeting

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

- Ans.** (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 themselves according to the change without any conflict between the management and employees.
- Direction also defines 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.

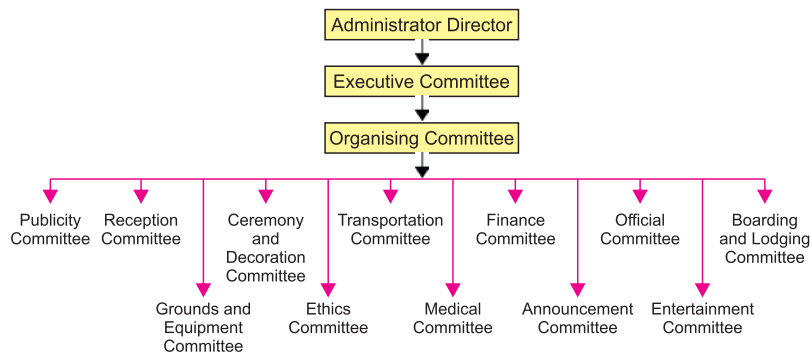
Ans. Organising is necessary for smooth functioning of an event. The importance of organising in sport event can be understood from the following points:

- 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 department/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
<ul style="list-style-type: none"> – Organizing committee – Publicity committee – Marking committee – Finance committee – Transport committee – Food and accom- – Committee for officials – Ground and equipment – First Aid committee 	<ul style="list-style-type: none"> – Publicity committee – Organizing committee – Marketing committee – Transport committee – Food and accommodation – Grand and equipment – Programme committee – First Aid committee – Decoration 	<ul style="list-style-type: none"> – Publicity committee – Marking committee – Finance committee – Transport committee – Committee for officials and – Equipment committee – Programme committee – First Aid committee – Prize distribution – Organizing committee

1.2. 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 committee (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 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: Maintain 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 tournament.

Food and accommodation Committee: Repair work for any damage at accommodation site and providing information of report of players, officials regarding lodging & boarding expenditure to organizing committee.

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

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

Programme Committee: Providing information about all participating team to organizing committee and distributing certificates to all participants 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. (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 tournament and assigns tasks and responsibilities to them.

Publicity Committee :-

Spread information about the players / teams / officials / 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 or it.
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 officials or the concern persons.

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 athletes during the tournament as their demand of work and also managing the proper accommodation site.

Committee for officials :-

To satisfy Make proper arrangements of needs to satisfy of the officials during a tournament.

Ground and Equipment Committee :-

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

Programme Committee :-

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 participants of the next match, time, court and date from the stage.

Practice Questions

- Q.1. Enlist the 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 & seeding) &
League (Staircase & Cyclic)

- **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.



Procedure to Draw Fixture for Knockout Tournament

- Step 1.** Divide the total no of teams into two half, if total number of teams are more then 16 then devide 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 will be placed separately and lower half will be separately.
- Step 7.** In case of seeding or special seeding we calculate the byes of the deducting total no. of seeding from the total no. of teams.

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

$$\text{Total No. of Matches} = N - 1$$

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 of Teams

$$\text{Total no. of Byes} = 2^n - N$$

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.

$$\frac{4 \text{ Total no.of team } Q}{R}$$

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

Formula No. 7 Placement of Bye :-

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

2nd bye will be given 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) the teams well known before the tournament/event.

Example:-

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

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

Total no. of round = $2 \times 2 \times 2 \times 2$ = Rounds

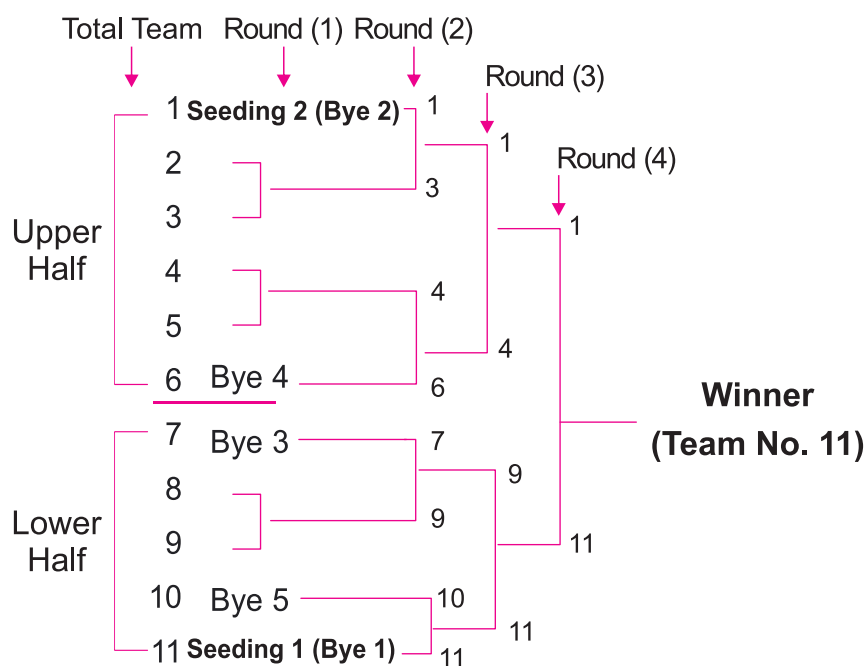
Repetition of digit 2 is 4 time so total no. of round = 4 rounds

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

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

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

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



Example No. (1)

→ 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 = $2 \times 2 \times 2 \times 2$

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

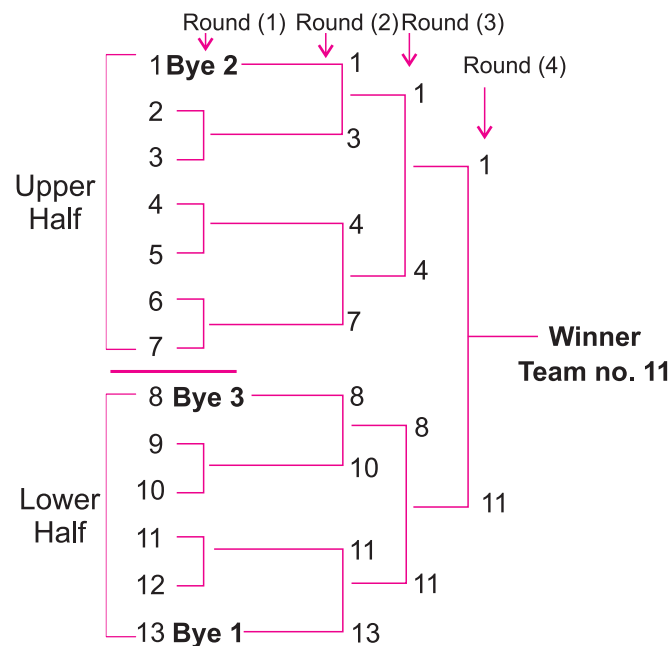
Total no. of Bye = next power of 2 - total no. of teams
= $2^n - N = 16 - 13 = 03$

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

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

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

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



Example No. (2)

→ 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 = $2 \times 2 \times 2 \times 2 \times 2$

i.e. Digit 2 report 5 times

So total no. of Rounds = 5

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

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

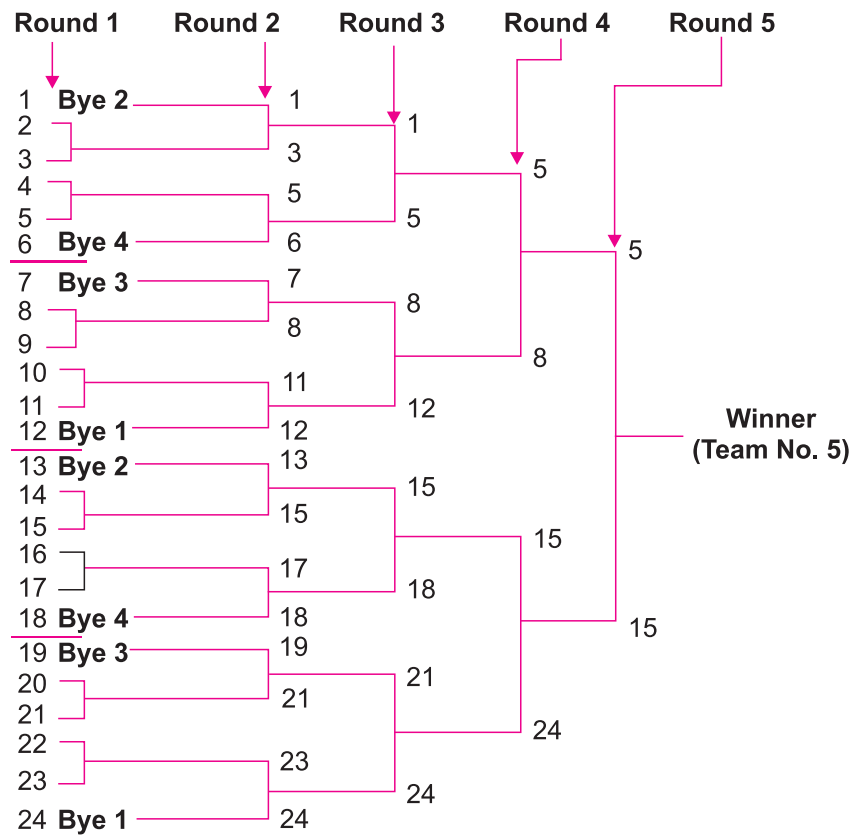
As the total no of teams are more then 16 so we have to divide teams also in quarter.

$$\begin{array}{r} \text{Teams in each quarter: } 4 \overline{)24} 6 \text{ (Q=6)} \\ \underline{24} \\ 0 \end{array} \quad (R=0)$$

$$\begin{aligned} \text{Total No. of Bye} &= \text{Next power of two} - \text{Total no. of team} \\ &= 2^n - N = 2^5 - 24 \\ &= 32 - 24 = 08 \text{ Byes} \end{aligned}$$

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

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



Procedure to draw the fixture for League Tournament

Staircase Method

Total no. of Matches

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

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

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

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

In Double League

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

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

1 st round	2 nd round	3 rd 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

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

$$\text{Total Number of Matches} = \frac{N(N-1)}{2} = \frac{9(9-1)}{2} = \frac{9 \times 8}{2} = \frac{72}{2} = 36$$

Total Number of Rounds = 9

Fixture

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

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 Tournament (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

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
 $= 13 - 1 = 12 \text{ matches}$

Total no. of Round = $2 \times 2 \times 2 \times 2$

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

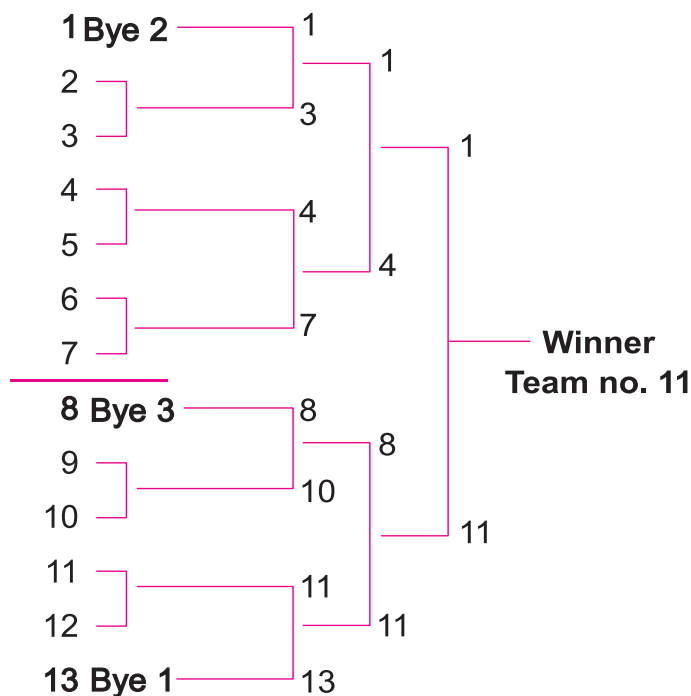
Total no. of Bye = next power of 2 - total no. of teams
 $= 2^n - N = 16 - 13 = 03$

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

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

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

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



Q.3 Draw a fixture on knock out basis 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 = $2 \times 2 \times 2 \times 2$ = Rounds

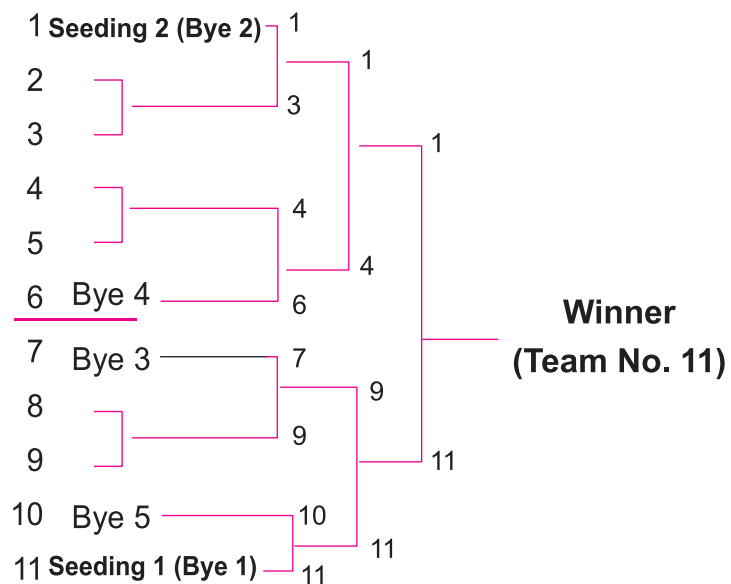
Repetition of digit 2 is 4 time so total no. of round = 4 rounds

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

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

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

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



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 for 27 teams on the basis knock out tournament. (5)

MCQ's

- Q.4 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.5 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.6 Given below one the two statements labelled Assertion (A) & Reason (R)

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

Reason (R): It is done to keep the interest of spectators alive till Finals 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

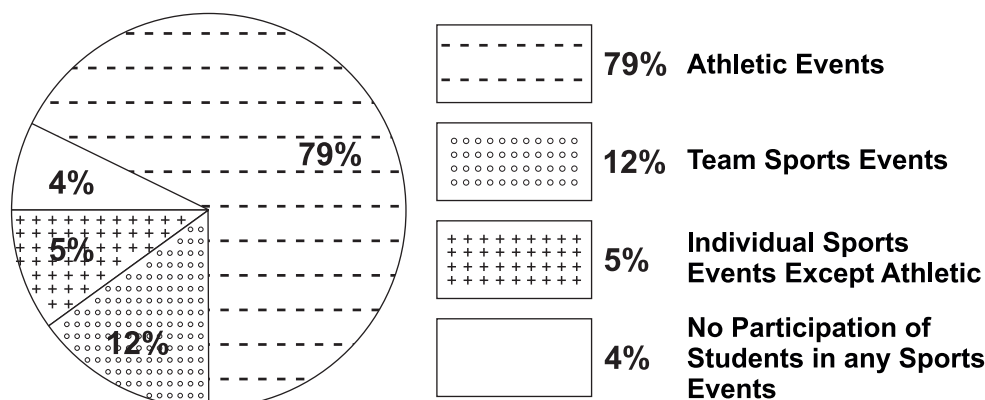
Q.7 Given below one the two statements labelled assertion (A) and Reason (R)

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

Reason (R): well beginning is half done. In the both context of above two statement

- (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

Q.8 Below given is the data of school's students participated in different sports events.



Note: Total number of student are 1000.

On the basis of the above data, answer following are activities

- (i) How many students did not participated in any Sports Events.
(A) 4 (B) 40 (C) 140 (D) 400
- (ii) How many students participate in Team and Individual Sports Event Except Athletics.
(A) 120 (B) 180 (C) 170 (D) 160
- (i) How many students participated in only Athletic Events.
(A) 79 (B) 179 (C) 0.79 (D) 790

UNIT - 2

Children and Women in Sports

UNIT - 2

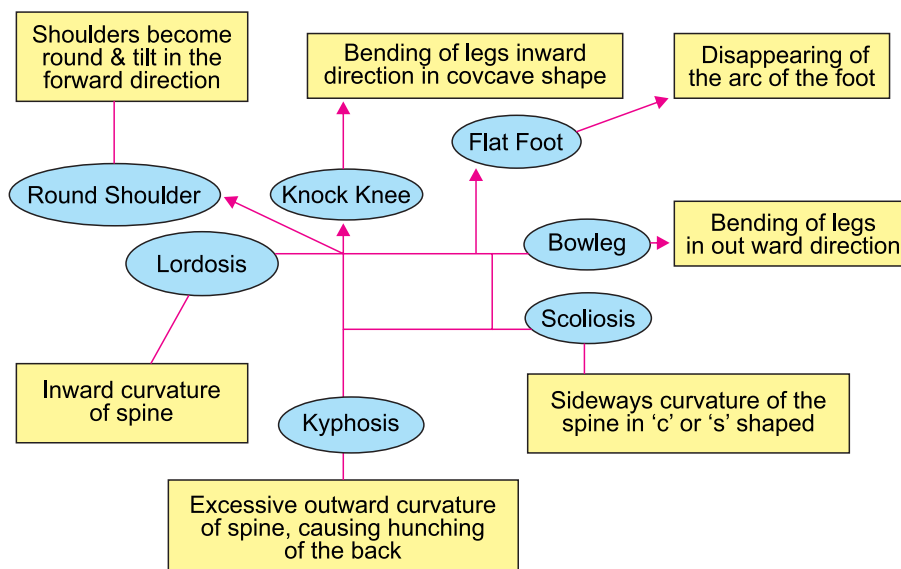
Children and Women in Sports

Key Points :-

- 2.1 Common Postural Deformities** - Knock knee, Bowlegs, Flat Foot, Rounder Shoulder, Lordosis, Kyphosis, Scoliosis, and their Corrective Measures.
- 2.2 Special Consideration** - Menarch and Menstrual dysfunction.
- 2.3 Female Athletes Triad** - Osteoporosis, Amenorrhea, Eating Disorder.

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 of 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 spin
- (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) Healthy 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	c. 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 shananasana (Down word dog pose)
 - Ustrasana (Camel pose)
 - Half wheel pose (Ardh chakrasana)

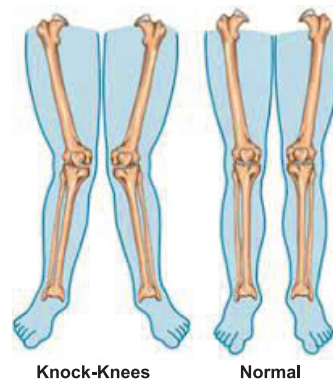
Q.7 Mention the symptoms, causes & corrective measures of knock knee. (3)

Ans. Symptoms :

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

Causes :-

- Obesity
- Defficiency of vit.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
- Padamasana
- Standing with pillow between the knee
- Use walking calliper
- Straight leg lift
- Straight leg knee press on the towel placed under the knee
- Side kicking 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 :-

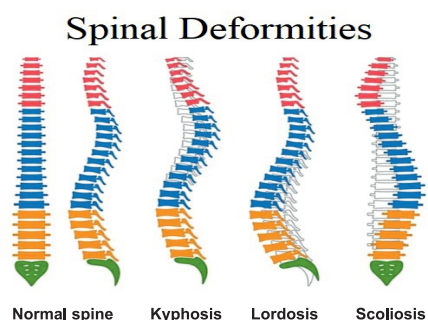
- Writing with legs
- Walking or running on the sand+ Jumping on toe
- Wearing proper shoes
- Pick the pebble with help of feet

-
- 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 Describe 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 curves 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 hang 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.

