शारीरिक शिक्षा
Physical Education

कक्षा / Class XI

2025-26

विद्यार्थी सहायक सामग्री
Student Support Material

केन्द्रीय विद्यालय संगठन~Kendriya Vidyalaya Sangathan

संदेश

विद्यालयी शिक्षा में शैक्षिक उत्कृष्टता प्राप्त करना एवं नवाचार द्वारा उच्च – नवीन मानक स्थापित करना केन्द्रीय विद्यालय संगठन की नियमित कार्यप्रणाली का अविभाज्य अंग है। राष्ट्रीय शिक्षा नीति 2020 एवं पी. एम. श्री विद्यालयों के निर्देशों का पालन करते हुए गतिविधि आधारित पठन-पाठन, अनुभवजन्य शिक्षण एवं कौशल विकास को समाहित कर, अपने विद्यालयों को हमने ज्ञान एवं खोज की अद्भुत प्रयोगशाला बना दिया है। माध्यमिक स्तर तक पहुँच कर हमारे विद्यार्थी सैद्धांतिक समझ के साथ-साथ, रचनात्मक – विशेषणात्मक एवं आलोचनात्मक चिंतन भी विकसित कर लेते हैं। यही कारण है कि वह बोर्ड कक्षाओं के दौरान विभिन्न प्रकार के मूल्यांकनों के लिए सहजता से तैयार रहते हैं।उनकी इस यात्रा में हमारा सतत योगदान एवं सहयोग आवश्यक है - केन्द्रीय विद्यालय संगठन के पांचों आंचलिक शिक्षा एवं प्रशिक्षण संस्थान द्वारा संकलित यह विद्यार्थी सहायक- सामग्री इसी दिशा में एक आवश्यक कदम है । यह सहायक सामाग्री कक्षा 9 से 12 के विद्यार्थियों के लिए सभी महत्वपूर्ण विषयों पर तैयार की गयी है। केन्द्रीय विद्यालय संगठन की विद्यार्थी सहायक- सामग्री अपनी गुणवत्ता एवं परीक्षा संबंधी - सामग्री संकलन की विशेषज्ञता के लिए जानी जाती है और शिक्षा से जुड़े विभिन्न मंचों पर इसकी सराहना होती रही है। मुझे विश्वास है कि यह सहायक सामग्री विद्यार्थियों की सहयोगी बनकर निरंतर मार्गदर्शन करते हुए उन्हें सफलता के लक्ष्य तक पहुँचाएगी।
शुभाकांक्षा सहित ।

निधि पांडे
आयुक्त , केन्द्रीय विद्यालय संगठन

PATRON

SMT. NIDHI PANDEY
COMMISSIONER, KVS

CO-PATRON

DR. P. DEVAKUMAR
ADDITIONAL COMMISSIONER (ACAD.), KVS (HQ)

CO-ORDINATOR

MS. CHANDANA MANDAL
JOINT COMMISSIONER (TRAINING), KVS (HQ)