**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 recommenced.
 - Pilate exercise such as roll up & ballerina arms are effective to tone legs.
 - Garud Asana, 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 knee & bowlegs. (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)**

2.2

Special Consideration

Menarche

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

Menstrual Dysfunction

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

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

Q.4 Match the following:

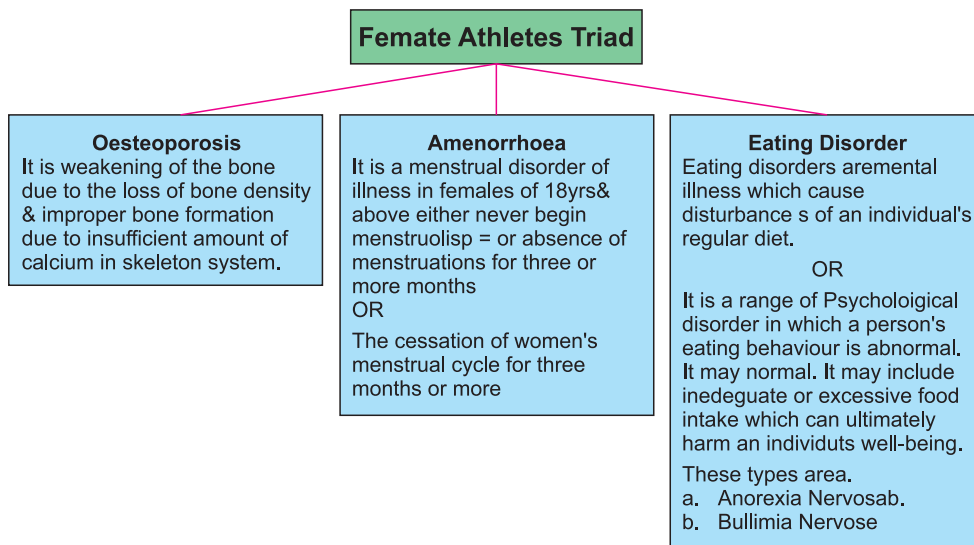
- | | |
|--------------------------|----------------------------------|
| a. Menarch | 1. Irregular menstrual bleeding |
| b. Menstrual cycle | 2. Very first menstrual bleeding |
| c. Menstrual dysfunction | 3. 21-35 days |

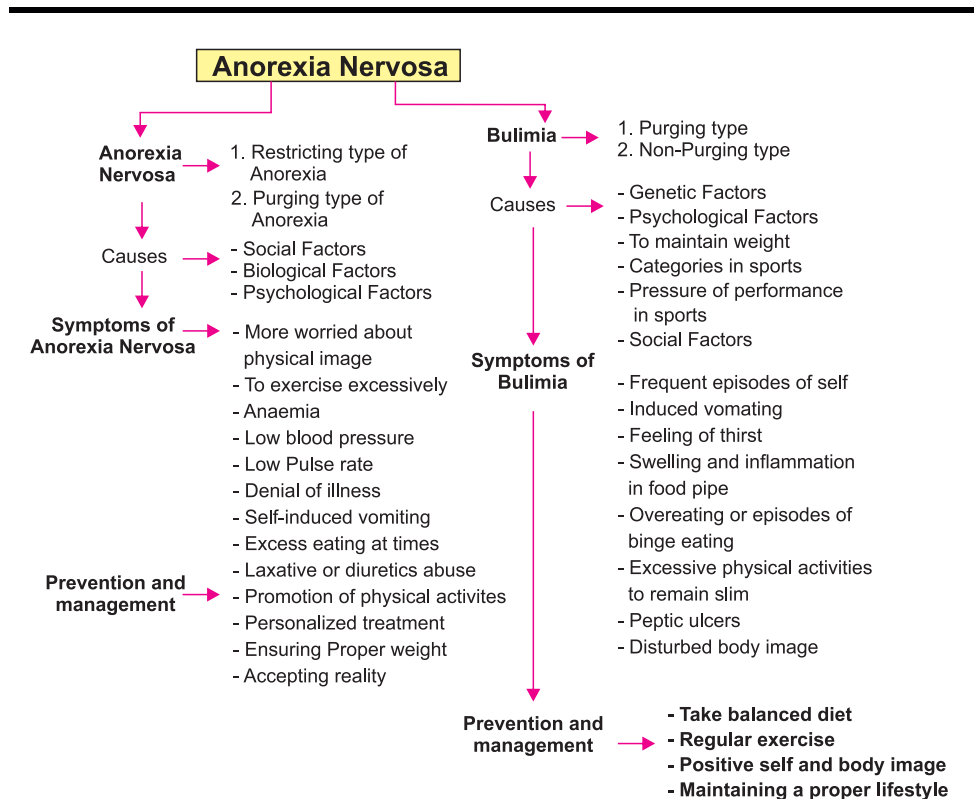
- | | |
|--------------------|-------------------|
| (A) a-1, b-2, c-3, | (B) a-3, b-2, c-1 |
| (C) a-2, b-3, c-1 | (D) a-1, b-3, c-2 |

Practice Questions

- Q.1 Discuss the concept of menarch. (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)**

2.3 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 oosteoporosis?
(2)

Ans. Osteoporosis is a sketal disorder which refers as to the decreased bone material contens. There are various factors, which lead to oosteoporosis, 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 their can be less amount of calcium
- **Bad Eating Habits :-** Intake of Caffeine, Alchohol, tobator 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 period :-** 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 skeleton disorder which refers as to the decreased bone material contents.

- Insufficient calcium in diet,
- Eating disorder,
- Amenorrhoea,
- 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 exercises
- 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 is associated with the subconscious desire to remain slim. Such a feeling usually develops in young women or adolescent female in order to retain their body figure and image. As a result of this, there is a refusal to maintain normal body weight from their fear of becoming obese and spoiling their figure.

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

Anorexia can lead to many problems such as bone loss, loss 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 or 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 led fo low blood pressure.

-
- **Decrease in body temperature:** Low body temperature is also one of the symptoms of anorexia, Due to low heart rate and low blood pressure, temperature of body is not maintained properly.
 - **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 to the wash room 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 derelicta 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 bulimai.

- **Genetic factors:** Genetic factors play a vital role in the development of bulimia if one or both parents of an individing or siblinigs 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 notious 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) : B. It is often accomplished by less control of eating habit.

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 Osteoporosis? (2)

Q.6 What you do means 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

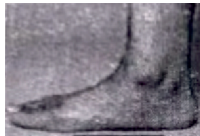
Q.13 Given below are the two statements labelled Assertion (A) & Reason (R).

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

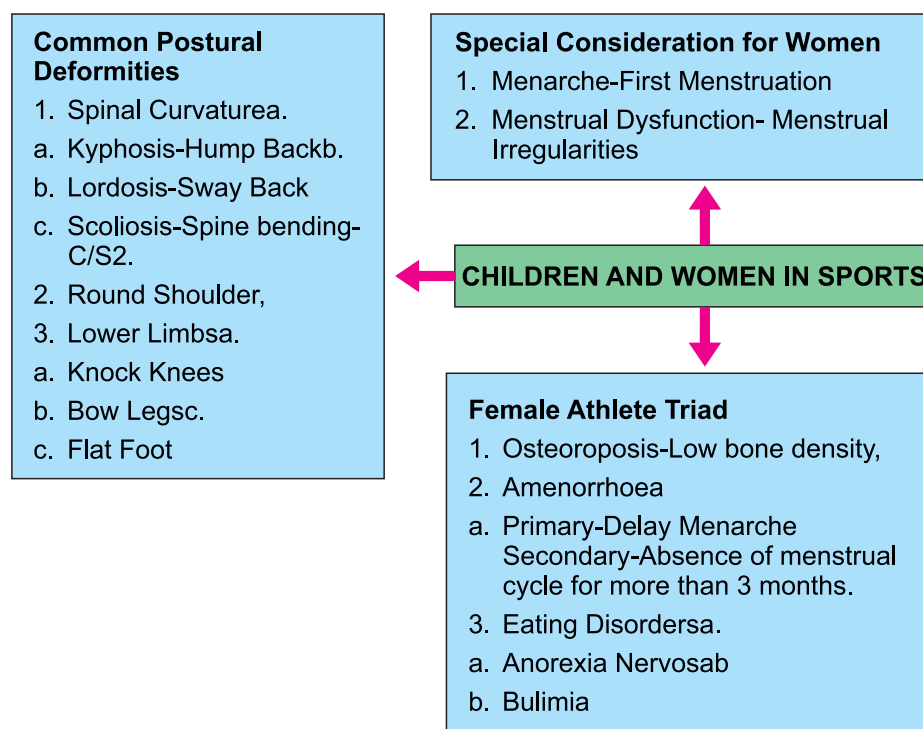
- (A) Chakrasana (B) Shavasana
(C) Walking with clippers (D) None of above

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 mid line 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 diseases in which reduction in bone density /Mass
11. **Amenorrhea-** It is a menstrual disorder / illness in females in which females of 18yrs above either never begin menstruating or their absence of menstruation for 3 months or more.

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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 Measure For Lifestyle Disease

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, Bhujangasana, Shalabhasana, Dhanurasana, Supta-vajarasana, Paschimottanasana, Ardha-Mastendrasana, Mandukasana, Gormukasana, 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, Uttan Mandukasana, Vakrasana, Bhujangasana, Makarasana, Shavasana, Nadi-shodhanapranayam, Sitlipranayam.

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, etc.

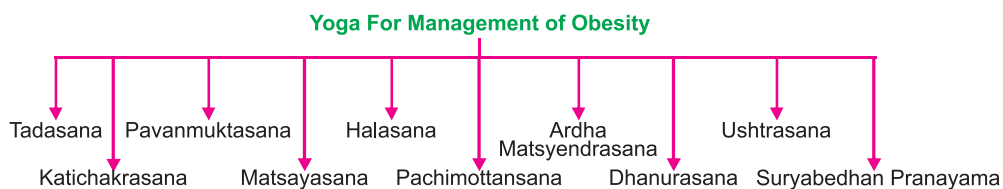
Now A days obesity has become a problem for the whole world obesity is a condition in which the amount of fat in the body increase to a very large extent. If a person is having BMI 30 he/she would be considered as obese. In other words,

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.

Due to many health risks of obesity it has been given the status of a disease. Due to obesity, diseases like diabetes, high blood pressure, cancer, arthritis etc. are caused.

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

To remove obesity, these postures 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 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 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.



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



Benefits : Regular practice of Pawan 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.

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- (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 from 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.



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- (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) Breathe normally as you hold this breath until you 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 provides relief from constipation.
- (iv) It provides relief from neck pain.
- (v) It makes the lungs strong.
- (vi) It is 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.

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- (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.

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- (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.

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- (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 means '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.

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- (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 knees 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 embedded Kafa.
- (ii) It helps to cure obesity.
- (iii) It helps to increase the vitality of the body.
- (iv) It activates the body and the bodily functions .
- (v) It helps to cure problems related to depression and lack of energy.
- (vi) It provides considerable relief from anxiety, depression and mental illness.
- (vii) It helps in treating problems related to low blood pressure and infertility in women.
- (viii) It increases the digestive fire.
- (ix) 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) Enlargymnet 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 obesity.

- (A) Ardhamatssyendrasaana (B) Vajrasana
(C) **Shalabhasana** (D) Trikonasana

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

- (A) Sukhasana (B) Savasana
(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 obesity 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 lower abdomen.
- Helps in spondylitis.
- Remove excess fat around the lower abdomen.
- 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 pregnancy.

3.2 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 enough insulin or the cells of 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 is sedentary lifestyle. By doing bhujangasana, paschimottasana, pawanmuktasana and ardh matsyandrasana, one can get rid of this disease.

Symptoms of Diabetes

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

- Cardio vascular Disease
- Loss of Weight
- Frequent Urination

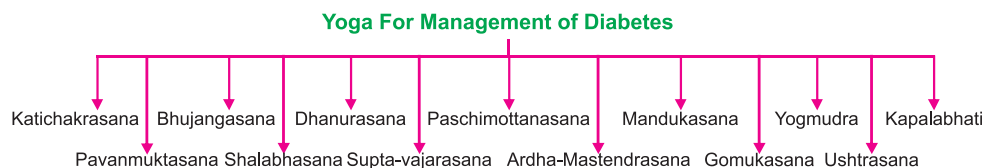
Causes of Diabetes

- 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 secretion of insulin hormone by pancreas. In that of diabetes effected person, has to take artificial insulin through injection.
- (B) **Type II Diabetes** : In that type of diabetes blood sugar level rises but. not as such as high in type I diabetes. In that type of diabetes our pancreas secreting the insulin hormone but it may be insufficient 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 relieve 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 abdominal 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.

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 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.

-
4. **Shalabhasana** : 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 Shalabhasana 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 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.

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- (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.

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- (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 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.



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- (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 stimulates 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 begin to 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.

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10. **Gomukhasana** : The word Gomukhasana is a combination of sanskrit words in which 'Go' means 'Cow', 'Mukha' means 'face' and 'asana' means posture. Gomukhasana 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.

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- (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 redirecting energy flow in the entire body using hand gestures. Some of the commonly practiced yoga 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.



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- (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, and during convalescence
- (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 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.

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.



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- (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) **Ardhmatsyendrasana** (D) Shalabhasana

Q.2. If pancreas not producing enough insulin. It may lead to :_____

- (A) Migraine (B) Obesity
(C) **Diabetes** (D) Hypertension

Long Answer Type Question

Q.1. Define diabetes. Briefly 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 enough insulin or the cell of the body not responding properly to the insulin produced.

Following are the asanas to control diabetes :

1. Ardhamatsyendra

Procedure:

- Sit and keep both legs straight
- Bending the knee of the right foot 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 Menstrual cycle in women and brings shine on face.
- Also controls secretion 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 straight 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

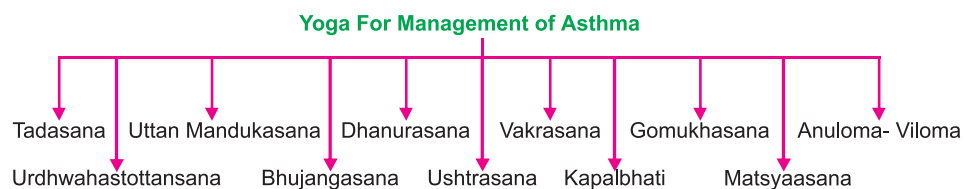
-
- Pregnant women should avoid.
 - Avoid if having asthma
 - Activate pancreas to produce insulin.
 - Cure acidity, digestive problem, diabetes, blood pressure, hypertension, cervical spondylosis.
 - Anyone with severe migraine should not try this.
 - Avoid if having low or high blood pressure.
 - Avoid if having slip disc problem.
 - Avoid if suffering from spondylosis.
 - 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.

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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 above 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.



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- (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 Tanging 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 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.

- 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,



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- (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 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 simplified form of Ardhamatsyendrasana. The Sanskrit name of both the postures differs 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 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.

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- (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 abdominals squeezes.

- 9 **Gomukhasana** : The word Gomukhasana is a combination of sanskrit words in which 'Go' means 'Cow', 'Mukha' means 'face' and 'asana' means posture. Gomukhasana 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.



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- (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.

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10. **Matsyasana** : Matsyasana is a reclining back-bending asana. The name is derived from 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) Breathe normally as you hold this breath until you 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 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 your eyes.
- (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 palms 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) Diaphragm improves and keep away from all kinds of intoxicification.
- (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 quadriceps should be avoided.
- (iii) If one has sciatica problem, one should avoid this pose.
- (iv) Avoid if any neck or shoulder injury.
- (v) Avoid 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 digestive problems, keep the blood clean. Helps in curing diabetes. Helps in cough and respiratory problems, makes body and face attractive.

Contraindication :

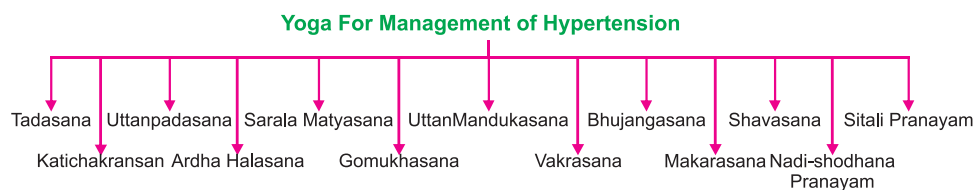
- Avoid this posture if any kind of neck injury.
- Any kind of blood pressure.
- If having migrane.
- If having spondylitis, neck or back pain.
- If pregnancy is there.

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 beyond 140/90 mm/Hg are said to be having hypertension.

- High blood pressure can be controlled by doing the following yoga asanas Tadasana, vajrasana, pavanmuktasana, ardha chakrasana, 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 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. **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 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 desk bound jobs.
- (vi) Helps to relieve 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 term 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 floor 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 palms 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) Breathe normally as you hold this breath until you 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.

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- (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. Gomukhasana 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 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 resembles 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 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.
- (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 simplified form of Ardhamatsyendrasana. The Sanskrit name of both the postures differs 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. | th |
| (ii) | Fold the right leg keep the right leg heel touching the left leg's knee. | ri
le |
| (iii) | Take the right hand to back of the waist twisting your trunk, spread your palms and place it on the carpet. | b
y
p
c |
| (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) | 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.

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 the arms 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 mind, 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 asana.
- (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 shaped tongue.
 - (iv) After inhalation, lower your chin to the chest and hold the breath for about 6 to 8 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 Sitali 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
(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 arms at your side and your palms facing up.
- Legs should be separated and just relax.
- Start concentrating from your head to your feet and relax each part of your body and feels that you are just like a dead body.

Benefits :

- Relax whole body.
- Release stress, fatigue, depression & tension.
- Calms the mind and improves mental health.

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

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

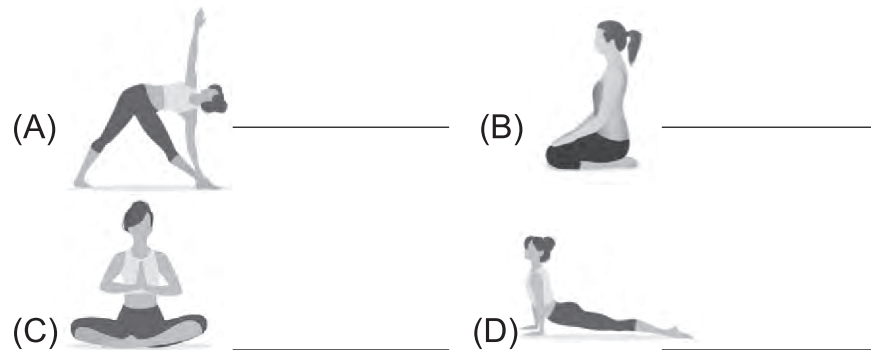
Q.2 Match list -I with list - II and select the correct answer from the code given below.

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 ($\frac{1}{2} \times 4 = 2$)



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. ($1 \times 3 = 3$)

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 Foot 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 |

UNIT - 4

Physical Education & Sports For CWSN

(Children with Special Needs-Divyang)

UNIT - 4

Physical Education & Sports ForCWSN (Children with Special Needs-Divyang)

- 4.1 Organizations promoting Disability Sports (Special Olympics; Paralympics, Deaflympics).
- 4.2 Advantages of Physical Activities for children with special needs.
- 4.3 Strategies to make Physical Activities assessable for children with special needs.

4.1.1 Para Olympics

This is similar to Olympic game for disabled sports person in 1960 first time it was organized in Rome. The head quarter of international para Olympic is situated at Bonn, Germany. The international para Olympic is responsible for organizing Summer and winter Olympic games. At present it comprises of 176 National Para Olympic 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 1987 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 March 14-21, 2019 in Abu Dhabi, United Arab Emirates. These were the first Special Olympics World Games to be held in the Middle East/North Africa region. Competitions were held in 24 sports.

Upcoming Special Olympic Games - From 17- 25 June 2023, Berlin, Germany will welcome 7,000 Special Olympics athletes and Unified partners from approximately 170 countries to compete in 24 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 International Olympic committee. The deaf olympion 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 at least 55db in their “better ear”.

Hearing aids, cochlear implant and the leke are not allowed to be used in competition.

Deaflympions can not be guided by sounds so alternative methods are used to address the athletes. For example the football referees wave a flag instead of blowing a whistle, on the track races are started by using a light, instead of using a starting pistol.

Host cities (Summer) Year

Sofia, Bulgaria August 2013

Samsun Turkey July 2017

Host cities (Winter Deaflympics) March 2015

Khanty Mansiysk Russia Torino Italy 2019

Objective Type Questions (1 Marks Each)

- Q.1. The head quarter of paralympics is at**
(a) Paris (b) New york
(c) **Germany** (d) Denmark
- Q.2. Deaflympics started in**
(a) **1924** (b) 1960
(c) 1947 (d) 2001
- Q.3. Cochlear implant is not allowed in**
(a) Special olympics (b) **Deaflympics**
(c) Asian games (d) Olympic Games
- Q.4. Speech therapist helps a child in**
(a) Grooming (b) **Communication**
(c) inhancing 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) Deaflympic (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 deaflympic?**
(a) Spirit in motion (b) **Per ludos aequalitas**
(c) Cetius, altius fortius (d) Let me win brane in my attempt

Q.8. In clusion is needed to....

- (a) Social development of CWSN
- (b) To incerease 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) Paralympios
- (d) Special olymic

Question for 3 Marks (60 Words)

Q.1 Write a short note on the origin of Para Olympic 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. In 1960 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 Para Olympic

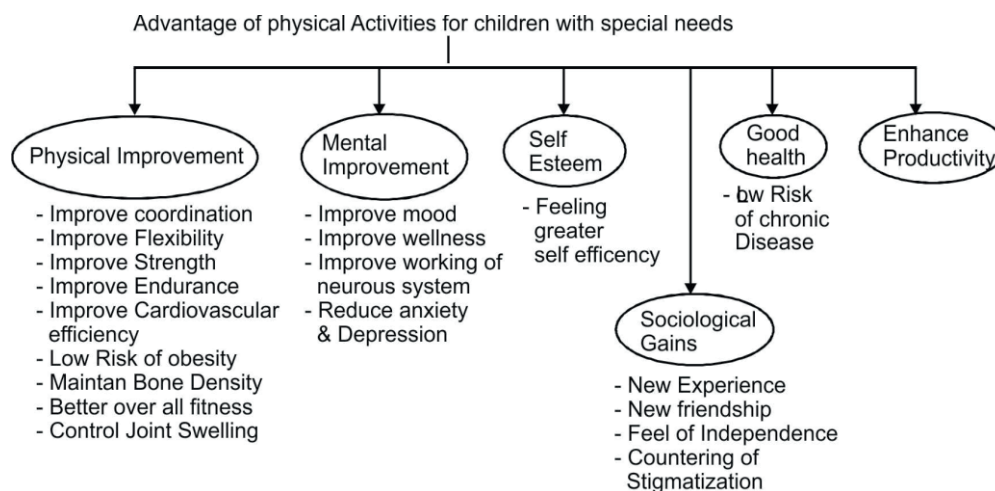
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committee is responsible for organizing summer and winter Olympic game. The head quarter IPC is situated in Bonn (Germany). The symbol of Para Olympic Games is three colours red, Blue and green flag and the motto of Para Olympic is 'Spirit in Motion' 2014 winter para Olympic games was successfully hosted by Russia.

Write a note on special Olympic Bharat?

Ans. This organization was established in 2001, its aims is to increase the participation of differently abled person's in games and sports. Its another objectives was to develop leadership quality and healthy. 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. 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 the working of nervous system.
- Brain release endorphins that help to feel good and ease from depression anxiety.