EDITOR

MS. MENAXI JAIN
DIRECTOR, ZIET MYSURU

ASSOCIATE COURSE DIRECTOR
Mr. P.R. RATHISH
TGT P&HE, KV RWF YELAHANKA

RESOURCE PERSONS
Mr. BINU ASHOKAN
TGT P&HE KV PATTOM SHIFT-1

Mr. S SURYA PRAKASH
TGT P&HE KV BOWENPALLY

ZIET COORDINATOR
Mr. DINESH KUMAR
TA(PHYSICS), ZIET MYSURU

CONTENT CREATOR

S.NO	UNIT	Prepared By	Review
UNIT-I	CHANGING TRENDS & CAREER IN PHYSICAL EDUCATION	PARITOSH VAID, TGT P&HE KV LANSDOWNE DEHRADUN REGION	V BHANUCHANDRA PRASAD, TGT P&HE PM SHRI KV NO.1 TIRUPATI SHIFT 2 HYDERABAD REGION
UNIT-II	OLYMPIC VALUE EDUCATION	SANJAY BHUKAN, TGT P&HE PM SHRI KVGANESHKHIND MUMBAI REGION	ANOOP JAKHMOLA, TGT P&HE KV NER BAREILLY LUCKNOW REGION
UNIT-III	YOGA	P VIJAYA BHASKAR REDDY, TGT P&HE, KV UOH HYDERABAD REGION	ASHISH SINGH, TGT P&HE PM SHRI KV BASTI SHIFT-1 VARANASI REGION
UNIT-IV	PHYSICAL EDUCATION & SPORTS FOR CWSN	ANAND KUMAR, TGT P&HE PM SHRI KV PDDU NAGAR VARANASI REGION	MANISH KUMAR, TGT P&HE KV MASIMPUR SILCHAR REGION
UNIT-V	PHYSICAL FITNESS, WELLNESS	BIJU, TGT P&HE KV PALLIPURA ERNAKULAM REGION	VIKAS CHANDRA TGT P&HE KV BAGESHWAR DEHRADUN REGION
UNIT-VI	TEST AND MEASUREMENT AND EVALUATION	V BHANUCHANDRA PRASAD, TGT P&HE PM SHRI KV NO.1 TIRUPATI SHIFT 2 HYDERABAD REGION	PARITOSH VAID, TGT P&HE KV LANSDOWNE DEHRADUN REGION
UNIT-VII	FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY IN SPORTS	ANUP JAKMOLA, TGT P&HE KV NER BAREILLY LUCKNOW REGION	SANJAY BHUKAN, TGT P&HE PM SHRI KVGANESHKHIND MUMBAI REGION
UNIT-VIII	FUNDAMENTALS OF KINESIOLOGY AND BIOMECHANICS IN SPORTS	ASHISH SINGH, TGT P&HE PM SHRI KV BASTI SHIFT-1 VARANASI REGION	P VIJAYA BHASKAR REDDY, TGT P&HE KV UOH HYDERABAD REGION
UNIT-IX	PSYCHOLOGY & SPORTS	MANISH KUMAR, TGT P&HE KV MASIMPUR SILCHAR REGION	ANAND KUMAR, TGT P&HE PM SHRI KV PDDU NAGAR VARANASI REGION
UNIT -X	TRAINING & DOPING IN SPORTS	VIKAS CHANDRA TGT P&HE KV BAGESHWAR DEHRADUN REGION	BIJU, TGT P&HE KV PALLIPURA ERNAKULAM REGION

INDEX

UNIT-1

CHANGING TRENDS AND CAREERS IN PHYSICAL EDUCATION

CONTENT

- CONCEPT, AIM AND OBJECTIVES OF PHYSICAL EDUCATION
- DEVELOPMENT OF PHYSICAL EDUCATION IN INDIA-POST INDEPENDENCE
- CHANGING TRENDS IN SPORTS- PLAYING SURFACE, WEARABLE GEAR AND SPORTS EQUIPMENT, TECHNOLOGICAL ADVANCEMENTS
- CAREER OPTION IN PHYSCAL EDUCATION
- KHELO INDIA PROGRAMME AND FIT INDIA PROGRAMME

LEARNING OBJECTIVES

- Understanding the Concept of Physical Education.
- Changing Trends in Physical Education
- Career Opportunities in Physical Education
- Role of Physical Education in Modern Society.
- Emerging Areas in Physical Education
- Career Development in Physical Education.
- Understanding the Role of Physical Education Professionals.
- Career Pathways in Physical Education

LEARNING OUTCOMES

- UNDERSTAND THE CONCEPT, AIM AND OBJECTIVES OF PHYSICAL EDUCATION
- IDENTIFY THE POST-INDEPENDENCE DEVELOPMENT IN PHYSICAL EDUCATION IN INDIA
- RECOGNISE AND CATEGORIES CHANGING TRENDS IN SPORTS
- EXPLORE DIFFERENT CAREER OPTIONS IN THE FIELD OF PHYSICAL EDUCATION AND UNDERSTAND KHELO INDIA AND FIT-INDIA PROGRAMM

WEIGTHAGE OF UNIT-08 MARKS

UNIT-1
MIND MAP

Changing Trends and Careers in Physical Education

Concept of Physical Education

Physical education is a systematic approach of an individual towards learning through movement. It is a part of education that focuses on the development of physical fitness, motor skills, and emotional well-being through physical activities, sports, and games.

Changing Trends in Sports- playing surface, wearable gears

Playing surfaces > outdoor Athletic Track> Clay and cinder > synthetic > Grass and Clay > Polygyrias > Astroturf> MUGA (Multi Utility Games Area)wooden & synthetic courts.

Aims & Objectives of Physical Education

- Neuro-muscular development
- Physical development
- Mental development
- Social development
- Emotional development

Khelo-India and Fit-India Program

The Khelo India Programme aims at :

- Promoting Mass Participation
- Identifying and Nurturing Talent
- Developing Sports Infrastructure
- Fostering Excellence
- Empowering Women and Differently Abled

Fit-India Program:

The Fit India program aims to promote physical activity, fitness, and healthy living habits

Development of Physical Education in India – Post Independence

- Tara Chand Committee>1948
- Setup of Central Advisory Board of Physical Education>1950
- First Asian Games were held at New Delhi> 1951
- National Plan of Physical Education and Recreation> 1956
- First College of Physical Education as Lakshmibai College of Physical Education (LCPE) >1957
- Setup of National Institute of Sports (NIS) Patiala, Punjab>1961.
- Establishment of National Fitness Corps> 1965
- XIX Commonwealth Games were organized in New Delhi>2010

Career Options in Physical Education

Sports > Coach > sports trainner > sports massage therepist > sports psychologist > sports nutritionist> video analyst

Media > Sports journalism > sports presenter, software developer

Health care > Sports Physio > Cyroprator > sports rehabilitationist.

Management > Sports Administrator > Sports Goods management &Marketing

1.1 Understanding Physical Education

Physical education is often mistakenly equated with physical activity or mere physical drills. However, it is essential to clarify the true meaning of physical education and convey this understanding effectively. The aims and objectives of physical education must be clearly stated so that students can grasp the fundamental concepts of the subject. It is also important to explore the ongoing debate: is physical education an art or a science?

Human life began with movement. From the earliest stages of evolution, human beings have been naturally active and creative, and physical activity has always been an integral part of life. For primitive humans, the pursuit of food and shelter marked the beginning of physical activity, driven by the basic instinct of survival. Beyond survival, movement also served as an early form of communication and self-expression. As humans evolved—culturally, emotionally, and socially—physical activity evolved as well.

With the increasing complexity of society, especially in the transition to modern times, physical activity became more structured and was eventually recognized as a formal part of education, now known as physical education.

The significance of physical education was acknowledged even in ancient times. Plato emphasized this when he stated, *"Lack of activity destroys the good condition of every human being, while movement and methodical physical exercise save it and preserve it."* When human movement is paired with the universal instinct to play, the combination becomes one of the most effective educational tools—physical education.

Let us now examine the term itself. "Physical Education" consists of two components: *physical* and *education*.

The word *physical* refers to the body and may relate to any of its characteristics, including physical strength, endurance, fitness, or appearance. *Education*, on the other hand, refers to the process of acquiring knowledge, skills, values, and habits. Therefore, *physical education* can be understood as the systematic development of the body through structured physical activity, with the broader goal of fostering holistic human development.