(3) Improved the sense of self esteem

- feeling of greater self efficiency

(4) Sociological Gains

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

(5) Good health

- Low risk of disease

(6) Enhance Productivity

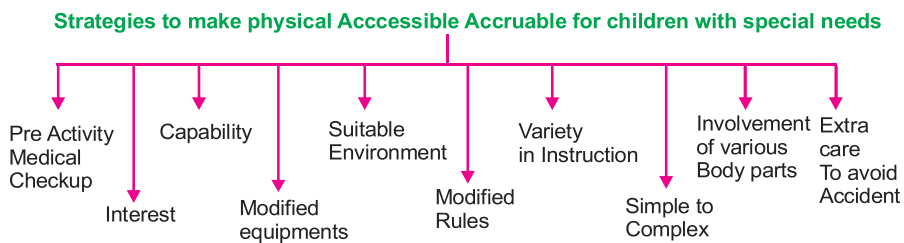
- Improve the working efficiency

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)

4.3. 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 instructional should be used on 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

- 5.1 Concept of balance diet and nutrition
- 5.2 Macro and Micro Nutrients: Food source & functions
- 5.3 Nutritive & Non-Nutritive Components of Diet
- 5.1.1 **Balanced Diet** :- A complete food, a diet which contains adequate amounts of all the necessary nutrients required for proper growth & maintenance of body.

OR

- 5.1.1 A balanced diet is a diet that contains an adequate quantity of the nutrients that we require in a day. Balanced diet includes fat, protein, carbohydrates, water, fiber, vitamins and minerals present in the foods that we eat.
- 5.1.2 **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.
- 5.1.3 **Nutrients** :- The energetic food in our diet consists of various types of essential chemicals for our body termed as nutrients:- e.g. Protein, fat, carbohydrates, vitamins & minerals.
- 5.2.1 **Macro Nutrients** :- Macro Nutrient are needed in large quantities they normally include carbohydrates, fat, protein and water.
- 5.2.2 **Micro Nutrients**: As vitamins and minerals which are required in small quantities to ensure normal metabolism, growth and physical well-being.

5.2.3 Macro-Nutrients

5.2.3.1 Carbohydrate

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 exm. glucose fructose galactose and maltose

Complex Carbohydrates- they are not soluble in water- for exm. Sugar,, starch and cellulose

- 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.

5.2.3.2 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.

5.2.3.3 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

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.

Satiety Value: fats remain longer in the stomach and take more time to digest. Hence, like fibre, fats also give satiety value.

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.

Source of essential fatty acids: Fats serve as sources of essential fatty acids which have important functions in our body. ,

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

5.2.4 Micronutrients

Vitamins and minerals are nutrients your body needs in small amounts to work properly and stay healthy.

5.2.4.1 Vitamins;- Vitamins are organic compounds that people 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

5.2.4.2 Minerals

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 Iodine, 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

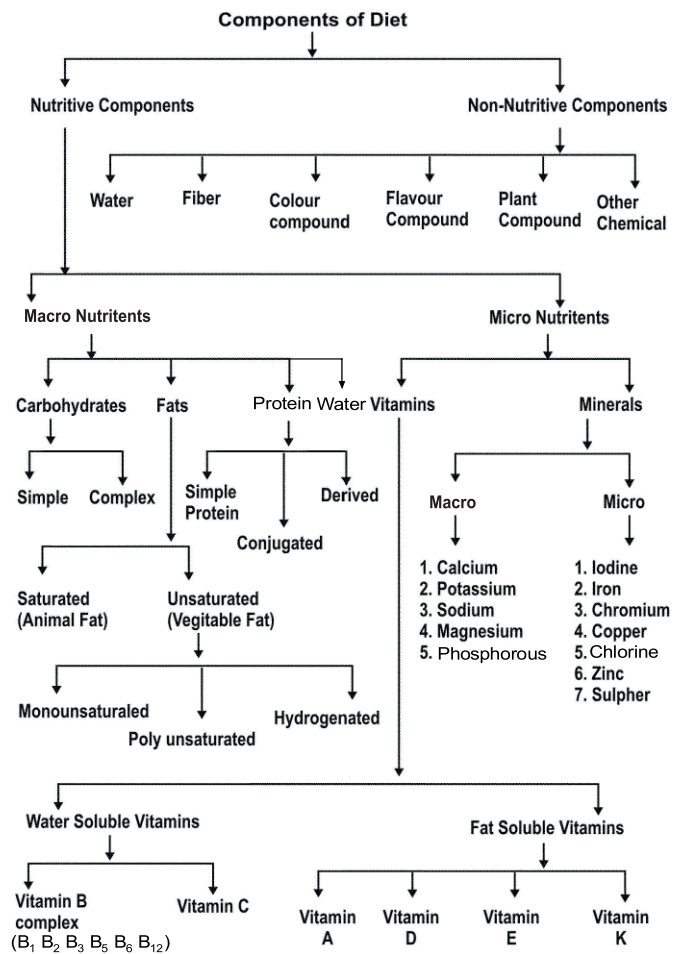
roughage or fibre is of two types

soluble fibres- can dissolve in water

insoluble fibres- they cannot be dissolved in water
Insoluble fibre is a good stool softener

we must take 30 G 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**
- © Animal fat rich
- (D) 4 to 5 litres water

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, 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 Answer Type Questions (40 to 60 words) (2 Marks Each)

Q.1 Enlist the component of diet.

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.

1. Balanced diet gives us energy to perform all our day today activities.
2. It also helps in growth and development of our body.

Q.3 Mention the different sources of protein.

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.

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.

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, Galactose, Fructose, Maltose, Sucrose, Lactose. Complex are starch, Glycogen, Dextrin 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 dissolved in water but complex carbohydrate are insoluble 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 intake of fat may lead to high risk of obesity and many heart diseases.
 - (v) Fats maintain body temperature
 - (vi) Fats keep 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 & 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 direct 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 increases. In this way balanced diet is useful for us.

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

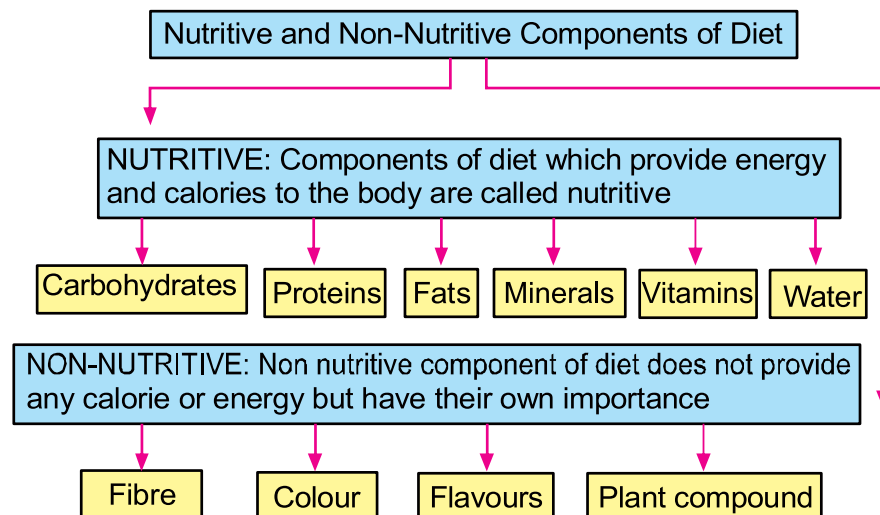
Ans.

- (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 demand & less physical activities work needs less calories demand.
- (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, vitamins, minerals specially high protein diet is recommended for a pregnant woman.
 - (vii) **Diet During Health Problems :-** Injured person should take more protein and minerals. Patients should take diet full of mineral & vitamins.
 - (viii) **Climatic Condition :-** 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 habits & Social Customs :-** They also effect the diet of individual. In some family, on the day of festival, selected fried food is compulsory for whole family.
(any five)

Practice Question

- Q.1 What are the essential components of balanced diet?**
Explain any two in briefly (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) Iodine

(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 play 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 an essential element for producing blood. About 70% of our body's iron is found in the 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 retarded 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, deficiency 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) **Chloride** : - 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 B₂ - Helps in growth of RBC.

Vitamin B₃ - Play important role in energy transfer, reactions in the metabolism of glucose, fat & alcohol.

Vitamin B₅ - In involved in oxidation of fatty acids & Carbohydrates.

Vitamin B₆ - It helps in metabolism of amino acids.

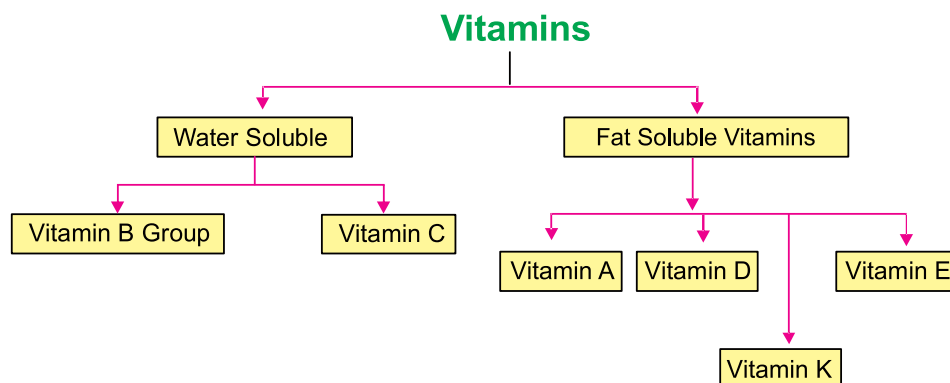
Vitamin B₇ - It play key role in metabolism of lipids, proteins and carbohydrates.

Vitamin B₉ - Folic Acids Needed for normal cell division especially during pregnancy and infancy.

Vitamin B₁₂ - It involved in cellular metabolism of carbohydrates proteins and lipids 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 Cord liver Oils/animal Liver, yolk, 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, pork Liver, Legumes

Vitamin B₂ We can find in eggs, dark green vegetables, legumes, whole and enriched grain produced milk.

Vitamin B₃ Fish, meat, peanuts and whole enriched grain produced milk.

Vitamin B₅ Pork, meats whole grains, cereals legumes, green leafy vegetables.

Vitamin B₆ Cereals, grains, legumes, vegetables, milk, cheese, eggs, fish liver, meat, flour.

Vitamin B₁₂ 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 importance 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 appetite and smoothen function of intestines. It removes constipation.
- (2) **Flavour Compounds:** It addresses the taste of food. but does not contribute any nutritive 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 be beneficial or harmful. There are many compounds that inhibit cancer.
(Explanation any two)

Long Answers Questions (5 Marks)

Q.1 What is balanced diet? Write its components in details.

Ans. Balanced diet is a diet that contains an adequate quantity of the nutrients that we require in a day. A 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 kwashiorkor 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 functioning of glands and internal organs against the blood clotting, maintains the skin and important functions of glands. Internal organs help on blood clotting. Our diet should consist of 20%-25% of fat more intake more risk of obesity and many heart diseases. So that nutrients and highly proportion 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 consists 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 excretion 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

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 yrs/ class 1-3:
 - i. BMI,
 - ii. Flamingo Balance Test,
 - iii. Plate Tapping Test
- b. Age group 9-18yrs/ 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. Computing Basal Metabolic Rate (BMR)

6.3. 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

6.1. Fitness Test — SAI Khelo India Fitness Test in School:

Sports Authority of India (SAI) Khelo India Fitness Tests consists of a series of exercises that will help evaluate school children about their overall health and physical status. It will enable children to demonstrate the physical skills, practices and values to enjoy an active healthy lifespan.

Age Group 5-8 Years/ Classes 1-3	Age Group 9-18 Years/ Classes 4-12
i. Body Mass Index (BMI) ii. Flamingo Balance Test iii. Plate Tapping Test	i. Body Mass Index (BMI) ii. 50mt Speed Test iii. 600mt Run/Walk iv. Sit & Reach flexibility Test v. Strength Test: <ul style="list-style-type: none">♦ 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	<ol style="list-style-type: none"> Weight Measurement: Make participant stand with both feet in the center of the scale. 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 = $\frac{\text{Weight (Kgs)}}{\text{Height (m)} \times \text{Height (m)}}$ 	<ul style="list-style-type: none"> Height in Cms (0.1 cm) Weight in (kgs (0.1 kg) BMI: Score
Flamingo Balance Test	Balance & Strength (Leg)	1. Beam or Brick 2. Stopwatch	<ol style="list-style-type: none"> Stand on the beam/ brick on your preferred leg. Keep your free leg knee flexed and hold the other foot close to the buttocks. Remain in this position for 60 seconds. Pause the stopwatch every time the participant loses balance (falling or letting go of the foot being held) Record the number of falls in 60 seconds. 	Number of Falls in 60 seconds
Plate Tapping Test	Speed and Co-ordinator	<ol style="list-style-type: none"> Table (adjustable height), Yellow discs-2 (20cm diameter) Rectangle-1 (30x20 cm), Stopwatch 	<ol style="list-style-type: none"> Put yellow discs 60 cm apart (at center). Put rectangle equidistant between both discs. Stand comfortably in front of the discs. Place the non-preferred hand on the rectangle. On the command 'Go' start tapping the yellow discs one after another as quickly as possible. Perform 25 full cycles (50 taps). 	Seconds

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	<ol style="list-style-type: none"> Weight Measurement: Make participant stand with both feet in the center of the scale. Height Measurement: Make participant stand with feet flat with straight legs, arms at sides, and shoulders level and back against the wall. $\text{Body Mass Index} = \frac{\text{Weight (Kgs)}}{\text{Height (m)} \times \text{Height (m)}}$ 	<ul style="list-style-type: none"> Height in Cms (0.1 cm) Weight in (kgs (0.1 kg) BMI: Score
50mt Speed Test	Speed & Acceleration	1. Stopwatch 2. Track/ Flat surface of at-least 60mt.	<ol style="list-style-type: none"> Start from a stationary standing position, with one foot in front of the other. 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	<ol style="list-style-type: none"> Participants runs 600 mts. in the fastest possible pace. The participants take standing start and begin on signal, "ready, start" and stops after crossing the finish line (600mts). 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	<ol style="list-style-type: none"> Sit on the floor with legs straight and feet against the box. Both knees locked and pressed flat to the floor one. With hands on top of other, subject reaches forward along the measuring scale as far as possible. Record the distance where there is a hold for 1-2 seconds. 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	<ol style="list-style-type: none"> 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/along the 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	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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

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

Ans. (c) Body Mass 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

Ans. © 18.5-24.9

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-III students were assembled in the ground. When he enquired, they replied that they have a physical fitness test.

Q.11.1 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**

Q.11.2 The student were performing plate tapping test, this test measure

- (a) Balance & Strength
- (b) **Speed and Co-ordination**
- (c) Body Composition
- (d) Balance

Q.11.3 Formula for B.M.I.

- (a) $\frac{\text{Weight (Kg)}}{\text{Height (m)} \times \text{Height (m)}}$ (b) $\frac{\text{Weight (Kms)}}{\text{Height (cm)} \times \text{Height (cm)}}$
(c) $\frac{\text{Weight (gms)}}{\text{Height (m)} \times \text{Height (m)}}$ (d) $\frac{\text{Weight (Kg)}}{\text{Height (cm)} \times \text{Height (cm)}}$

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 organized 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.?

Body Mass Index measures the Body Composition i.e. the distribution of muscle and fat in the body. BMI of any individual can be calculated with the help of the following formula:

$$\text{Body Mass Index (BMI)} = \frac{\text{Body Weight (Kgs)}}{\text{Height (m)} \times \text{Height (m)}}$$

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 70 kg and his height is 1.70 m. Also state the category in which he falls?

Body weight = 70 kg

Height = 1.70 m

$$\begin{aligned}\text{BMI} &= \frac{\text{Weight}}{(\text{Height})^2} \\ &= \frac{70}{(1.70)^2} \\ &= \frac{70 \times 100 \times 100}{170 \times 170} \\ &= \frac{700000}{28900} = 24.22\end{aligned}$$

He falls in Normal Weight category

Q.4. Explain the Flamingo Balance Test in detail?

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 be held 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.

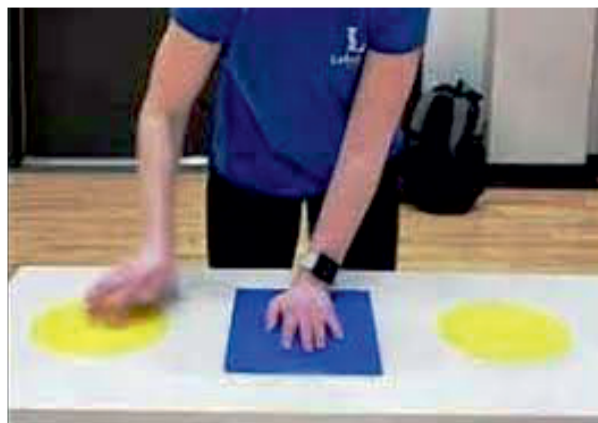


Plate Tapping Test

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)

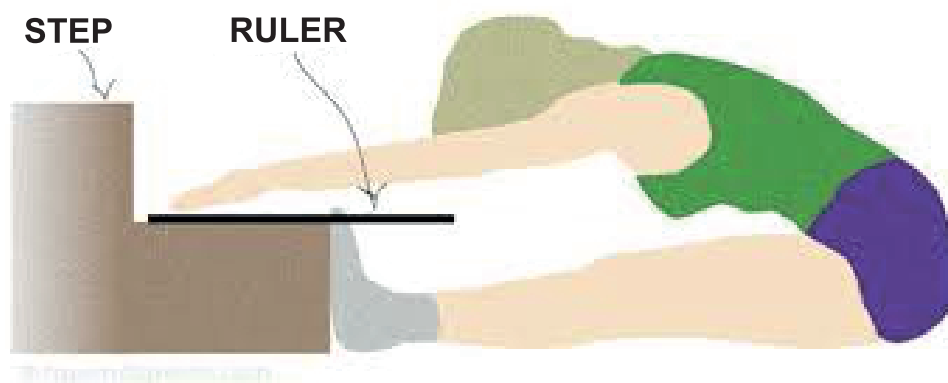
1. Sit and Reach Test

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? ($\frac{1}{2} \times 4$)

Short Answer Questions (3 Marks) (80-100 Words)

- Q.1. Explain procedure of any two tests of SAI Khelo India Fitness Tests? ($1\frac{1}{2} + 1\frac{1}{2}$)
- 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)? ($1\frac{1}{2} + 1\frac{1}{2}$)

Long question (5 Marks)

- Q.1. Explain in detail the procedure of any two test in SAI Khelo India fitness test? ($2\frac{1}{2} + 2\frac{1}{2}$)
- Q.2. Explain in detail the procedure and scoring of Abdominal Partial Curl Up Test and sit and Reach test. ($2\frac{1}{2} + 2\frac{1}{2}$)

6.2 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,

$$\text{BMR} = (10 \times \text{Weight in kg}) + (6.25 \times \text{Height in cms}) - (5 \times \text{Age in years}) + 5$$

Women,

$$\text{BMR} = (10 \times \text{Weight in kg}) + (6.25 \times \text{Height in cms}) - (5 \times \text{Age in years}) - 161$$

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.?

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.?

- 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 = F

The Mifflin-St Jeo BMR Equation (1990) for women is as follows:

$$\begin{aligned}\text{BMR} &= (10 \times \text{Weight in kg}) + (6.25 \times \text{Height in cms}) - (5 \times \text{Age in years}) - 161 \\ &= (10 \times 40) + (6.25 \times 140) - (5 \times 15) - 161 \\ &= (400) + (875) - (75) - 161 \\ &= 1275 - 236 = \mathbf{1039 \text{ Kcal.}}\end{aligned}$$

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:

$$\begin{aligned}\text{BMR} &= (10 \times \text{Weight in kg}) + (6.25 \times \text{Height in cms}) - \\ &= (5 \times \text{Age in years}) + 5 \\ &= (10 \times 50) + (6.25 \times 160) - (5 \times 17) + 5 \\ &= (500) + (1000) - (85) + 5 = 1505 - 85 = \mathbf{1420 \text{ Kcal}}\end{aligned}$$

Practice Questions

Q1. A lady who is 30 years old has 80Kg body weight and 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?

6.3 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 Strength
4	Back Scratch Test	Upper Body Strength
5	Eight Foot Up & Go Test	Agility
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 | C. cardio-vascular endurance |
| 4. Chair sit and Reach test | D. upper body flexibility |
- (A) **1B, 2D, 3C, 4A** (B) 1C, 2B, 3D, 4A
(C) 1C, 2B, 3A, 4D (D) 1D, 2C, 3B, 4A

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.

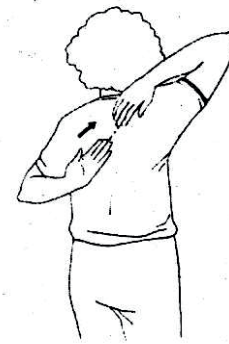
Ans. **Back Scratch Test :**

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.



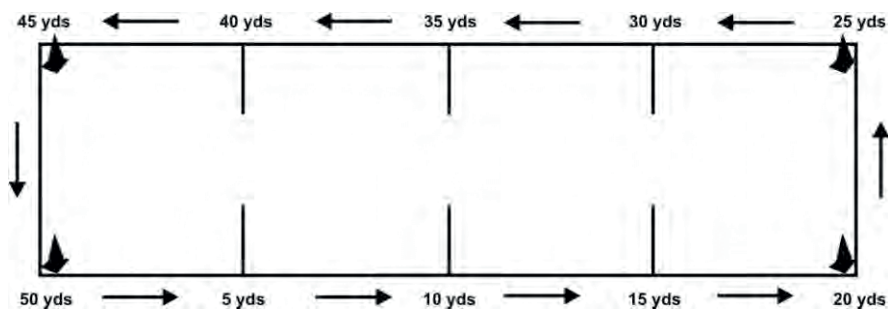
Scoring: Count the total number of complete chair stands. In case the participation has completed a full stand from the sitting position when the time is finished the final stand is counted in the total.

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 continuously walk on the track for 6 minutes.
- He/she has to cover maximum distance in 6 minutes but without running.

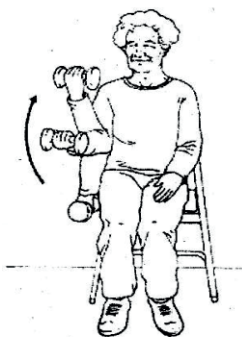
Scoring:- Maximum distance covered in 6 minutes.

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 : Dumbbells for men-8 pound, for women-5 pound
stopwatch, a straight-back chair with no arms.

Women will curl with 5 lb. dumbbell in this test and men will curl with 8 lb. dumbbell 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.

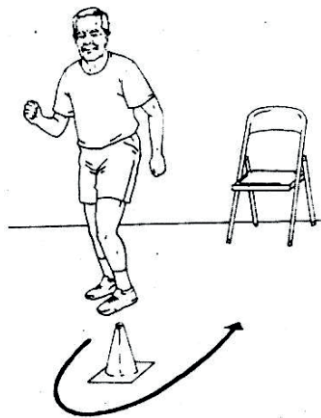
Ans. Eight Foot up and Go Test:

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.

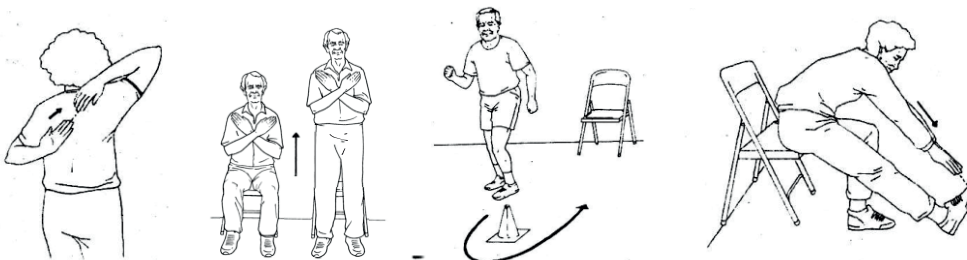
Number of trials: 2

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. ($\frac{1}{2} \times 4 = 2$)



(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

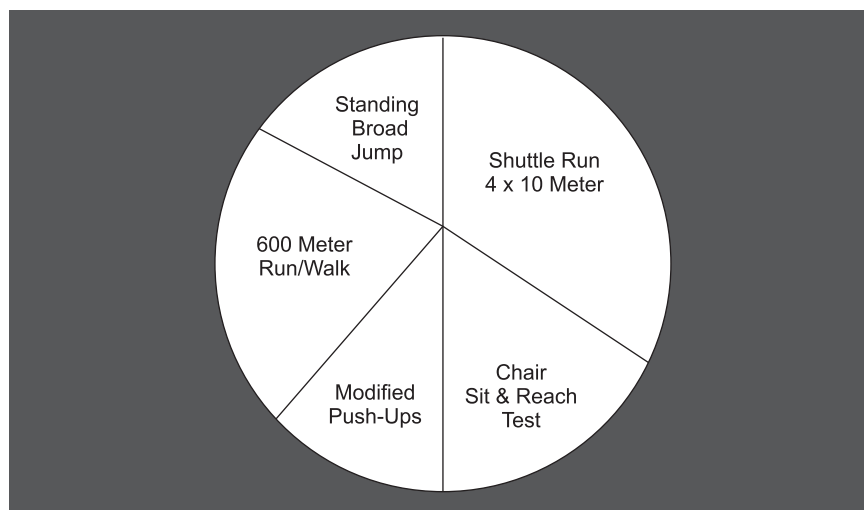
- | | |
|-------------------------|----------------------------|
| 1. 600 M Run/Walk | A. Agility |
| 2. 8 foot up to go | B. Rikli and Jones Test |
| 3. Partial curl up test | C. Endurance |
| 4. Six minute walk test | D. Abdominal strength Test |
| (A) 1D, 2C, 3B, 1A | (B) 1C, 2A, 3D, 4B |
| (C) 1A, 2D, 3D, 4C | (D) 1D, 2B, 3A, 4C |

Q.2. Match the following

- | | |
|---------------------------------|---------------------------------|
| 1. Motor fitness test | A. Chair stand test |
| 2. Rikli and Jones test | B. Computation of fitness index |
| 3. General motor fitness test | C. Standing Broad Jump |
| 4. Cardio vascular fitness test | D. 4 x 10 m Shuttle Run |
| (A) 1C, 2B, 3A, 4D | (B) 1B, 2A, 3D, 4C |
| (C) 1D, 2A, 3C, 4B | (D) 1D, 2A, 3B, 4C |

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) Shuttle Run (B) Chair Sit & Reach Test
(C) **600 Meter Run/Walk** (D) Standing Broad Jump
- (ii) **which test items in used to measure Body Composition?**
- (A) **BMI** (B) Chair Sit & Reach Test
(C) 600 Meter Run/Walk (D) Standing Broad Jump
- (iii) **which test items is a part of Rikli and Jones Test?**
- (A) Shuttle Run (B) **Chair Sit & Reach Test**
(C) 600 Meter Run/Walk (D) Standing Broad Jump

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? (1½ + 1½ = 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)
- Q.5. 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)

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 exercises on muscular system.

7.3. Effect of exercise on cardio Respiratory system.

7.4. Sports injuries: Classification,

(Soft Tissue injuries: Abrasion, Contusion, Laceration, Incision, Sprain and Stain)

(Joint Injuries: Dislocation)

Fracture : 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 Unit)
- 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 specific 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 of 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, determine the strength as a component of physical fitness.

- Ans. 1. **Muscle size:** Bigger and larger muscles can produce more force. Males have larger muscles than females so the size muscles and strength can be improved with the help of weight training
2. **Body weight:** The individuals who are heavier are stronger than the individuals who are lighter for example the heavier weight lifters than the Gymnastic or other games players.

-
3. **Muscle composition:** The muscles 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 twitch fibers is genetically determined and can not be changed through training.
 4. **Intensity of the nerve impulse:** When a stronger nerve impulse from central nervous system excite more number of motor units, the muscles will contract more strongly or it can side that the muscle will contract more strongly or muscle will produce more force or strength.

Q.2. Discuss the physiological factors, determine the endurance as a component of physical fitness.

Ans. Aerobic capacity:

- Oxygen intake
- Oxygen uptake
- Oxygen transport
- Energy Reserve

Anaerobic capacity :

- Storage in body of ATP and CP (phosphogen stock)
- Buffer capacity - in muscles lactic acid accumulation ineffective
- Endurance 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 determine flexibility .

- 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 environment :-** Internal environment of athlete influences the flexibility. For example-warm bath increases body temperature and flexibility whereas 10 minutes outside stay in 10°C temperature reduces the body temperature and flexibility.
 4. **Injury :-** Injuries to connecting tissues and muscles can lead to thickening or fibrosis on the effected area. Fibrous tissues are less elastic and can lead to limb shortening and lead to reduce flexibility.
 5. **Age and gender :-** Flexibility decreases with the advancement of age. However it is trainable. It can be enhanced with the help of training, as strength and endurance are enhanced. Gender also determine the flexibility. Females tend to be more flexible than male.
 6. **Active and sedentary life style :-** Regular activities enhance the flexibility, whereas inactive individual loses flexibility due to the soft tissues and joints shrinking and losing extensibility.
 7. **Heredity :-** Bony structures of joints length and flexibilities of the joint capsules and surrounding ligaments are genetically and can be altered by stretching programs.

Q.2. Describe the physiological factor determine 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.They can produce more speed. The muscle composition is genetically determined. We will improve it only 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 only 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 specialized tissue. which enables the body and is 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) : Exercises helps to maintain good shape and size of muscle.

Reason (R) : There are numerous benefits of regular exercises 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 slow twitch fibres and fast twitch 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 red fibers are produced energy by the nutrients in the presence of oxygen only	The white fibers of muscles are mainly responsible for the strength and speed activities. 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 explain 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
 - Exercise 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. Exercises burn the extra calories.
 - **Delay fatigue-** Regular exercise delay fatigue. This fatigue is mainly due to formation of carbon dioxide, lactic acid and acid phosphate.
 - **Posture-** Regular exercise helps in improvement of body posture from various postural deformities by strengthen 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 heart 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 from 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 beat
- (C) Blood pumped per minute during intense exercise
- (D) Blood pumped per hour.

Q.2. Taking is 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. Given below are the two statements labelled Assertion (A) & Reason (R).

Assertion (A) : Aerobic exercises 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's is measured in liter/ minute.

Increases in blood flow :- Cardio-vascular can be distribute more blood to those tissues which have more demand of oxygen and nutrients.

Increase in blood pressure :- During the exercise, systolic blood pressure can increase 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- Due to regular exercise increases the capacity of residual volume from normal capacity.

Passive Alveolus become Active- Regular exercise activates the unused alveolus because much amount of O₂ is required in prolonged exercise of daily routine.

Increase Endurance - If exercises is performed regularly and for a longer period, it increases endurance. An 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 exercises 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 exercises on the cardiovascular system with examples? (3)

Long Answer Question (5 Marks) (150 to 200 words)

- Q.1. List down the effects of exercises on cardio-vascular system and explain any four? (1+4=5)

7.4 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:

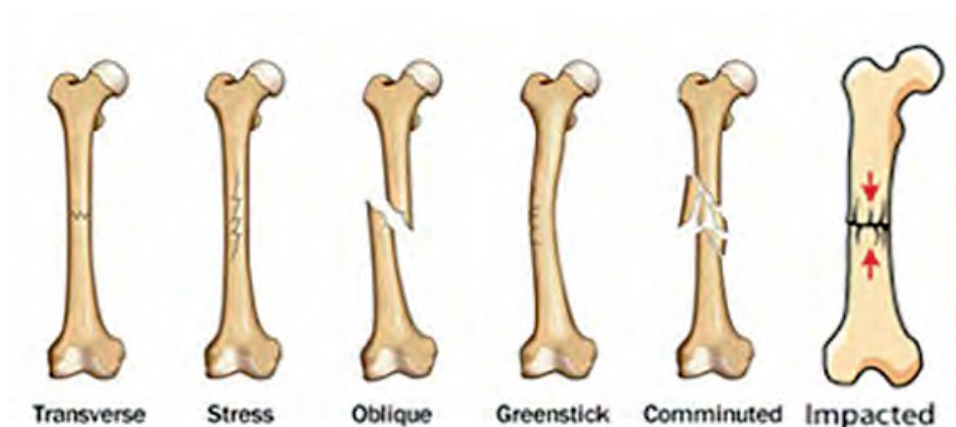
Dislocation- Injury to a joint, displacement of bone from its original place.

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 Comminuted 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



Arrange (1) to (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 the 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

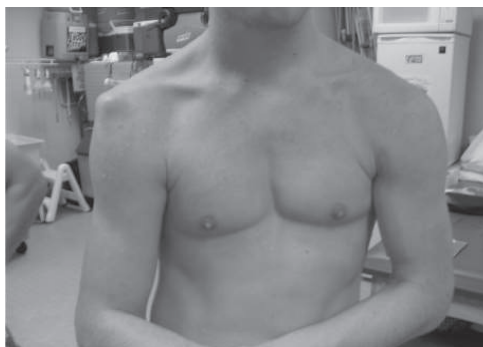
A dislocation is a separation of two bones where they meet at a joint. Joints are areas where two or more bones come together.

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 end 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

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.

Multiple Choice Questions MCQ (1 Marks)

Q.1. Match the following

- | | |
|--|------------------------------|
| 1. Components of physical fitness | A. Incomplete & Bone Bend |
| 2. Effect of exercises on cardiorespiratory system | B. Flexibility |
| 3. Effect of exercise on muscular system | C. Increase in endurance |
| 4. Green Stick Fracture | D. Improvement in body shape |

(A) **1B, 2C, 3B, 4A**

(B) 1C, 2D, 3A, 4B

(C) 1D, 2C, 3B, 4A

(D) 1A, 2C, 3B, 4D

Short Questions (2 Marks)

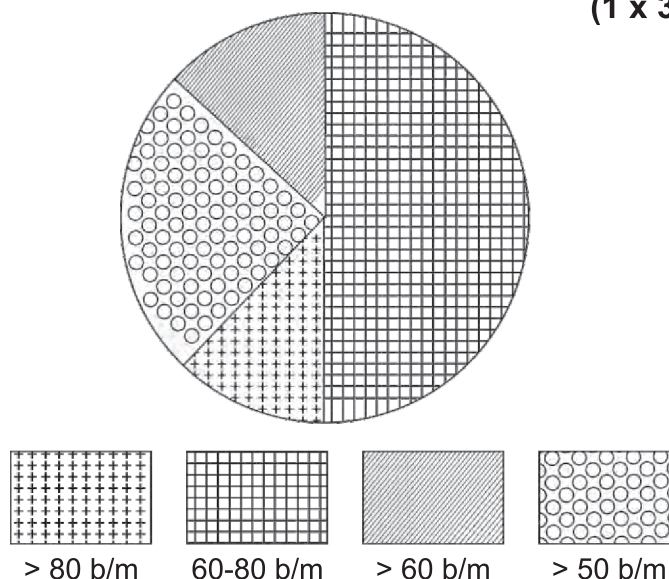
Q.2. Identify the type of fracture and write their names.



(i)..... (ii)..... (iii)..... (iv).....

Short Question (3 Marks)

Q.3. Below given is the data: Effect of daily exercise on pulse rate. (1 x 3 = 3)



UNIT - 8

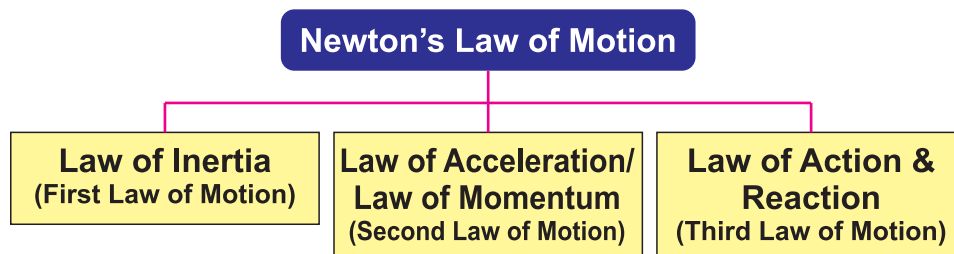
Biomechanic & Sports

UNIT - 8

Biomechanic & Sports

- 8.1. Newton's Law of Motion & its Application in Sports
- 8.2. Equilibrium - Dynamic & Static and Centre of Gravity and its Application in Sports
- 8.3. Friction & Sports
- 8.4. Projectile in Sports
- 8.1. Newton's Law of Motion & its Application in Sports

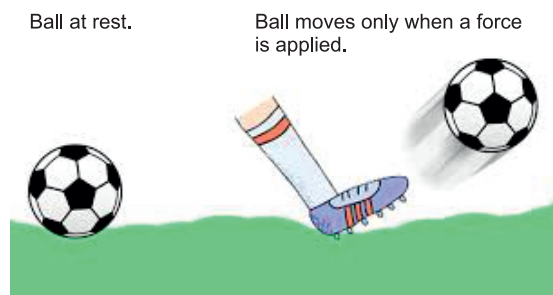
Sir Issac Newton gave three laws of Motion which we see in our daily life activities. In sports, the application of Newton's Laws of Motion are used to understand the relationship between force and motion.



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.

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.

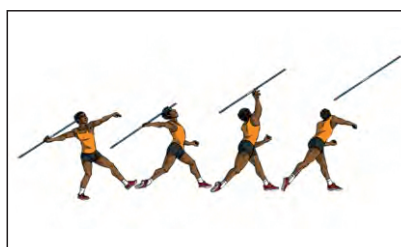
$$\text{Acceleration} \propto \frac{\text{Force}}{\text{Mass}}$$

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.

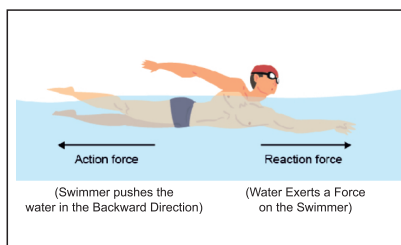


2. A javelin thrower needs more force to throw a javelin of 800gms than to throw a javelin of 600gms.



- **Law of Action & Reaction** 3rd 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 ®: 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.

$$\text{Acceleration} \propto \frac{\text{Force}}{\text{Mass}}$$

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.

Q.2. 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 Short Answers 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 Long Answers 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. 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 than 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 in different 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.

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.

- 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?

- 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?

- **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:**
 - o 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.
 - o An athlete bends their legs to lower his/her centre of gravity resulting in greater stability for the athlete such as wrestling, judo etc.
 - o While performing cartwheel, handstand etc, the CG shall come perpendicular to the base of support.
 - o 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?

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
<p>2. In other words, static equilibrium is maintaining balance when no motion takes places.</p> <p>3. For Ex-</p> <ul style="list-style-type: none"> • Performing Hand Stand in gymnastics, • Performing Sirsasana in Yoga. • Shooting Position in Archery/ Shooting. 	<p>2. In other words, dynamic equilibrium is maintaining balance while in motion.</p> <p>3. For Ex-</p> <ul style="list-style-type: none"> • Riding a Cycle, • Performing Cart-Wheel or Somersault in gymnastics • Jump shot in basketball

Long Answer Questions (5 Marks) (150-200 Words)

Q.4. Explain the Application of principles of equilibrium in the field of sports?

- Principle of equilibrium helps to maintain the stability of an athlete in all games and sports while in stationary position or during motion in order to perform the techniques efficiently and effectively.
- In weightlifting, players broaden their base by spreading their legs wide to create more stability while lifting weights. Similarly, golfers open their legs wide while taking shots for better stability.
- In wrestling, wrestlers used to bend a bit forward to lower down their CG for greater stability.
- The combat sports such as judo, wrestling, boxing is organised in different weight categories as athlete with higher body mass (inertia) tends to have greater stability than an athlete with lighter body mass (inertia).
- Boxers loses balance when they shift their weight on heels because the centre of gravity must fall within the line of base of support for greater stability.
- In gymnastics, while performing handstand or cartwheel higher stability is achieved when the Centre of Gravity (CG) falls within the base of support.

Practice Short Answers Questions (2 Marks) (30-50 Words)

- Q.1. Define Equilibrium and explain its types?**
Q.2. What is centre of gravity. What is the role of centre of gravity in sports?

Practice Short Answers Questions (3 Marks) (80-100 Words)

- Q.1. Discuss the types of equilibrium?**
Q.2. Elucidate the principles of equilibrium?

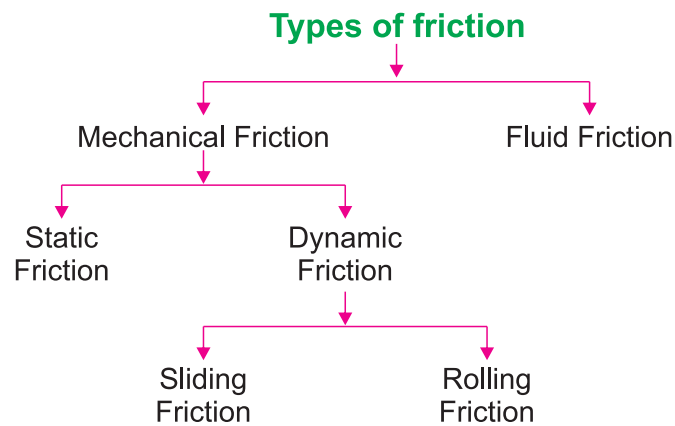
Practice Long Answers Questions (5 Marks) (150-200 Words)

- Q.1. Discuss the application of centre of gravity in games and sports?**
Q.2. How principle of equilibrium and stability plays a vital role in games and sports?

8.3 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-
 - o In football, the field is grassy and hence players wear studs/ to increase friction for greater stability to make quick movements.
 - o 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.
 - o Rough Surface produces more friction.
 - o Smooth Surface produces 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.

Friction in Sports:

Advantages	Disadvantages
1. Helps to maintain the position of object 2. Helps to Move faster with stability with the use of spikes 3. Helps to maintain the grip comfortably with the use of lime powder	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

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.**

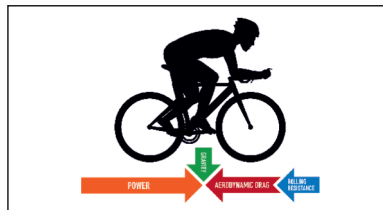
Advantages	Disadvantages
<ol style="list-style-type: none">1. Helps to maintain the position of object2. Helps to Move faster with stability with the use of spikes/ studs.3. Helps to maintain the grip comfortably with the use of lime powder4 Prevents wear and tear of muscles aswell as equipment's	<ol style="list-style-type: none">1. Higher friction leads to wear and tear of the equipment. For ex- in cycling, higher friction leads to wear & tear of tyres2. Higher friction slows down the speed of motion3. 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)

- 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.