1.1.1 Definitions of Physical Education

Definitions change with the ideas that express people's notions of values, importance of measures, and of life. It is therefore not possible to give one definition of physical education. Different physical educationists have given different definitions, Few are mentioned below:-

Physical education is an education of and through human movement where many of the educational objectives are achieved by means of big muscle activities involving sport, games, gymnastics, dance, and exercises. **Harold M. Barrow**

Physical education, an integral part of the total education process, is a field of endeavour that has as its aim the improvement of human performance through the medium of physical activities that have been selected with a view to realizing this outcome.

Charles, A. Bucher

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

Physical education is the sum of man's physical activities selected as to kind and conducted as to outcomes. **Jesse Feiring Williams**

Physical education is that phase of the whole field of education that deals with big muscle activities and their related responses. **Jay B. Nash**

Physical education is a way of education through physical activities which are selected and carried on with full regard to values in human growth, development, and behaviour. Physical Education Plat-form

American Association for Health, Physical Education, Recreation.

Physical education is the social process of change in the behaviour of the human organism, originat-ing primarily from the stimulus of social-big-muscle-play and related activities.

Chaver C. Cowell

Physical education is the sum of the changes in the individual caused by experiences cantering on motor activity. **Rosalind Cassidy**

Physical Education isn't just about playing sports or doing exercises—at its heart, it's *education through movement*. It's about using the power of physical activity to unlock our full potential—physically, mentally, emotionally, and socially.

The goal? To help us become not only healthier and more physically capable, but also more knowledgeable, skilful, creative, and confident in everything we do. Whether it's in school, at work, on the field, or in daily life, Physical Education lays the foundation for success and well-being.

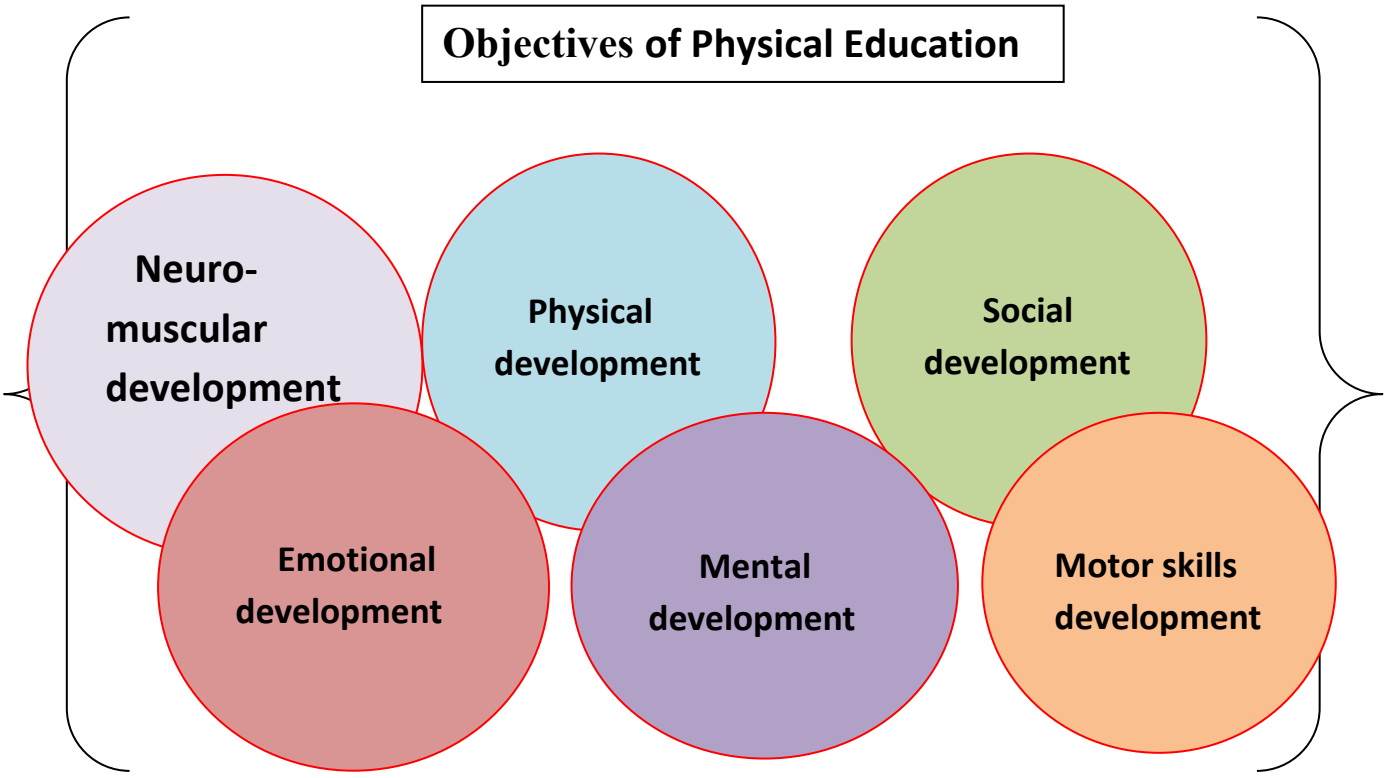
More than just preparing individuals for athletic performance, Physical Education supports the *holistic development* of a person. It's about building strong bodies and strong minds—helping us live fuller, happier lives.