Practice Short Answers Questions (2 Marks) (30-50 Words)

- Q.1. Define Friction and Name its types?
- Q.2. What is Air Resistance?

Practice Long Answers Questions (5 Marks) (150-200 Words)

- Q.1. What are the types of friction? How friction is advantageous and disadvantageous in the field of games and sports? Explain with suitable example?
- Q.2. Is friction advantageous or disadvantageous in games and sports?

8.4. 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-

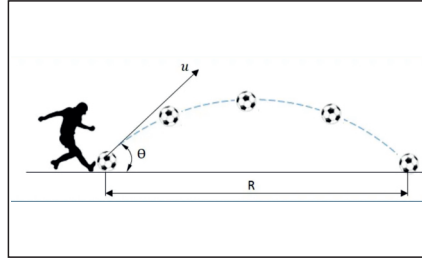
- ♦ A Javelin released in the air or a discus thrown in the air or
- ♦ An athlete performing long jump.
- ♦ A baseball which has been pitched, batted or thrown.

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.

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:** 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 increase the horizontal displacement. Taller discus thrower can throw farther than 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 affects 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 slows down 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 and type of surface of an object. A basketball will have higher air resistance as compared to a cricket ball.

-
- **Spin:** 'The amount and direction of spin acting on a projectile will directly affect the distance a projectile will travel. A topspin shot creates a region of high pressure on top of the ball, and a region of low pressure below. Air moves from a region of high to low pressure and as a consequence the ball will dip suddenly, decreasing the vertical component of the trajectory and in turn, the distance travelled. In a backspin shot, a region of high pressure is created under the ball, and low pressure above the ball. Air moves from high to low pressure. The air pressure acting on the ball will cause it to stay up longer, increasing the vertical component of the trajectory. therefore increasing the distance travelled. An object propelled without spin tends to waver due to air resistance against an irregular surface, but a small amount of spin produces stability. For example, a volleyball served with a slight spin follows a true course of flight.

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?

- A projectile is any body 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.1. Explain any various affecting the projectile? (5 marks)

- **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.

Important Points

Issac Newton gave three laws of motions:

- **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. A football in the state of rest will remain at rest until or unless a kick (external force) is applied on it.
- **Law of Acceleration/ Momentum:** 2nd Law of Motion: 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. A javelin thrower needs more force to throw a javelin of 800gms than to throw a javelin of 600gms.
- **Law of Action & Reaction:** 3rd Law of Motion: For every action, there is an equal and opposite reaction. While swimming, when we push the water backwards (action), our body moves forward (reaction).

Equilibrium: A state of an object when all forces acting upon it results in no change in motion of that object. 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. 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. 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:

5. **Broader Base:** Broader the base, greater the stability in static equilibrium.
6. **Lower Centre of Gravity:** The lower the Centre of Gravity (CG), the greater the stability.
7. **Body Mass (Inertia):** An athlete with higher body mass (inertia) tends to have greater stability than an athlete with lighter body mass (inertia).

-
8. **Centre of Gravity falls** within the base of support: Stability is higher when the Centre of Gravity (CG) falls within the base of support.

Friction & Sports: It is a resistance force when one object/ surface moves over another object/ surface. It always acts in the opposite direction of the applied force/ motion. 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 decrease friction for a better grip.

Types of Friction:

- **Static Friction:** Friction that exists before an object starts to move.
- **Dynamic/ Kinetic Friction:** Friction that exists when the object is actually moving.
 - ♦ **Rolling Friction:** Friction when an object is rolling on the surface.
 - ♦ **Sliding Friction:** Friction when an object is slides over the surface.
- **Fluid Friction (Air/ Water):** Friction when the object movement is hindered due to resistance of water or air.

Projectile: A projectile is anybody or object which is thrown or jumped or 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.

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 called as Parabola or Trajectory.

Factors affecting Projectile Trajectory

- | | |
|-----------------------|------------------------|
| • Angle of Projection | • Height of Projection |
| • Initial Velocity | • Gravity |
| • Air Resistance | • Spin |

UNIT - 9

Psychology & Sports

UNIT - 9

Psychology & Sports

- 9.1. Personality, its definition & types (Jung Classification & Big five Theory)
- 9.2. Meaning, Concept and types of Aggression in Sports
- 9.3. Psychological Attributes in Sports- Self Esteem, Mental Imagery, Self Talk, Goal Setting

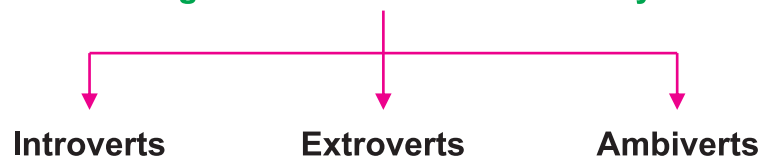
9.1 Personality:

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 characteristics 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".

Jung Classification of Personality



Big five personality theory

1. Openness
2. Conscientiousness
3. Extraversion
4. Agreeableness
5. Neuroticism

1. Openness 2. Conscientiousness 3. Extraversion

- Social
- Imaginative
- Interest
- Curiosity
- Creativity
- Emotional
- Self discipline
- Dedicated
- Hard worker
- Aspirant
- Energetic
- Positiveness
- Accepting nature
- Social
- Talkative
- Friendly

4. Agreeableness 5. Neuroticism

- Cooperative
- Managed
- Soft hearted
- 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)

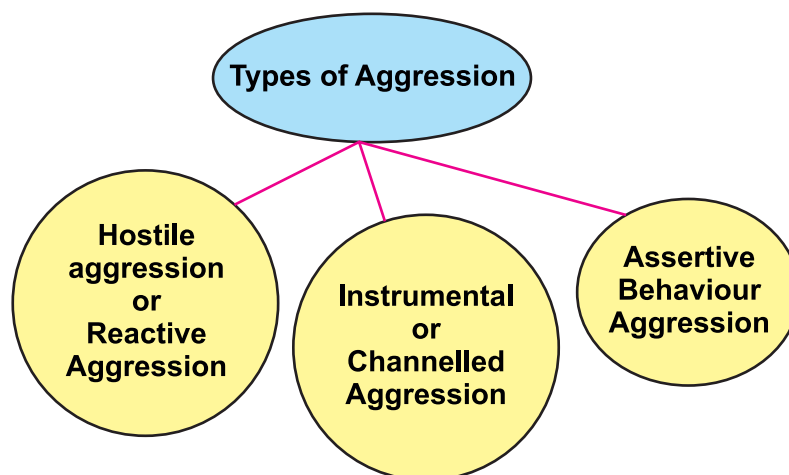
Ans. The word personality is derived from the latin word "Persona" means "Mask". But it has the broader meaning like Biological-Appearance, Psychological-Tolerance and sociological-Character. The following are the traits of Big-5 personality

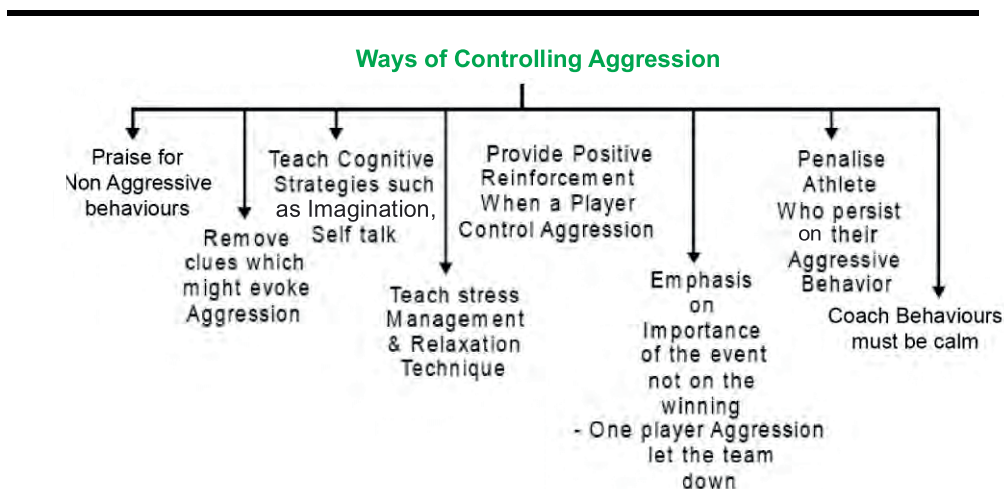
-
1. **Openness Traits:** The assessment of openness traits shows that how the person is
 - Imaginative
 - Insightful
 - having variety of interest
 - with degree of intellectual curiosity
 - creative
 - able to enjoy the new experiences
 - able to learn new changes & concept
 2. **Conscientiousness:** The assessment of this trait shows that how the person is able to
 - Compete with life challenges
 - control self discipline
 - To act dutifully
 - To plan & to organize
 - Work independently
 - To do hard work
 3. **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

9.2 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 (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 as Hostile Aggression.
- (b) **Instrumental Aggression:** Any physical behavior which is aimed to achieve high performance but unintentionally physically harm to the living being is known as instrumental Aggression.
- (c) **Assertive Aggression:** Any verbal behaviour under the Rules & Regulation of the sport which is used to harm 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)

9.3 Psychological Attributes

Self esteem refers to the overall evaluation of one's value. In other words, the judgments any individual makes about themselves, their abilities, potential, skills, accomplishment how others perceive them, etc. are all a part of one's 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 issues 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”, “I am 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 Briefly 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

10.1 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)

1. **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
2. **Under National Talent Search Programme. How many students are selected every year?**
 - a) 500
 - b) **1000**
 - c) 1500
 - d) 200

3. When was National Talent Search Programme started?

- a) 2010 b) 2016
c) **2018** d) 2021

4. Name Association who works for National Sports talent search-

- a) Olympics Association b) **Sports Authority of India**
c) Sports Federation d) School

Q.2 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.3 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.4 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.5 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.6 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 followsto attain peak performance during competition.”

Sports Training Cycle -

1. Microcycle
2. Mesocycle
3. Macrocycle

Multiple Choice question (1Mark)

1. **Preparation of Sports Talent for a long time for any Sports Events is called-**
 - a) Testing
 - b) **Training**
 - c) Inspection
 - d) Review
2. **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
3. **The shortest period of Sports training is called-**
 - a) **Microcycle**
 - b) Mesocycle
 - c) Macrocycle
 - d) Annual cycle
4. **The longest period of training is called-**
 - a) Mictocycle
 - b) Mesocycle
 - c) **Macrocycle**
 - d) Merocycle
5. **The duration of meso cycle is.....**
 - a) 2-3 weeks
 - b) 3-4 weeks
 - c) **3-8 weeks**
 - d) 1 week
6. **What is the first stage of periodization?**
 - a) **Preparation Phase**
 - b) Competition Phase
 - c) Transition Phase
 - d) Training Phase

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 an annual 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.

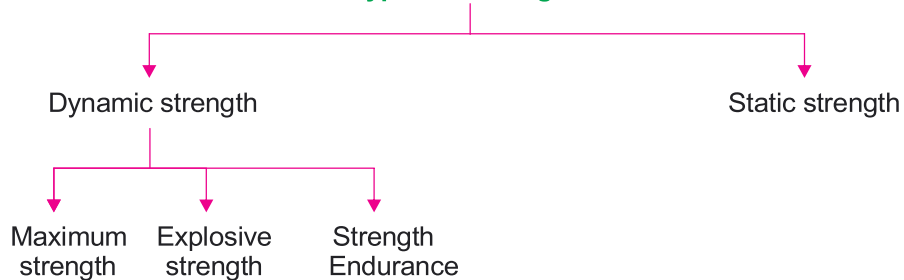
Practice Questions

- 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?

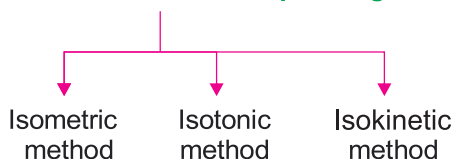
10.3A Strength

It is the ability to act or to overcome the resistance.

Types of Strength



Method to develop strength



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 overcome 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 (3 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 against maximum resistance
- (b) **Explosive strength:** Ability to act against 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.

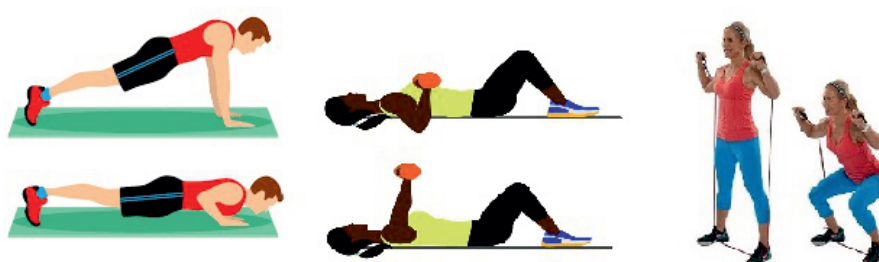
Work done = Force X Distance moved

but distance moved is 0, therefore work done is zero.



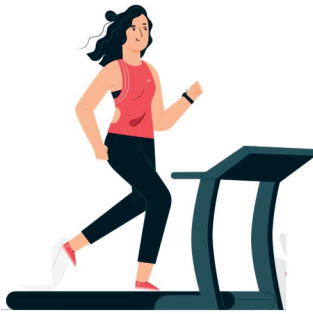
2. Isotonic Exercises :- “Iso” Means ‘same’ and ‘tonic’ means tone.

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.

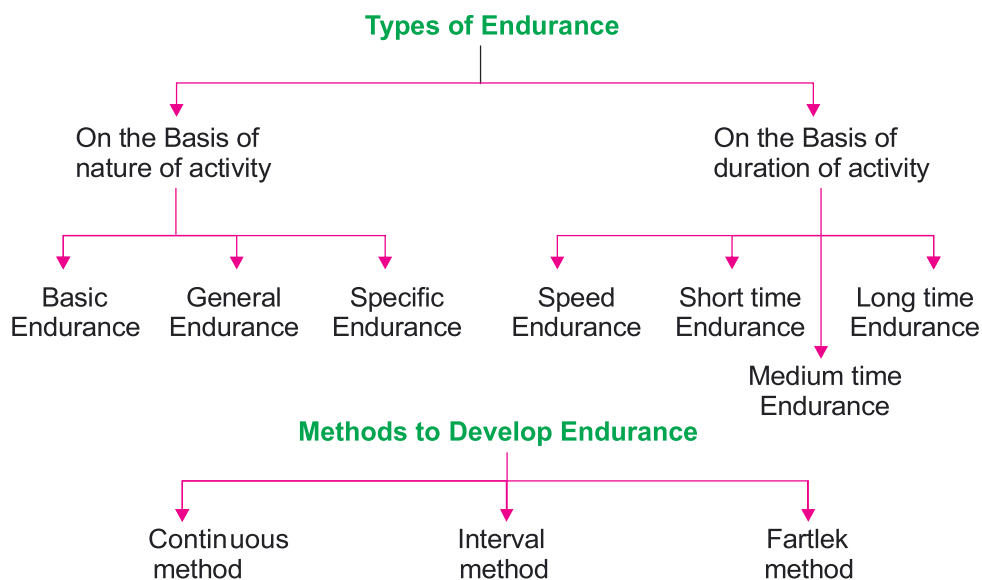


Practice Question

- 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)

10.3B 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 (3 Marks)

Q.1. Differentiate between Interval and Fartlek training.

Ans. (1 + 1 = 2)

Fartlek Training	Interval Training
<ul style="list-style-type: none">1. There is change of pace2. Timing is 15 to 45 minutes3. There is no rest period4. It is done continuously	<ul style="list-style-type: none">1. No change of pace2. Distance from 30 to 150 meters3. Rest period is there4. 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.

- 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.
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.
- **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.
 - **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.
(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 to 18 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 (2 Marks)

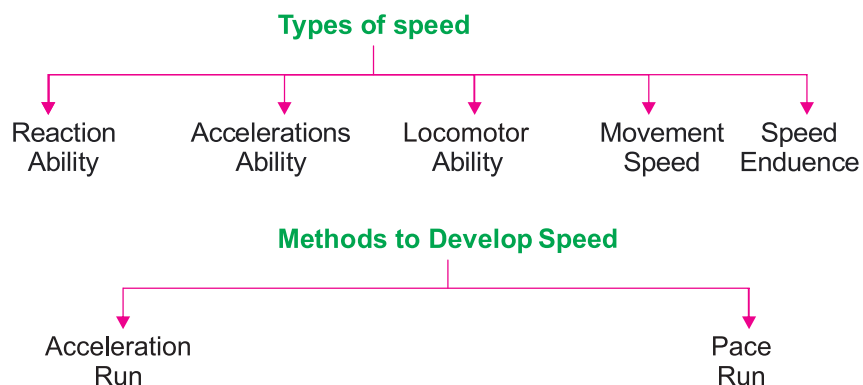
- Q.1. Write any two types of endurance on the basis of nature of activity. (1 + 1 = 2)
- Q.2. Write any two types of endurance on the basis of duration of activity. (1 + 1 = 2)

Question (3 Marks)

- Q.3. What is Endurance? Explain its types.
- Q.4. Describe the types on endurance on the basis of time with suitable example.
- Q.5. Write down the method to develop endurance? Explain one of them.
- Q.6. Explain Fartlek method with its parameter.
- Q.7. What is Endurance? Enlist the methods to Develop endurance and explain any one of them in detail.
- Q.8. Explain any two methods to develop the ability helps an individual to continue it activity under the condition of fatigue.

10.3C 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 (D) Movement speed

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 is 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?

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.

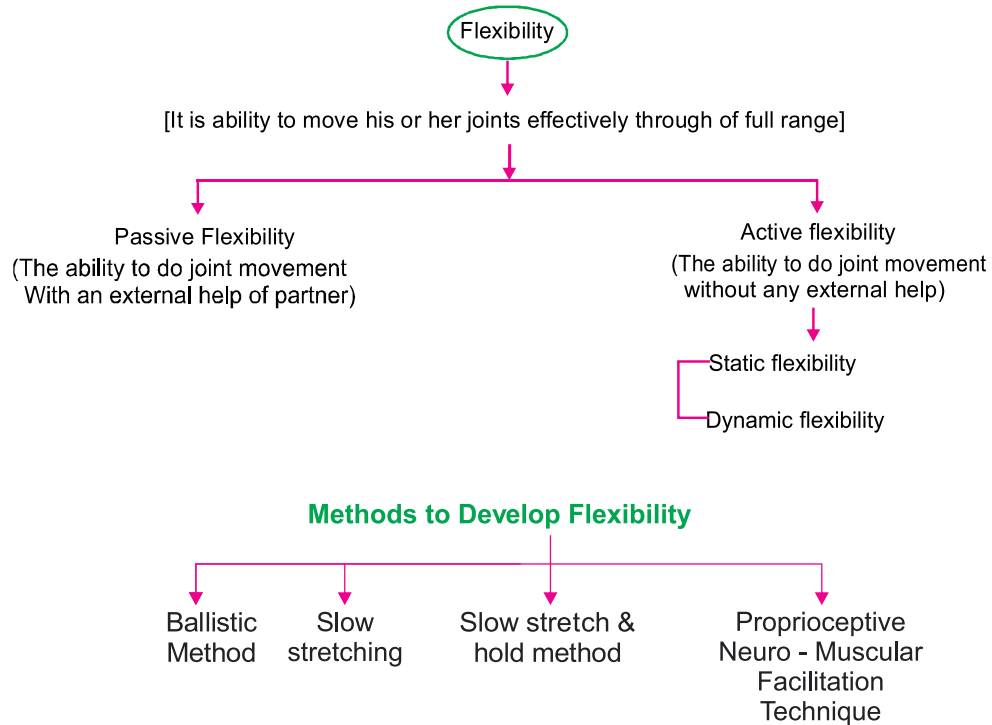
Ans. **Pace run:** Pace run means running the whole distance with a constant speed. Generally 800 metre and above races are included in pace races. An athlete can run a distance of 300 metre. at full speed but in longer races such a 800 mtr. or above, he must conserve athlete energy by reducing the speed. 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)

10.4A 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 (3 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?

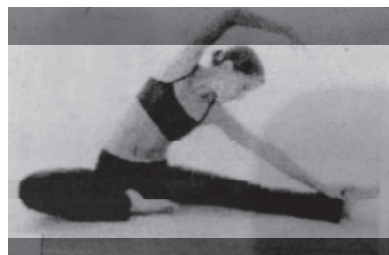
Ans. Flexibility is the range of movement of the joint of a sports person.

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.

Long 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)

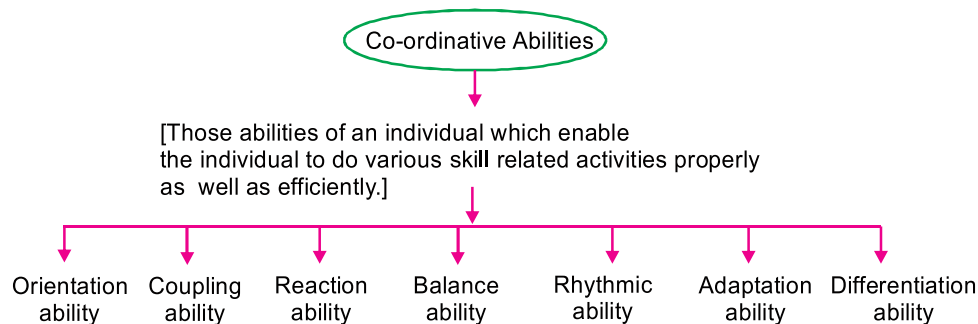
Ans. To maintain flexibility in games and sports stretching exercises should be done. By following methods, one can improve their flexibility.

- **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 Ballistic method.
- Q.5. Discuss slow stretch & hold method.
- Q.6. Define flexibility? Explain its type & one method to develop flexibility.

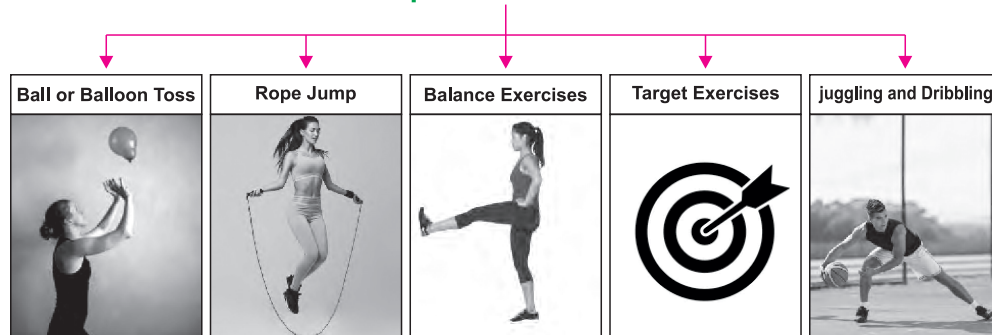
10.4B Co-ordinative Abilities



Methods to Improve Coordinative Abilities

Following exercises are considered to be the best one to improve coordinative ability of a person-

Methods to Improve Coordinative Abilities



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.

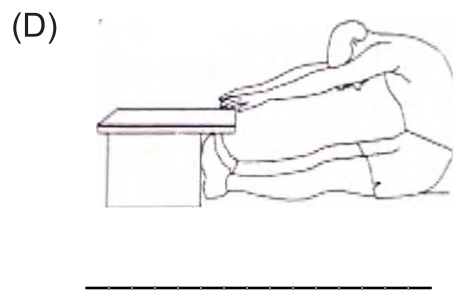
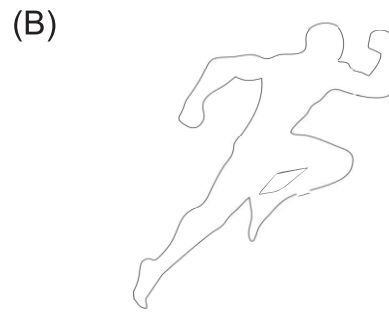
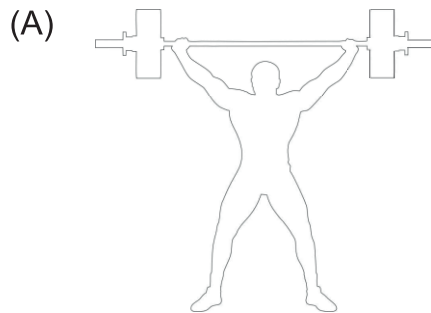
- Reaction Ability (B) Adaptation ability
Differentiation ability (D) Balance ability

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 (3 Marks)

Q.1. Identify the fitness component and write their name-
($\frac{1}{2} + 4 = 2$)



Short Answer type Question (3 Marks)

Q.1. Discuss Reaction Ability.

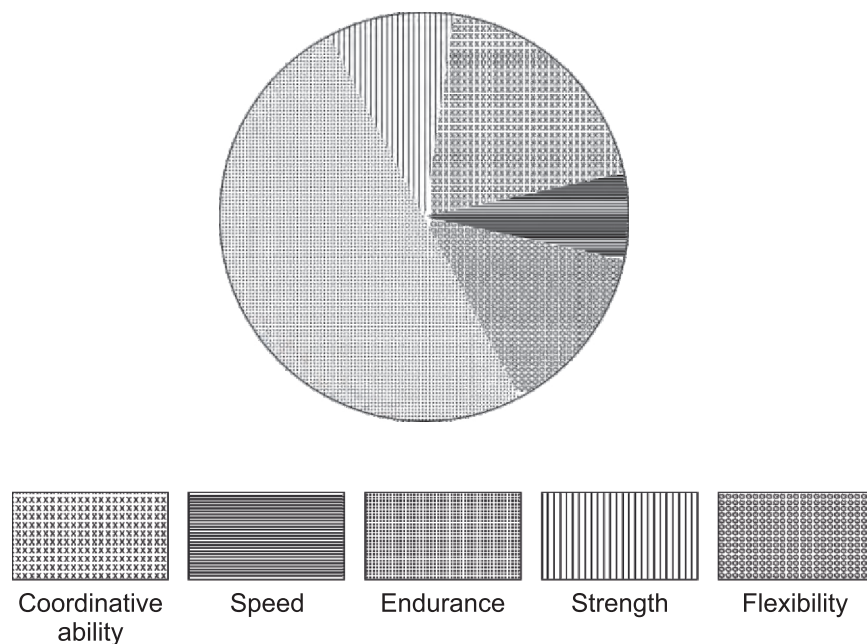
Ans. Reaction ability is the ability which help to react against an signal. These are two types.

- (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 known 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 fitness 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) Continuous

(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 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:-

1. Differentiation ability
2. Orientation ability
3. Coupling ability
4. Reaction ability
5. Balance ability
6. Rhythm ability
7. 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. In some sports like gymnastic, the athlete has to recognise an 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 methods of coordination ability improvements.

Ans. 1. Ball or Balloon Toss: This coordination exercise helps to improve coordination between hands, head, and other body parts. 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 quickly in the air, the participant has to quickly 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.

4. 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

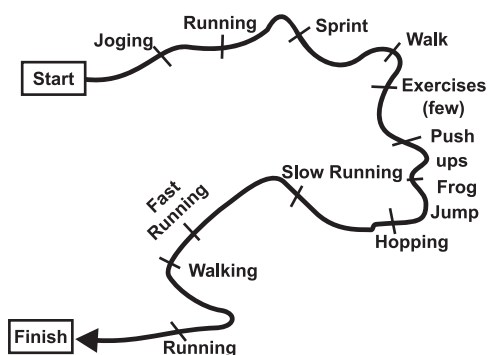
rhythm he/she may add in a third ball. Dribbling exercise helps to enhance speed while concentrating on the ball. Dribbling requires a good amount of time and practice, this coordination exercise also helps to improve hand-eye movements.

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.



The above picture, shows which of the following training method-

- a) Pace runs b) Fartlek c) Isometric d) Isotonic

The above shows training method helps to increase-

- a) Strength b) Speed c) Endurance d) Flexibility

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)

CONCISE

1. **Training** is a long term process of preparation to achieve any Goal.
2. **Sports training** is a Technical /Educational process based on scientific principles, aim to perform at highest level in Sports Competitions.
3. **Talent Identification in Sports** is the process of recognizing players who have the potential |to excel in a particular sport.
4. **Talent development in sports** refers to the whole process through which abilities and skills of talented young players are further nurtured and enhanced.
5. **Sports training cycle** refers to combinations of training regimes of different durations which an athlete follows to attain peak performance during a competition.
6. **Strength** is the ability of muscles to work against resistance.
7. **Endurance** is the ability to sustain an activity for a long duration of time.
8. **Speed** is the capacity of an individual to perform successive movement of same pattern at a fast rate.
9. **Flexibility** is the ability of muscles are execute movements with a greater range of joints.
10. **Co-ordinative abilities** are those abilities of an individual which enables the individual to do various activities properly as well as efficiently.



SAMPLE QUESTION PAPER - 1 (CBSE)
PHYSICAL EDUCATION (048)
SESSION (2022-23)

TIME ALLOWED: 3 HRS

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)

Q1. Identify the asana:



- a) Paschimottanasana
- b) Halasana
- c) Vajrasana
- d) Dhanurasana

(Question for visually impaired)

Which asana amongst these can be done just after having meals?

- a) Bhujangasana b) Dhanurasana
- c) Vajrasana d) Ardhamatsyendrasana

Q2. A person who likes to learn new things, new concepts and new experiences are categorized as _____.

- a) Agreeableness b) Extroversion
- c) Conscientiousness d) Openness

Q3. Cartwheel in gymnastics is an example of _____

- a) Static Equilibrium b) Dynamic Equilibrium
- c) Active Equilibrium d) Passive Equilibrium

Q4. Slow twitch fibres are _____ in colour.

- a) White b) Red
- c) Transparent d) Brown

Q5. Jumping on the spot is an example of _____

- a) Iso-metric b) Iso-tonic
- c) Iso-kinetic d) Iso-kinesthetic

Q6. Take-off in Long jump is an example of _____ strength.

- a) Explosive strength b) Maximum strength
- c) Strength endurance d) Static strength

Q7. The amount of oxygen which can be absorbed and consumed by the working muscles from the blood is called _____

- a) Oxygen Uptake b) Oxygen Intake
- c) Oxygen Transport d) Vital capacity

Q8. In Law of Acceleration, acceleration of an object is inversely proportionate to its _____

- | | |
|----------|---------|
| a) Force | b) Mass |
| c) Speed | d) Size |

Q9. Given below are the two statements labeled Assertion (A) and Reason®).

Assertion: Intrinsic motivation has long term benefits.

Reason: As factors behind it are naturally pursuing actions that provide fun, pleasure, fulfillment or challenge

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

Q10. Carbohydrates which are soluble in water and crystalline in structure.

- | | |
|-------------|----------------|
| a) Simple | b) Complex |
| c) Compound | d) Complicated |

Q11. Which amongst these is not a micro mineral?

- | | |
|-----------|--------------|
| a) Iodine | b) Magnesium |
| c) Iron | d) Copper |

Q12. Which asana is helpful in increasing height?

- | | |
|-----------------|--------------|
| a) Sukhasana | b) Tadasana |
| c) Bhujangasana | d) Vajrasana |

Q13. How many byes will be given if there are 17 teams?

- a) 1 b) 8
c) 15 d) 12

Q14. How many matches will be played in the knockout tournaments first round if there are 15 teams?

- a) 8 b) 7
c) 5 d) 6

Q15. Watching others play and enjoy which in turn motivates the Child with special need to participate is a part of which kind of strategy?

- a) Mental b) Physical
c) Psychological d) SocialQ

16. Match the following:

- | | |
|------------------------|------------------------|
| I. Garudasana. | 1. Round shoulder |
| II. Gomukhasana. | 2. Lordosis |
| III. Chakrasana. | 3. Bow legs |
| IV. Naukasana. | 4. Knock knees |
| a) I-3,II-4,III-1,IV-2 | b) I-1,II-3,III-4,IV-2 |
| c) I-4,II-2,III-1,IV-3 | d) I-2,II-3,III-4,IV-1 |

Q17. Match the following:

- | | |
|---------------------------|---------------------------|
| I. Chair stand test. | 1. Lower Body strength |
| II. Arm curl test. | 2. Aerobic Endurance |
| III. Back scratch test. | 3. Upper body strength |
| IV. Six minute walk test. | 4. Upper body flexibility |
| a) I-1,II-3,III-4,IV-2 | b) I-2,II-3,III-1,IV-4 |
| c) I-1,II-3,III-2,IV-4 | d) I-2,II-3,III-4,IV-1 |

Q18. Weakening of bones due to loss of bone density and improper bone formation is known as _____

- a) Amenorrhea b) Anorexia Nervosa
c) Osteoporosis d) Lordosis

(SECTION B)

Q19. List down any four effects of exercise on the muscular system.
(0.5*4)

Q20. List down any four benefits of self talk by athletes in sports
(0.5*4)

Q21. List down any four advantages of fartlek training method.
(0.5*4)

Q22. Explain any two types of soft tissue injuries with help of examples.
(0.5*4)

Q23. Write down the objectives and administration of the flamingo test.
(1+1)

Q24. What should be the basic nutrient in a weightlifter's diet and why?
(1+1)

(SECTION C)

Q25. Create a mind map including any six advantages of physical activities for children with special needs.
(0.5X6=3)

Q26. What are carbohydrates? Differentiate between its types.
{1+ (0.5*4)}

Q27. Define bye. Explain the rules of giving bye with help of an example.
(1+2)

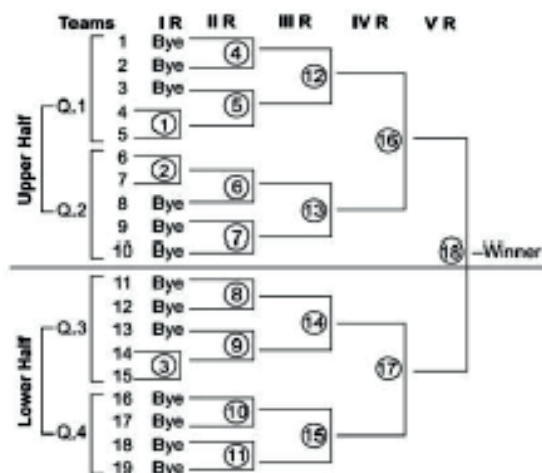
Q28. Make a table explaining any three personalities from Big five theory and their characteristics.
(1+1+1)

Q29. Explain any three physiological factors determining strength.
(1+1+1)

Q30. What is the meaning of female athletes Triad? Explain any two in brief.
(1+2)

(SECTION D)

Q31.



On the basis of above given fixture answer the following questions: (4X1=4)

- total number of matches in 2nd round are _____
- What is the formula for calculating the total number of matches?
- The fourth round in this case can also be called as _____
- What is the formula for calculating the number of byes

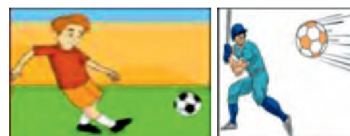
OR

The formula for calculating number of rounds is _____

(Question for visually impaired)

List down any four committees working during conduct of a competition and briefly explain their role.

Q32. The teachers as well as coaches always make their best efforts to improve the performance of their students in various competitive games and sports. They can help to improve the performance of students if they have adequate knowledge of biomechanics.



-
- a) The more force one exerts on the downward bounce, the higher the ball bounces into the air. Which law is this statement being referred to?
 - b) Among the above given pictures, Newton's 3rd law is depicted in_____
 - c) Newton's second law is also known as_____
 - d) The study of human body and various forces acting on it is_____

OR

A high jumper can jump higher off a solid surface because it opposes his or her body with as much force as he or she is able to generate. This example refers to which law of motion?

(Question for visually impaired)

What is equilibrium? Explain its types along with the factors increasing equilibrium. (1+4)

Q33. In relation to the pictures, answer the following questions.



- a. What is the mission of the first organization?
- b. What is the Motto of the first organization?
- c. Until 1965 the games in the second picture were known as _____
- d. Second picture games are conducted after every _____ years.

(Question for visually impaired)

Write a brief note on Paralympics including its origin, describing the various categories and criteria..

(SECTION E)

- Q34. List down any four asanas used for prevention of asthma. Explain the procedure for administration of any one of them with help of a stick diagram. (2+2+1)
- Q35. Make a table of test items listed under fitness test by SAI (Age group 9-18 yrs) along with the objectives of conducting them. Explain the administration of any one of them. (4+1)
- Q36. Define flexibility along with its types. Explain any two methods used to develop flexibility. (2+3)
- Q37. Define Projectile and explain any two factors affecting projectile with help of examples from sports. (1+4)

ANSWER KEY - Sample Paper-1
Physical Education
(Session 2022-23)

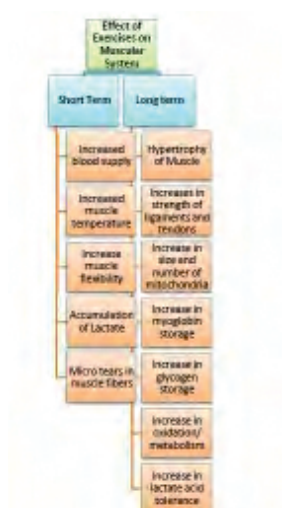
(SECTION - A)

- | | |
|--|---|
| 1. d) Dhanurasana | 1 |
| For visually impaired | |
| c) Vajrasana | |
| 2. d) Openness | 1 |
| 3. b) Dynamic Equilibrium | 1 |
| 4. b) Red | 1 |
| 5. b) Iso-tonic | 1 |
| 6. a) Explosive strength | 1 |
| 7. a) Oxygen Uptake | 1 |
| 8. b) Mass | 1 |
| 9. a) Both (A) and (R) are true and (R) is the correct explanation of (A). | 1 |
| 10. a) Simple | 1 |
| 11. b) Magnesium | 1 |
| 12. b) Tadasana | 1 |
| 13. c) 15 | 1 |
| 14. b) 7 | 1 |
| 15. d) social | 1 |
| 16. a) I-3,II-4,III-1,IV-2 | 1 |
| 17. a) I-1,II-3,III-4,IV-2 | 1 |
| 18. c) Osteoporosis | 1 |

(SECTION B)

19.

2



20. Benefits of self talk

2

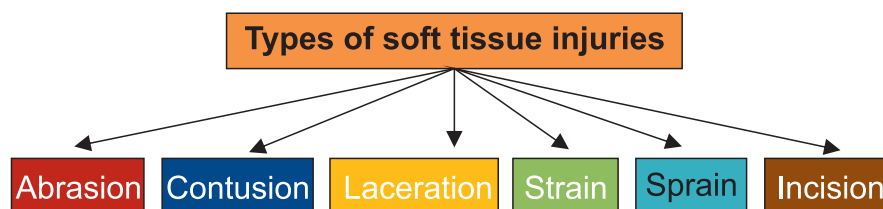
1. Building and developing self efficacy
2. Skill acquisition
3. Creating and changing mood
4. Controlling efforts
5. Focusing attention

21.


2

Advantages	Disadvantages
<ul style="list-style-type: none"> • Develops strength and endurance • Appropriate form of training for most sports • Can be adjusted to suit age, fitness and health of the athlete • Exercises are simple enough to make each athlete feel a sense of achievement in completing them • A wide range of exercises to select from which will maintain the athlete's enthusiasm • Can be done in the group 	<ul style="list-style-type: none"> • Many exercises require specialized equipment - e.g. gym equipment • Ample space required to set up the circuit exercises & equipment • In general can only be conducted where appropriate facilities/equipment are available • Use of additional equipment requires appropriate health and safety monitoring

22. A soft tissue injury is the damage of muscles, ligaments and tendon: throughout the body. 2



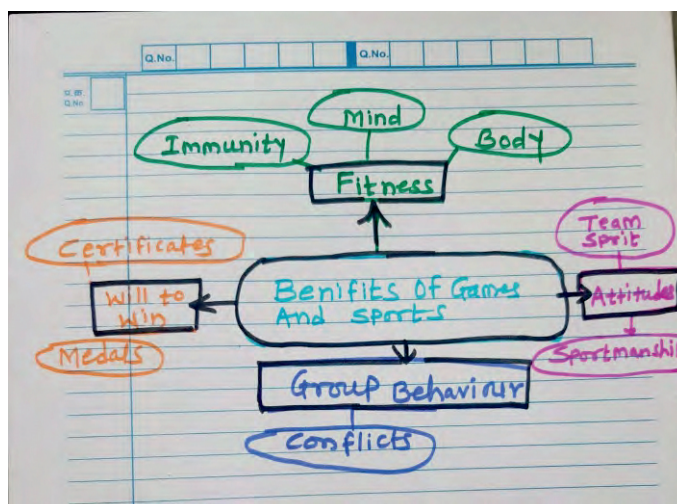
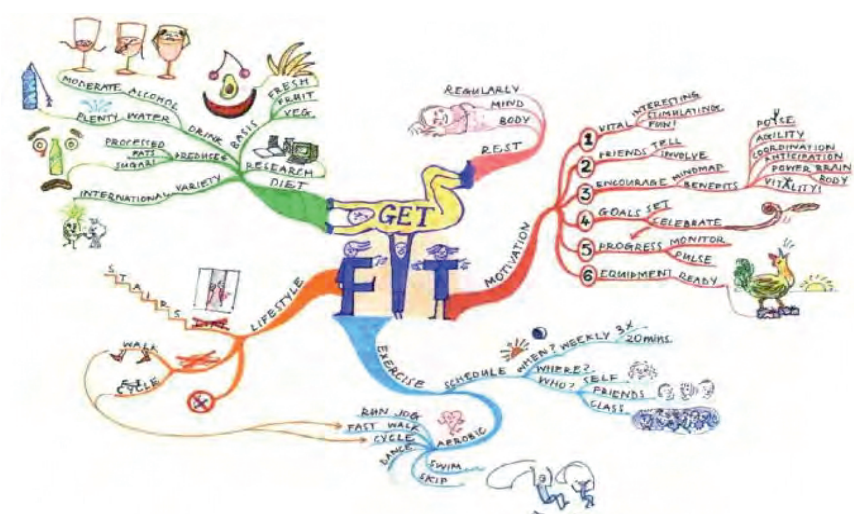
23. 8.3 Static Balance (Flamingo Balance Test) 2

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 muscles as well as static balance.	
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 participants/subject. Pause the stopwatch each time the subject loses balance (either by falling off the beam or letting go of the foot being held). Resume over, again timing, until they lose balance. Count the number of falls in 60 seconds of balancing. If there are more than 15 falls in the first 30 seconds, the test is terminated.	Infrastructure/Equipment Required: Non Slippery even surface. Stopwatch, can be done by just standing on a beam. 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.
	
Administrative Suggestion: Participants should be encouraged to focus eyes on stationary objects straight ahead.	
Suggested Physical activities to improve Balance (Flamingo Test) To improve balance, you should practice one foot balance, walking on toes and heel toe walking, walking on straight lines, skipping, hopping, vrishat sand, walking on beam etc.	