As stated in the **National Plan of Physical Education and Recreation**:

"The aim of Physical Education must be to make every child physically, mentally and emotionally fit, and to develop in them the personal and social qualities needed to live happily with others and grow into responsible citizens."

In other words, Physical Education is not just about the body—it's about shaping good human beings. It fosters teamwork, resilience, empathy, and leadership, turning movement into a lifelong lesson in living well.

Here are the main objectives of Physical Education.



1. **Neuro-muscular development:** Neuromuscular development refers to the integration of the nervous system and muscles to produce coordinated movements. Through physical

education and exercise, individuals can develop and refine their neuromuscular skills, leading to improved overall function and performance.

2. **Physical Development**: Improve physical fitness by enhancing strength, flexibility, endurance, and coordination through regular activity.

3. **Motor Skill Development**: Help students learn and refine basic and advanced motor skills like running, jumping, throwing, and balancing.

4. **Social Development**: Foster teamwork, cooperation, leadership, and empathy by engaging in group activities and sports.

5. **Emotional Development**: Encourage self-confidence, self-control, and a positive attitude toward challenges and competition.

6. **Mental Development**: Build mental alertness, focus, decision-making skills, and stress management through structured physical activities and games.

1.2 Development of Physical Education in India – Post Independence

Since gaining independence in 1947, India has made remarkable strides across various fields—and physical education has been no exception. Recognizing the importance of health and fitness, the Government of India launched numerous initiatives to promote sports and physical education across the nation.

The journey began in **1948** with the formation of the **Tara Chand Committee**, which recommended the creation of a **Central Institute of Physical Education and Recreation** to uplift sports standards in India. Two years later, in **1950**, the **Central Advisory Board of Physical Education** was established to guide national policies, aiming to make physical education a **compulsory subject** from elementary to senior secondary levels.

The **1951 Asian Games**, hosted in New Delhi, marked India's entry into global sports and inspired the youth to pursue excellence in athletics.

In **1953** when then Health Minister **Rajkumari Amrit Kaur** introduced the **Coaching Scheme** to train professional coaches—an effort that led to the founding of the **National Institute of Sports (NIS)** in **1961** at Patiala.

In **1954**, the **All India Council of Sports** was created to bridge communication between the government and sports federations. It later supported the formation of **State and District Sports Councils**.

Another milestone came in **1957** with the launch of **Lakshmibai College of Physical Education (LCPE)** in Gwalior. Over the years, it evolved into the **Lakshmibai National Institute of Physical Education (LNIPE)**—a deemed university by 1995.