24.	<div>Proteins</div> <ul style="list-style-type: none"> Proteins build and repair body cells Proteins form part of various enzymes, hormones, and antibodies 	<div>Also provide energy (4 Kcal/g)Milk and milk product, fish, eggs, poultry, meat, legumes and grains</div>	2
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(SECTION C)

25. Six advantages of physical activities for children with special needs 3



26.

3

Carbohydrates are organic compounds made up of Carbon, Hydrogen and Oxygen. Carbohydrates are a major source of energy Carbohydrates.

monosaccharide, disaccharides and polysaccharides

Simple sugars (mono and disaccharides) are found in fruits (sucrose, glucose and fructose), milk (lactose) and sweets that are produced commercially and added to foods to sweeten, prevent spoilage, or improve structure and texture. Polysaccharides are more than two units of monosaccharide joined together. These are Starches and fibre (cellulose). These are also called complex sugars and are found in whole grain cereals, rice, oats, potatoes, bread, legumes, corn and flour.

27.

3

The position of a participant in a tournament who is not paired with an opponent, usually in the first round, and advanced to the next round without playing. The right to proceed to the next round of a competition without contesting the present round, often through nonappearance of an opponent.

Allotment of byes in the fixture should be given in following order:

First bye will be given to last team of Lower Half, Second by will be given to first team of Upper Half, Third bye will be given to first team of Lower Half, Fourth bye will be given to last team of Upper Half Same pattern will be followed after fourth bye till the remaining byes have been given.,

28.

3

Trait	Description
O penness	Being curious, original, intellectual, creative, and open to new ideas.
C onscientiousness	Being organized, systematic, punctual, achievement oriented, and dependable.
E xtraversion	Being outgoing, talkative, sociable, and enjoying social situations.
A greeableness	Being affable, tolerant, sensitive, trusting, kind, and warm.
N euroticism	Being anxious, irritable, temperamental, and moody.

29.

3

Strength – Strength component has varied sub-types like maximum strength, Explosive strength, Strength, Endurance etc. Each has different types of exercise, intensity and duration so physiological factors vary. In games like weightlifting, jumps, sprint or power, agility and strength dominating sports where force production is high, fatigue is quick, and fast twitch fibre percentage must be high in muscles. ATP-CP system or anaerobic system works to produce energy for strength training. Stroke volume (the volume of blood pumped out of the left ventricle of the heart during each systolic cardiac contraction) is a vital parameter as far as cardiovascular system is concerned.

30. Female Athlete Triad.

3



- (a) disordered eating-
 (b) amenorrhea and
 ©) osteoporosis

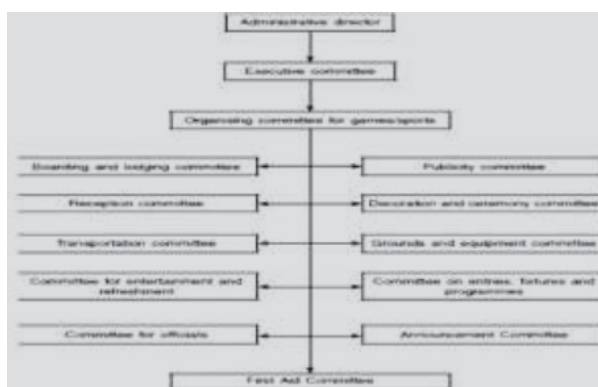
31. A) 8

4

B) N-1

C) Semi final

D) 2n-N



- a) Third law of motion-Action reaction
 - b) 1st picture
 - c) Law of Acceleration
 - d) Kinesiology
- Third law of motion-Action reaction

For visually impaired students

Guiding Principles to Determine the Degree of Stability

1. **Broader the base, the greater the stability:** Broadening the base of support helps an athlete to achieve greater stability. eg., 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 athlete or an object which weighs more will have greater stability. eg., 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 bodyweight 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 kneeling. eg., 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's weight centred over the base will support and help maintain stability. eg., 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. eg., when in a judo match the judoka shifts his foot in the line of direction of the force applied by the opponent to use the force of the opponent as a counterforce to throw him down.

- a. The mission of Special Olympics is to provide year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in events
- b. "Let me win. But if I cannot win, let me be brave in the attempt."
- c. International Games for the Deaf International Silent Games"
- d. 4yrs

For visually impaired students

4.1.1 PARALYMPICS

Paralympics is a mega sports event involving athletes with a range of disabilities, and is organized by the International Paralympic Committee. The range of disabilities includes impaired muscle power (eg., paraplegia and quadriplegia, muscular dystrophy, post-polio syndrome, spina bifida), impaired passive range of movement, limb deficiency (eg., amputation or dysmetia), leg length difference, short stature, hypertonia, ataxia, athetosis, vision impairment and intellectual impairment. These disabilities are further divided into classifications which vary from sport to sport. The word Paralympics is derived from the Greek word para which means beside or alongside and Olympic. Combined, Paralympics means an international Games competition that is parallel to the Olympics. Thus, the word Paralympics refers to "a series of international contests for athletes with disabilities that are associated with and held following the summer and winter Olympic Games. There are Winter and Summer Paralympic Games, which since the 1988 Summer Games in Seoul, South Korea, are held almost immediately following the respective Olympic Games. All Paralympic Games are governed by the International Paralympic Committee (IPC),

International Paralympic Committee (IPC) was formed on 22 September 1989 and is situated in Germany. IPC organizes Summer and Winter Paralympic Games and coordinates world championships and other competitions. The vision of IPC is "To enable Para athletes to achieve sporting excellence and inspire and excite the world."

The purpose of the criteria

- Defining the impairment group in which an athlete can compete in the various sports.
- Grouping athletes in classes defined by the degree of activity-limitation related to the impairment and/or specific to the task in the sport. The IPC has established ten disability categories, including physical, visual, and intellectual impairment. Athletes with one of these disabilities can compete in the Paralympics though not every sport can allow for every disability category. These categories apply to both Summer and Winter Paralympics.

1. **Physical Impairment** – There are eight different types of physical impairment:
 - **Impaired muscle power** – With impairments in this category, the force generated by muscles, such as the muscles of one limb, one side of the body or the lower half of the body is reduced. eg., spinal cord injury, spina bifida, post-polio syndrome.
 - **Impaired passive range of movement** – The range of movement in one or more joints is reduced in a systematic way. Acute conditions such as arthritis are not included in this category.
 - **Loss of limb or limb deficiency** – A total or partial absence of bones or joints from partial or total loss due to illness, trauma, or congenital limb deficiency. eg., amputation, dysmelia.
 - **Leg-length difference** – Significant bone shortening occurs in one leg due to congenital deficiency or trauma. Short stature – Standing height is reduced due to shortened legs, arms and trunk, which are due to a Musculo-skeletal deficit of bone or cartilage structures. eg., achondroplasia, growth hormone deficiency, osteogenesis imperfecta.

-
- **Hypertonia** – Hypertonia is marked by an abnormal increase in muscle tension and reduced ability of a muscle to stretch. Hypertonia may result from injury, disease, or conditions which involve damage to the central nervous system. eg., cerebral palsy.
 - **Ataxia** – Ataxia is an impairment that consists of a lack of coordination of muscle movements. eg., cerebral palsy, Friedreich's ataxia, multiple sclerosis.
 - **Athetosis**– Athetosis is generally characterized by unbalanced, involuntary movements and a difficulty maintaining a symmetrical posture (eg., cerebral palsy, choreoathetosis).
2. **Visual Impairment** – Athletes with visual impairment ranging from partial vision, sufficient to be judged legally blind, to total blindness. This includes impairment of one or more component of the visual system – eye structure, receptors, optic nerve pathway, and visual cortex. The sighted guides for athletes with a visual impairment are such a close and essential part of the competition that the athlete with visual impairment and the guide are considered a team. Beginning in 2012, these guides, along with sighted goalkeepers in 5-a-side football, became eligible to receive medals of their own.
3. **Intellectual Disability** – Athletes with a significant impairment in intellectual functioning and associated limitations in adaptive behaviour fall under the category of intellectual disability. The IPC primarily serves athletes with physical disabilities, but the Intellectual Disability group has been added to some Paralympic Games. This includes only athletes with exceptional athletic ability who have intellectual disabilities diagnosed before the age of 18. However, the IOC recognized Special Olympics World Games are open to all people with intellectual disabilities.

(SECTION E)

34.

5

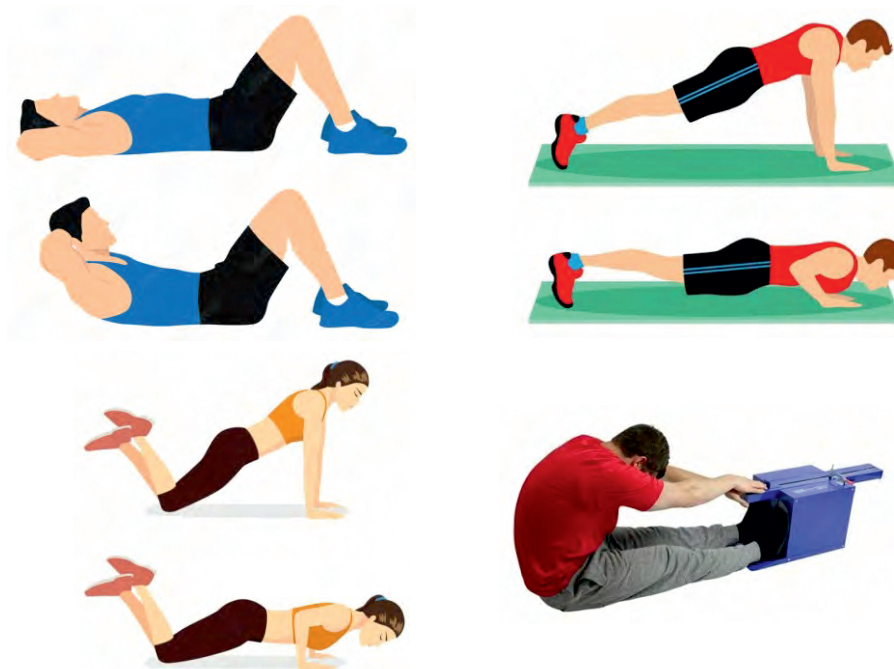
Asthma: Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottanasana, Matsyasana, Anulom-Vilom



34.

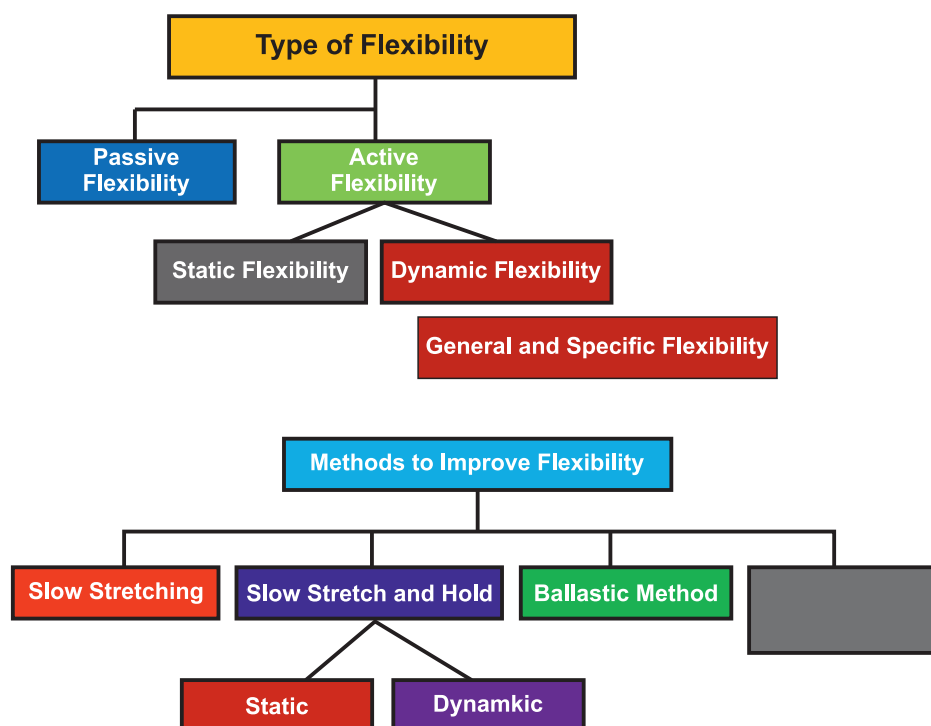
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Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls).



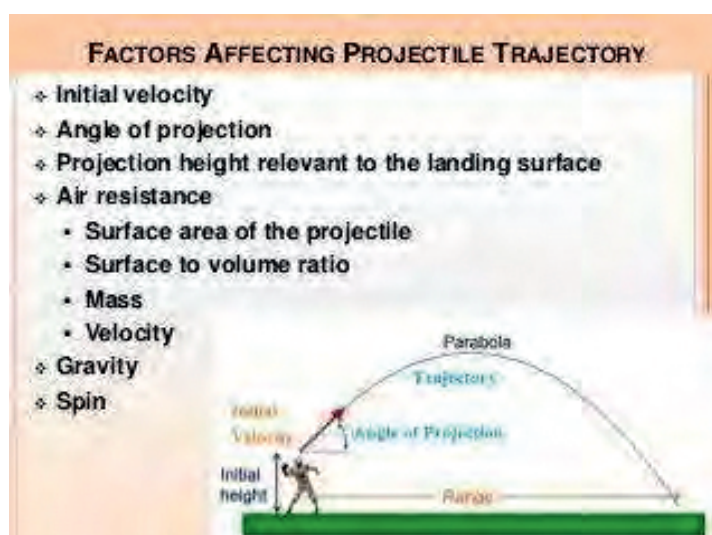
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5



37.

5



SAMPLE PAPER - 2
PHYSICAL EDUCATION (048)
SESSION (2022-23)

TIME ALLOWED: 3 HRS

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 " A microcycle sports Training is typically for -----preparation of Sportsman"

- | | |
|-------------|--------------|
| a) One Year | b) 2-6 Weeks |
| c) One Week | d) One Day |

Q.2 Hostile aggression is also known as _____ aggression.

- | | |
|--------------|-----------------|
| a) Reactive | b) Channeled |
| c) Assertive | d) Instrumental |

Q.3 Landing in Long Jump is an example of

- | | |
|-----------------------|------------------------|
| a) Static Equilibrium | b) Dynamic Equilibrium |
| c) Active Equilibrium | d) Passive Equilibrium |

-
- Q.4 Plate Taping test is used to measure.....
- a) Speed
 - b) Coordination of Lower Limb
 - c) Coordination of Upper Limb
 - d) Flexibility
- Q.5 Man's ability of doing work in the absence of oxygen is called :
- a) Aerobics capacity b) Anaerobic capacity
 - c) Endurance capacity d) Muscular Capacity
- Q.6 The main purpose of Chair Stand test is_____
- a) To measure the strength of the lower part of body of senior citizen
 - b) To measure chest of senior citizen
 - c) To measure strength of upper part of body
 - d) To measure the speed of lower part of body
- Q.7 Dr. Ludguwick Guttman is related to_____
- a) Paralympic Games b) Olympic Games
 - c) Special Olympic Games d) Asian Games
- Q.8 Which Asana should be performed for curing Diabetes?
- a) Vajrasana b) Dhanurasana
 - c) Makarasana d) Matsyendrasana
- Q.9 Genu Varum is the Postural Deformity of -----.
- a) Foot b) Legs
 - c) Spine d) Shoulder
- Q.10 How many matches will be played in the knockout tournament in first round if there are 25 teams?
- a) 8 b) 7
 - c) 9 d) 6

Q.11 Take off in High jump is an example of _____ strength.

- a) Maximum strength b) Explosive strength
c) Strength endurance d) Static strength

Q.12 Match List – I with List – II and select the correct answer from the code given below:

List - I	List - II
I. World largest Sports for Children with special needs	1. 1988
II. First Special Olympic Games Competition	2. 1924
III. First Paralympic Games Competition	3. Special Olympic Games
IIII. First Deaflympic Games Competition	4. 1960

Code

	I	II	III	IIII
a	3	2	1	4
b	4	3	2	1
c	3	1	4	2
d	1	4	3	2

Q.13 Pick the odd one out

- a) Openness b) Extroversion
c) Neuroticism d) Ambivert

Q.14 Regular exercise:

- a) Decrease muscles size b) Muscles remain in toned
c) Increase in Fatigue d) Constant Strength

Q.15 Identify the SAI Physical Fitness Test?



- a) Sit and Reach Test
- b) Chair Sit and Reach Test
- c) Flexibility Test
- d) Strength Test

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In Sport Authority of India Physical Fitness Test, "Sit and Reach Test" is conducted to measure-

- a) Strength
- b) Speed
- c) Flexibility
- d) Endurance

Q.16 Given below are the two Statement labelled assertion (A) and Reason (R)

Assertion: Back Scratch Test is the for Upper Body Flexibility.

Reason: Arm Curl is for Upper Body strength.

- (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

Q.17 Match List – I with List – II and select the correct answer from the code given below:

List I	List II
I Osteoporosis	1 Eating Disorder
II Lordosis	2 Irregular Menstruation
III Amenorrhea	3 Spine Postural Deformity
IV Anorexia Nervosa	4 Bone Deficiency Disease

Code

	I	II	III	IV
a	3	2	1	4
b	2	1	4	3
c	1	4	3	2
d	4	3	2	1

Q.18 Nadi- Shodhanapranayam is helpful in management of which life style disease?

- a) Obesity b) Asthma
c) Hypertension d) Hypotension

Section-B

Q.19 Explain the role of Self Esteem in the Physical Education and Sports. (1+1)

Q.20 Describe the reason of delay Menstruation. (1+1)

Q.21 Explain the procedure of Kapalbhati. (2)

Q.22 Write a short note on the inter relationship of Macro, Meso and Micro cycle. (2)

-
- Q.23 What do you mean by Fracture? Write any Causes of Fracture? (1+2x1/2)
- Q.24 Suggest the methods of reducing friction? (1x2)

Section-C

- Q.25 How are the physical activities are beneficial for children with special education? (1x3)
- Q.26 why are vitamins necessary for health? (0.5x6)
- Q.27 Define Strength and Explain its types with sports examples. (1+2)
- Q.28 Explain Jung's classification of Personality. (1x3)
- Q.29 Make a mind Mapping including the role of various committees during the competition. (3)
- Q.30 Mention any three problems of female players. (1x3)

Section-D

- Q.31 Geetika, the yoga teacher perform regular yogic activities in her house with family. It helps to improve her family health. One day Sheetal-Geetika's friend came to her house with her daughter. Sheetal's daughter is 14yrs old and suffering from Asthma. Geetika advised her to do asanas regularly to control her Asthma. (1x4)
1. Which asana can be advised by Geetika? (any two)
 2. Asthma is a modern life style Disease. Which Organic System is related to Asthma?
 3. Name Pranayam helps to relieve from Asthma.
 4. Name asanas can be used to cure Asthma in standing form? (any two)
- Q.32 The Ganga school teams have started the practice for Basketball Cluster Tournament. One day the school secretary visited the playground and watched the practice session. He felt that the players were weak. After discussion with the coach, he arranged a dietician to rectify the players' requirements. (1x4)

-
1. Which types of the nutrients are advisable for the weak players?
 2. It is recommended to more _____ for energy.
 3. Vitamins are called_____.
 4. _____Vitamin is a group of 8 water soluble vitamin which are important for cellular metabolism.

Q.33 The Class Teacher of VIII observed newly joined student Sekhar's behavior. He is different from other students. He has difficulty in performing Sports and Games activities with normal students at the class. The class teacher called his parents and suggested them to take him to School's Special Educator. (1x4)

1. Disability means-----.
2. Most suitable word used for children with Special Needs /disable person-----:
3. The logo 'Happiness for all the children of the world' belongs to-----Games.
4. "Let me win. If I cannot win, Let me be brave or bold making efforts." In which Olympics is this oath taken ?

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Q. Mention any four strategies to increase participation of children with special Needs in Physical Education and Sports?

Section-E

Q.34 What are the test items mention in SAI Khelo India Fitness Test and its Objectives for age group 09-18 yrs. (1x5)

Q.35 Define Sports Injuries. Classified Sports Injuries in the games and Sports. (1+4)

Q.36 With the help of suitable example ,discuss the application of Newton's Law of Motion in Sports? (5)

Q.37 What do you mean by Knock Out Tournament ? Draw a Knock Out fixture for 23 teams with all steps. (1+4)

Marking Scheme Sample Paper - 2

2022-2023

Section-A

1. c) One Week
2. a) Reactive
3. b) Dynamic Equilibrium
4. b) Coordination of Lower Limb
5. b) Anaerobic capacity
6. a) To measure the strength of the lower part of body of senior citizen
7. a) Paralympic Games
8. b) Dhanurasana
9. b) Legs
10. c) 9
11. a) Maximum Strength
12. c) I-3 ,II-1, III-4, IIII-2
13. d) Ambivert
14. b) Muscles remain in toned
15. a) Sit and Reach Test

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- c) Flexibility

-
16. b) Both (A) and (R) are true and (R) is not correct explanation of (A)
17. d) I-4, II-3,,III-2,IV-1
18. a) Obesity

Section-B

- 19. Self-esteem is centered around a belief in the self, respect for the self, and confidence in the self.**

Role of self-esteem in the Physical education and Sports

1. Self-esteem is a powerful motive behind marathon runners, cyclists, and other exercisers.
2. Self-esteem's positive association with EXERCISE BEHAVIOR, while others have noted the ELATIONSHIP between low self-esteem and EATING DISORDERS, SELF-ESTEEM, OBESITY, and several forms of DEPENDENCE.
3. Self-esteem is popularly used interchangeably with self-evaluation and high self-esteem with, among other terms, self-respect, self-assurance, and dignity, though its closest neighbor conceptually is PHYSICAL SELF-WORTH; for many scholars.
4. Regular exercise has been shown to be related to increased self-esteem.