The government continued its commitment by creating the **Department of Sports and Youth Welfare** in **1958** and initiating the **National Physical Efficiency Drive** in **1959** to assess the nation's fitness levels. The **National Fitness Corps** was founded in **1965** to strengthen youth physically.

To engage rural India, the **Rural Sports Tournament Scheme** and the **Sports Talent Search Scheme** were launched in **1970-71**. These programs uncovered grassroots talent and supported rising athletes. Recognizing the need for inclusivity, the **National Sports Championship for Women** started in **1975**, encouraging female participation in sports.

A major leap came in **1982** when India hosted the **Asian Games** again, significantly boosting sports infrastructure. This led to the creation of the **Sports Authority of India (SAI)** in **1984**, tasked with nurturing talent and maintaining facilities. In **1987**, SAI merged with **SNIPES** to strengthen public awareness of physical education.

India proudly hosted the **XIX Commonwealth Games in 2010**, showcasing its commitment to international sporting events. Finally, in **2018**, the **CBSE made Physical Education a compulsory subject** from classes IX to XII, integrating health and fitness into mainstream of education

1.3 Changing Trends in Sports

Modern Playing Surfaces: From Grass to High-Tech Turf

Gone are the days when sports were only played on grass fields or dusty clay courts. Today, the world of sports and physical activity has embraced a wide variety of playing surfaces, tailored to different needs, locations, and weather conditions. Whether you're sprinting on a track, playing football, or shooting hoops indoors, the surface beneath your feet plays a huge role in performance and safety.

Why So Many Surfaces?

The type of playing surface used depends on several factors—like the sport itself, local climate, available infrastructure, and even geographical features. While natural grass and clay still hold their charm, synthetic surfaces are rapidly gaining popularity for their durability, ease of maintenance, and all-weather reliability.

When extreme weather or limited outdoor space becomes a challenge, indoor facilities step in, offering high-quality courts and tracks that ensure the game goes on—rain or shine.

1.3.1 Outdoor Sports Surfaces

1. Athletic Jogging Tracks

- **Clay & Cinder Tracks**: Made from a mix of fine ash, rock, and carbon, these natural tracks offer a soft, comfortable surface for running. The downside? They can be tough to maintain during rain or wind.
- **Synthetic Tracks**: These high-performance tracks are built with rubber particles bound by latex or polyurethane, layered over asphalt or concrete. Modern athletes prefer these for their traction, shock absorption, and weather resistance.

2. Turf Surfaces

- **Natural Grass & Clay** Offer a comfortable, low-impact surfaces That's easy on joints and are ideal for casual play.
- **Synthetic Turf Options**:

  Polygrass: Polygraph is a durable low maintenance surface approve for use in sports

  Astroturf: Known for its smooth, low-friction surface, Astroturf is a top choice for fast-paced sports like hockey, where speed and control are crucial.

- **MUGA (Multi-Use Games Areas)**: These synthetic rubber surfaces are perfect for schools, urban parks, and fitness zones. Their shock-absorbing quality makes them ideal for everything from gym workouts to children's playgrounds.

1.3.2 Indoor Sports Surfaces

When weather or space is an issue, indoor courts provide a perfect alternative. They offer year-round access to sports like basketball, badminton, and handball.

1.Courts

- **Wooden Floors**: Classic and reliable, wooden courts offer a firm, responsive surface ideal for fast-paced indoor games.

- **Synthetic Courts**: These rubberized or acrylic surfaces are designed for durability and multi-sport use, and are often paired with wooden flooring underneath for extra comfort.
- **Badminton Mats**: In many indoor settings, badminton is played on synthetic mats laid over wooden floors, combining grip and bounce for optimal gameplay.

2. Indoor MUGA

Just like their outdoor counterparts, indoor MUGAs are built to host a variety of activities. Their rubberized floors are safe, long-lasting, and easy to maintain—perfect for schools, gyms, and recreation centers.

In Conclusion

The evolution of sports surfaces is about more than convenience—it's about making physical activity accessible, safe, and enjoyable for everyone. Whether it's running on synthetic tracks, playing football on Polygrass, or shooting hoops indoors, the right surface can transform the game and the athlete's experience.

1.3.3 Wearable Gear and Equipment

Revolutionizing Sports: The Power of Technology and Modern Equipment

Sports have always evolved, but the pace of change today is faster than ever. Thanks to advancements in technology and sports science, everything—from the equipment athletes use to the way they train and compete—has undergone a dramatic transformation.

Modern sports gear is smarter, safer, sleeker, and more performance-driven. From helmets and swimsuits to wearable's and sensors, new-age equipment is changing how athletes train, how officials make calls, and even how fans experience the game. Let's explore how:

Modern Sports Equipment: Purpose-Driven Innovation

1. Safety First

Athlete safety is a top priority, and today's equipment reflects that.

Helmets are now lighter, yet stronger, able to absorb powerful impacts more effectively.

Gloves, pads, and guards are crafted with high-tech materials that offer maximum protection without sacrificing mobility.

2. Boosting Performance

Today's sportswear does more than just look good—it helps athletes excel.

- **Aerodynamic swimsuits** reduce drag and enhance speed in the water.
- **Advanced footwear** is designed to improve grip, balance, and movement efficiency, tailored to the demands of each sport.

3. Real- Time Monitoring & Judgement

Wearables and tech tools are now part of every serious athlete's toolkit.

- **GPS trackers** and **biometric sensors** monitor heart rate, hydration, and fatigue levels, allowing coaches to fine-tune training and recovery.
- These tools also help officials and judges make faster, more accurate decisions.

4. Aesthetic Appeal

Let's face it—appearance matters, especially in the age of social media and global broadcasts.

- **Trendy, form-fitting athletic wear** not only boosts performance but also enhances confidence and public image.
- Athletes, influencers, and fitness enthusiasts alike choose gear that reflects their personal style and professionalism.
- Show and Tell: Bring and explain sports gear used in various games.

1.3.4 Technology in Sports

From training grounds to stadiums, technology is reshaping sports in every possible way. It's not just about gear—it's about insight, precision, and a deeper understanding of athletic performance.

1. Officiating Technology

Modern referees and officials have powerful tools at their fingertips:

- **LED stumps** in cricket light up instantly to confirm dismissals.
- **Infrared tech** like *Hot Spot* reveals faint touches of the bat.
- **Video analysis systems** like **VAR** in football or slow-motion replays in basketball ensure fair and accurate decisions.
- **Laser systems** are used in gymnastics and jumping events to detect fouls with pinpoint accuracy.

2. Advanced Protective Gear

New-age materials have led to the creation of safer, more comfortable protective equipment. For instance, cricket helmets now offer full-face protection while maintaining airflow and visibility.

3. High-Precision Timing Systems

Races are now timed down to the **thousandth of a second** using laser sensors, gates, and touchpads—eliminating human error and guaranteeing fairness in competition.

4. Location Tracking Systems

GPS trackers aren't just for maps—they're used to track player movement during training and matches. Teams use this data to:

- Optimize strategies
- Manage workloads
- Improve performance
  This tech is also used in stadiums to manage crowd flow during major events.

5. Biomechanical & Movement Analysis

This is where science meets sport.

- **Video analysis software** breaks down movement patterns frame by frame to correct technique.
- **Sensors embedded in bats, rackets, and shoes** measure speed, force, and angles of motion.
- **Force platforms** track ground reaction forces to evaluate balance, power, and potential injury risks.

In Conclusion-

Technology and innovation are no longer optional—they are essential tools for modern athletes and sports professionals. From safety gear to smart sensors, from video analysis to high-tech surfaces, every element of sport is evolving. The result? Faster, fairer, safer, and more exciting games—for athletes and fans alike.