20. Reason of delay Menstruation

- | | |
|---------------------|-------------------------|
| 1. Chronic illness, | 2. More worry, |
| 3. More drug use, | 4. Genetic, |
| 5. Malnutrition, | 6. Deficiency of food, |
| 7. diseases, | 8. High level drinking, |
| 9. Weakness | |

Reasons

Q.21 Procedure of Kapalbhathi

1. Sit comfortably with your spine erect. Place your hands on the knees with palms open to the sky.
2. Take a deep breath in.
3. As you exhale, pull your navel back towards the spine. Do as much as you comfortably can. You may keep your right hand on the stomach to feel the abdominal muscles contract.
4. As you relax the navel and abdomen, the breath flows into your lungs automatically.
5. Take 20 such breaths to complete one round of Kapal Bhati.
6. After completing the round, relax with your eyes closed and observe the sensations in your body.
7. Do two more rounds of Kapal Bhati.

22. Interrelationship in Macro, Meso and Micro Cycle in the Training.

Periodized Training works on the concept of overload and adaptation; by stressing the body over time, allowing it to recover, and then stressing it again, athletes can gradually build fitness. Periodization is divided into three types of cycles:

1. A macrocycle refers to your season as a whole.
 2. A mesocycle refers to a particular training block within that season; e.g. the endurance phase.
 3. A microcycle refers to the smallest unit within a mesocycle; usually a week of training.
23. A fracture is a break in a bone. Fractures are caused by a direct impact, such as a fall or a severe tackle. Stress fractures develop over time and are caused by overuse.

Common causes of fractures include: Trauma, such as an automobile or sports-related accident;

Osteoporosis, which can weaken the bone;

Overuse caused by repetitive motion that can tire muscles and place excess force on the bone, resulting in stress fractures like those most often seen in athletes.

(Any two causes)

24. Frictional forces act against the movement of one surface over another,

1. Lubricating the surfaces.
2. use of ball bearings (i.e. replacing sliding friction with rolling friction)
3. streamlining the body.

Example-

1. **Two pairs of socks tend to reduce friction on the skin better than a single pair.** Wear properly fitting clothing and equipment. Soccer cleats that are too large allow the foot to move around inside. Cleats that are too small place undue stress on the skin of the cramped feet.
2. **A sprinter accelerating on a track.** The foot applies a force downwards and backward into the track. The friction forces of the track resist this causing forward movement (otherwise the sprinter would slip)
3. **A downhill skier.** As the skis glide over the snow friction forces resist the movement of the ski on the surface of the snow. These forces are much less than experienced on the track or the skier would be unable to move down the hill.

Section C

25. Advantages of Physical Activities for CWSN

- **It strengthens the heart muscle thereby improving cardiovascular efficiency, lung efficiency and exercise endurance.** This helps in controlling repetitive behaviours among disabled children.
- **Improving fitness, physical activity develops social relationships** with other children, teammates and teachers.
- This brings **positive changes in the social behaviour** of these children.
- It helps to **improve energy level in the body** . Regular physical activity often makes children more energetic, allows them to become active.
- It **regulates blood pressure, cholesterol level and diabetes. Physical activity reduces stress level.**
- It **helps to control weight.** The children with disabilities are not physically active or may have deficit of calories, which takes fat away and lowers weight and regular exercises help in regulating weight.
- Physical activities help in **improving muscle strength, coordination and flexibility among disabled children.**
- This also **improves motor skills, brings better balance** and body awareness which is lacking in these children.
- Physical exercise finds an outlet to **channelise the physical energy** which helps these children to cope with stress, anxiety and depression.
- Physical activity enhances the **metabolism of brain in the children.** It leads to cognitive improvement in children with special needs allowing them to acquire new skills, learn new things and focus on specific goals.

-
- Physical activity **decreases anxiety, reduces depression, and improves mood** and outlook in children. In addition, their
 - **Quality of sleep** is also improved.

26. Vitamins have different works to help keep the body working properly.

- 1. Vitamins help you resist infections and keep your nerves healthy,**
- 2. Vitamins may help your body get energy from food or help your blood clot properly.**

- Promotes Healthy Aging
- Reduces Anxiety and Stress
- Boosts Your Cardiovascular Health.
- Covers Your Nutritional Bases.
- Supports Your Immune System..
- Keeps Body in Good Working Order.
- Improves Your Eyesight.
- Keeps Your Bones Strong.

27. Muscular strength can be defined as the ability to exert force in order to overcome resistance. Besides the ability to produce force, increased strength is crucial in developing stability, reducing the risk of injury and increasing bone density

Types of Strength

- 1. Static strength** is also called isometric strength. It is the ability of the muscles to act against resistance. Static strength can be measured with a dynamometer. This type of strength is not seen directly. Some static strength is not usually applied in sports, but it is used in phases in weightlifting. Example: plank or yoga asanas.

-
2. Dynamic strength is also known as isotonic strength. In pull-ups and push-ups, we required dynamic strength. In performing such a workout, there is a diminishing tendency in dynamic strength, and as a result, Example: push up and full squats.
- a. **Maximum Strength** The muscle can overcome maximum resistance in a single repetition or muscular contraction. Maximum strength means exerting force against resistance in the maximal effort. A muscle can overcome the resistance of maximum stimulus intensity in a single muscular contraction.Exmple: in sports like long jump, shot put, javelin throw, weightlifting, discus throw, etc
 - b. **Explosive Strength.** The muscles can overcome resistance as fast as possible. In other words, it can be said that it is a combination of strength and speed. Explosive strength is always used in motor movements and is a form of dynamic strength. Example in sports volleyball spiking, jumps in basketball, sprint events, etc.
 - c. **Strength Endurance** The muscle can overcome resistance under fatigue or for as long as possible. Same as explosive strength, strength endurance is a product of two motor abilities: strength and endurance. A muscle can get over the resistance of a medium-intensity stimulus for as long as possible. Example: This strength is mainly used in long-distance races of athletics, swimming, distance cycling, etc.

28 . Jung's Pesonality Classification

Introvert: In Jung's theory, introverts are people who are predominantly interested in their own mental self. They are typically seen as more reserved or reflective and prefer to be withdrawn from external reality. They opt to live in their own

inner world of feelings and thoughts and often take pleasure in solitary activities such as reading, writing, or meditating. They prefer to create their own virtual and imagery world, due to which they tend to shy away from in public interactions and social connects and are less vocal with people around them.

Extrovert: In Jung's theory people with an extrovert personality are the total opposite of those with an introvert personality. They prefer the outer world of things, hence are found to be more broad-minded, are highly socialized, hence can meet unknown people easily. They are very bold, outgoing and optimistic person. Extroverts tend to enjoy human interactions and to be enthusiastic, talkative, assertive, and gregarious.

Ambivert Ambiverts reflect a blend of traits from the introvert as well as the extrovert along with having some specific strengths. Thus, an ambivert can be defined as someone who falls in the middle of the introvert/extrovert continuum.

29. Mind Mapping -Role of committees



Q.30 Three Problems of Female Athlete-

Osteoporosis is a skeletal disorder which refers as to the decreased bone material contents. 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 is 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 intake.

Bad Eating Habits :- Intake of Caffeine, Alcohol, tobacco or smoking may lead to osteoporosis. These products have a negative effect on Bone Density.

Section -D

31.

1. Tadasana, Urdhwahastottasana, Uttan
Mandukasana, Bhujangasana, Dhanurasana,
Ushtrasana, Vakrasana, Kapalbhati, Gomukhasana,
Matsyaasana, (Any Two Asanas)
2. Respiratory System
3. Anulom-Vilom Pranayam
4. Tadasana, Urdhwahastottasana,

32.

1. Protein Food for Weak students
2. Carbohydrate Nutrient
3. Preventive and Fighting Diseases Nutrient
4. B Vitamin

33.

1. Disability refers to limitations in individual functioning, including physical impairment, intellectual impairment, cognitive impairment, sensory impairment, mental illness and various types of chronic diseases. A person with disability is not able to participate in sports and physical education due to her/his impairment, attitudinal and environmental barriers.
2. "Divyang"
3. Paralympic Games
4. "Special Olympic Games"

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Strategies to Make Physical Activities Accessible for CWSN

1. Communication
2. Space
3. Equipment
4. Graded Activities
5. Social strategies
6. Psychological strategies

Section-E

34. Fitness Test – SAI Khelo India Fitness Test in school

[Age group 5-8 yrs/ class 1-3:

1. BMI-Body Composition
2. Flamingo Balance Tes- Static Balance,
3. Plate Tapping Test-Coordination;

Age group 9-18yrs/ class 4-12:

1. BMI- Body Composition
 2. 50mt Speed test- Speed,
 3. 600mt Run/Walk- . Cardiovascular Endurance,
 4. Sit & Reach flexibility test- Flexibility
 5. Partial Curl Up- Abdominal Strength
 6. Modified Push-Ups Test(for boys)-Strength and Endurance of Upper Body
 7. Modified Push-Ups for girls)- Strength and Endurance of Upper Body.
35. A sports injury may be defined as damage to the tissues of the body that occurs as a result of sport or exercise. An athletic injury is defined as “some physical damage or insult to the body that occurs during athletic practice or competition causing a resultant loss of capacity or impairing performance.”

CLASSIFICATION OF SPORTS INJURIES-**1. Soft Tissue Injuries**

Abrasion– injury caused by falling on rough or firm surface.

Laceration – tears in the skin.

Incision – cut caused by a sharp edge of an object.

Wound– wound caused by piercing by a sharp and pointed object.

Contusion – bruise caused by a direct blow to some part of the body. eg., knee of a player knocks against the thigh of another person.

Sprain – injury of ligament of joints, caused by the violent overstretching of ligament in a joint or the movement of the joint in abnormal directions. It is characterised by pain, tenderness, swelling at the joint.

Strain – injury of muscle or tendon, three types– mild, moderate, severe

2. Hard Tissue Injuries- A.Fractures

- 1 Stress fractures
2. Greenstick fractures
3. Commutated fractures
4. Transverse fractures
5. Oblique fractures
6. Impacted fractures

B. Joint injuries are very common in sports. They are known as joint dislocation.

“Dislocation is the displacement of contiguous surfaces of two or more bones which are in a joint.” It is caused by an external force which forces the joint to move beyond the limits of a joint. If the joint is forced to move in an abnormal direction, this dislocation can be a complete or a partial displacement of the bones.

3. Overuse Injuries

36. **Newton’s First Law of Motion-Law of Inertia-** ‘an object will stay at rest or continue at a constant velocity unless acted upon by an external unbalanced force’.

For example, the golf ball remains at rest until it is struck by a golf club.

Newton’s Second Law of Motion: Law of Acceleration or Law of Resultant Force- The second law states that, the rate of change of momentum of a body is proportional to the resultant force acting on the body and is in the same direction. This explains how the velocity of an object changes when it is acted upon by an external force. The law defines a force to be equal to change in momentum (mass times velocity) per change in time.

$$F = MA \text{ or } \text{FORCE} = \text{MASS times ACCELERATION}$$

Newton’s Third Law of Motion: Law of Reaction or Law of Reciprocal Action Force- “For every force (action) there is an equal, but opposite, force (action)”, the Third law of motion states: All forces occur in pairs, and these two forces are equal in magnitude and opposite in direction.

37. knock-out tournament A tournament where a team once defeated automatically gets eliminated from the tournament and only the winning team continues

$$\text{Number of teams in lower half} = \frac{n-1}{2} = \frac{23-1}{2} = \frac{22}{2} = 11 \text{ teams}$$

$$\text{Total number of byes} = 32-n = 32-23 = 9 \text{ byes}$$

For distributing byes in upper and lower half.

$$\text{Number of byes in upper half} = \frac{nb-1}{2} = \frac{9-1}{2} = \frac{8}{2} = 4 \text{ byes}$$

$$\text{Number of byes in lower half} = \frac{nb+1}{2} = \frac{9+1}{2} = \frac{10}{2} = 5 \text{ byes}$$

Teams in each quarter

$$1\text{st quarter} = \frac{12}{2} = 6 \text{ teams}$$

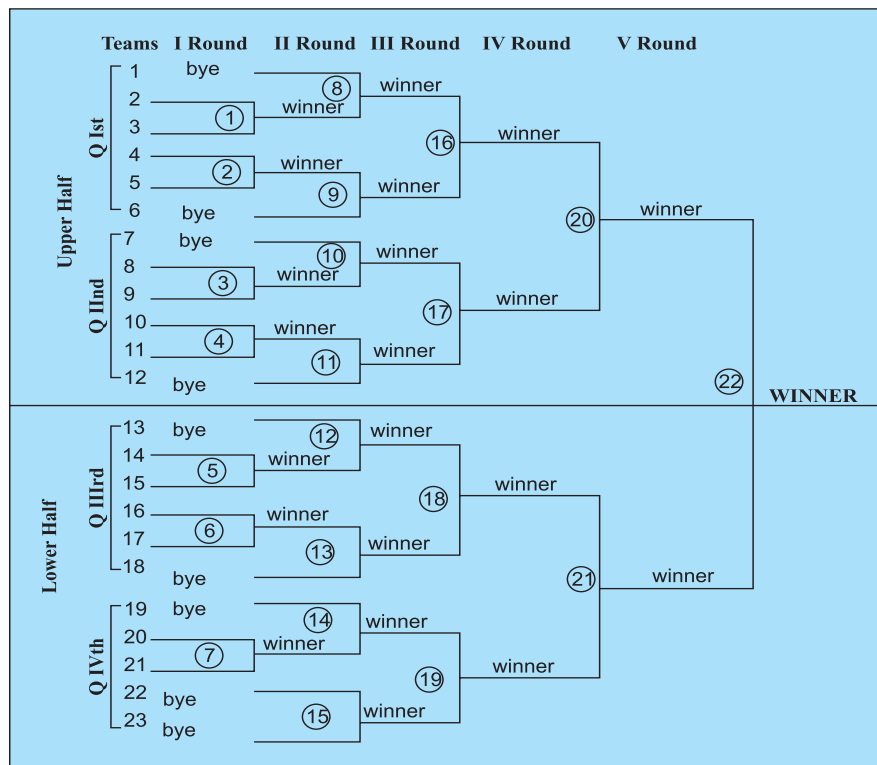
$$2\text{nd quarter} = \frac{12}{2} = 6 \text{ teams}$$

$$3\text{rd quarter} = \frac{n+1}{2} = \frac{11+1}{2} = 6 \text{ teams}$$

$$4\text{th quarter} = \frac{n-1}{2} = \frac{11-1}{2} = 5 \text{ teams}$$

4 byes will be given

5 byes will be give



SAMPLE PAPER - 3

CLASS XII

PHYSICAL EDUCATION

- Q1. Which one of the following psychological attributes is related to the value and respect of yourself as a person
- (A) Goal setting B) self esteem
(C) mental imagery (D) self talk
- Q2. Rope skipping is a example of-
- (A) static equilibrium (B) dynamic equilibrium
(C) active equilibrium (D) passive equilibrium
- Q3. fast twitch fibres are are----- in colour
- (A) red (B) White
(C) blue (D) brown
- Q4. Running with a tyre tied on the waist is a example of
- (A) isotonic exercises (B) isometric exercises
(C) isokinetic (D) kinematics
- Q5. Stretching exercises with the help of partner is known as
- (A) Active flexibility (B) dynamic flexibility
(C) passive flexibility (D) static flexibility
- Q6. The amount of oxygen which can be taken by the lungs from the the environment is called as
- (A) oxygen intake (B) oxygen uptake
(C) transport (D) tidal volume

-
- Q7. In law of acceleration, acceleration of an object is directly proportional to its
- (A) force (B) mass
(C) speed (D) size
- Q8. which one of the following is soluble in water
- (A) simple carbohydrates (B) Complex carbohydrates
(C) compound carbohydrates (D) Vitamin K
- Q9. Given below are the two statements labeled Assertion (A) and Reason (R).
Assertion (A): Postural deformities are hereditary only
Reason (R): Functional deformities can be corrected through proper exercises
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
- Q10. Dryness of eyes is caused due to:
- (A) Vitamin C (B) Vitamin A
(C) Vitamin K (D) Vitamin D
- Q11. Which one of the following asanas is performed in a sitting pose
- (A) Makarasana (B) vajrasana
(C) Salabhasana (D) dhanurasana

Q12. How many byes will be given if the number of teams is 21 in a knockout tournament

- (A) 11 (B) 12
(C) 13 (D) 14

Q13. Identify this asana



- (A) pawanmuktasana (B) ustrasana
(C) dhanurasana (D) vajrasana

Q14. In which games whistles or guns are not used in starting Races ?

- (A) Olympic games (B) deaflympics
(C) paralympics (D) Commonwealth games

Q15. Delay in menstrual cycle is known as

- (A) Amenorrhea (B) anorexia nervosa
(C) osteoporosis (D) lordosis

Q16. Match List – I with List – II and select the correct answer from the code given below:

List - 1		List -2	
i.	Obesity	1.	Padahastasana
ii.	hypertension	2.	Shavasan
iii.	asthma	3.	Gomukhasana
iv.	diabetes	4.	Mandukasana

Code				
	(i)	(ii)	(iii)	(iv)
A	1	2	3	4
B	4	1	2	3
C	4	3	1	2
D	3	4	2	1

Q17. Match List – I with List – II and select the correct answer from the code given below:

List - 1		List -2	
i.	Chair sit and reach test	1.	upper body flexibility
ii.	6 minute walk test	2.	cardiovascular endurance
iii.	back scratch test	3.	upper body strength
iv.	arm curl test	4.	lower back flexibility

Code				
	(i)	(ii)	(iii)	(iv)
A	1	2	3	4
B	4	1	2	3
C	4	3	1	2
D	3	4	2	1

Q18. Delay in menstrual cycle is known as

(A) Amenorrhea

(B) anorexia nervosa

(C) osteoporosis

(D) lordosis

(SECTION-B)

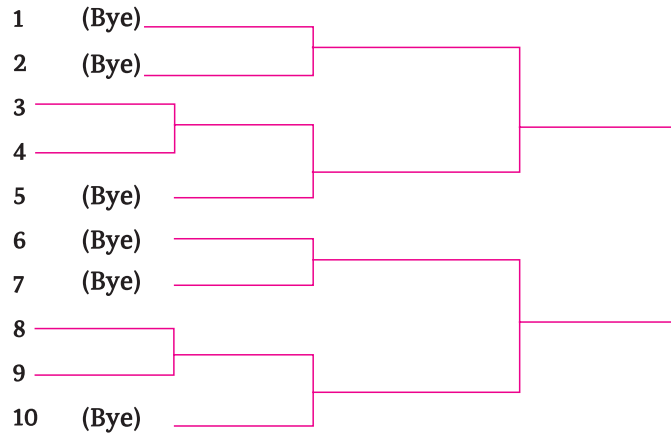
- Q19. List down any four effects of exercises on the cardiorespiratory system.
- Q20. State any four advantages of goal setting for athletes in sports
- Q21. Enlist any four benefits of interval training method.
- Q22. State the different steps of managing soft tissue injuries.
- Q23. Write down the objectives and administration of the plate tapping test.
- Q24. Clarify the difference between types of vitamins with examples

(SECTION-C)

- Q25. Create a mind mapping including any six strategies to make physical activities accessible for children with special needs
- Q26. Differentiate between macro and micro nutrients with examples..
- Q27. what are the functions of management in sports
- Q28. Compare the personality traits given by Carl Jung.
- Q29. Explain any three physiological factors determining speed
- Q30. Suggest corrective measures for spine related deformities.
(two exercises per deformity)

(SECTION-D)

Q31.



- How many total matches will be played?
- How many matches will be played in the first round of the tournament
- How many rounds will be played?
- Which team will get 4th bye of the tournament



OR

Give any two advantages of this type of tournament For visually impaired

List down any four committee working before the the conduct of the competition and briefly explain their roles

-
- Q32. On the basis of the picture given above, answer the following questions:
- (A) Identify this asana that is used to cure Hypertension
 - (B) Consumption of which food items should be restricted to control hypertension?
 - (C) Name any other two asanas that can be used for preventing hypertension.
 - (D) State any two harmful effects of Hypertension.

OR

State any two causes of Hypertension.

For visually impaired

Enlist asana performed in sitting pose to prevent Asthma, and explain the procedure benefits and contraindications of any one of them.

- Q33. Study the below given picture and answer the questions that follows:



(Pic-1)



(Pic-2)

- a) Identify the law of motion depicted in the picture number one?
- b) Pic 2 shows the stance position of an athlete. State the law of motion being applied here.
- c) "A body at rest will remain at rest and a body at motion will remain in motion unless an action is done on them by an external force." State this law of motion.

OR

- d) The more force, the more acceleration represents which law of motion?

For visually impaired

Explain Newton's laws of motion with examples of its application in sports .

(SECTION-E)

- Q34. Define projectile and explain any two factors affecting projectile with the help of example from sports
- Q35. Make a table of test items listed under Rikli and Jones fit fitness test along with the objectives of conducting them explain the administration of aerobic fitness test.
- Q36. Define strength along with its types. Explain any two methods used to develop strength.
- Q37. Children with special needs have the right to develop their abilities in a democratic society through the process of education. Suggest the strategies to make physical activities accessible for the children with special needs.

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[illegible]

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[illegible]

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[illegible]

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[illegible]