The Rise of Physical Education in India: Courses, Careers, and Opportunities

Physical Education in India is not just about games and fitness anymore—it's a rapidly expanding academic and professional discipline. With growing awareness around health, fitness, and sports, the demand for qualified professionals in this field has skyrocketed. As a result, educational institutions across the country now offer a wide range of courses tailored to different interests and career goals in Physical Education.

NCTE-Recognized Courses: Training the Teachers of Tomorrow

To ensure quality education in this field, the **National Council of Teacher Education (NCTE)** has recognized three key programs for training Physical Education teachers in schools:

1. **Diploma in Physical Education (D.P.Ed.)**
   Designed for teaching Physical Education from Classes I to VIII, this program lays the foundation for those looking to work with young learners.

2. **Bachelor of Physical Education (B.P.Ed.)**
   Ideal for teaching middle and senior classes (VI to XII), B.P.Ed. equips future teachers with both theoretical knowledge and practical skills in Physical Education and sports.

3. **Master of Physical Education (M.P.Ed.)**
   This advanced program prepares educators for senior secondary schools and academic roles in colleges and universities—including positions like Assistant Professors, Sports Officers, and Teacher Educators.

Beyond the Basics: Expanding Horizons with Specialized Programs

India's universities and colleges offer a wide variety of additional programs, many of which are recognized by the **University Grants Commission (UGC)** or the institutions themselves. These include:

Postgraduate Diploma Courses

- Adventure Sports Administration
- Disability Sports
- Fitness Management
- Sports Coaching
- Sports Journalism
- Sports Management
- Sports Nutrition
- Yoga Education

Bachelor-Level Courses

- B.A. (Programme) in Sports & Performance
- Bachelor of Physical Education & Sports
- Four-Year B.P.Ed. (Post-12th)
- B.Sc. in Exercise Physiology
- B.Sc. in Physical Education
- B.Sc. in Physical Education, Health Education, and Sports Sciences

Master-Level Courses

- M.A. in Physical Education / Sport & Exercise Psychology / Yoga
- M.B.A. in Sports Management
- M.Tech. in Sports Technology
- M.Sc. in:
    - Exercise Physiology & Nutrition
    - Sports Coaching
    - Sports Psychology & Sociology
    - Sports Biomechanics & Kinesiology
    - Physical Education
    - Yoga
- **Master of Journalism & Mass Communication (Sports Journalism Specialization)**

Research-Oriented Degrees

- Master of Philosophy (M.Phil.)
- Doctor of Philosophy (Ph.D.)
- Post-Doctoral Fellowship (P.D.F.)

1.4 Careers in Physical Education: More than Just

While becoming a **Physical Education Teacher (PET)** in schools remains a popular career path, it's far from the only option. As Physical Education grows as a discipline, so do the career possibilities.

Graduates can find exciting opportunities in:

- Schools & Educational Institutions (as teachers, coaches, or activity coordinators)
- Colleges & Universities (as professors, researchers, or sports officers)
- Sports Clubs & Academies (as coaches, trainers, or talent scouts)
- Fitness Industry & Wellness Centers (as fitness consultants, yoga instructors, or gym managers)
- Media & Journalism (as sports journalists or commentators)
- Corporate wellness programs & NGOs
- Government and Private Sports Authorities

A Field Full of Potential

With the increasing integration of health, fitness, and sports into everyday life, Physical Education offers a dynamic and fulfilling career path. Whether you're passionate about teaching, coaching, fitness, research, or media, there's a place for you in this growing field. And the best part? You get to inspire others to lead healthier, more active lives.

1.5 Khelo India Program

Launched: 2017–18 by the Ministry of Youth Affairs and Sports Purpose: Make India a sports-active nation by encouraging participation and training talent.

Vision: To promote a strong sports culture at the grassroots and achieve excellence internationally.

The Khelo India program, a national sports development initiative, aims to revive India's sporting culture by fostering mass participation and promoting sports excellence at all levels, from grassroots to elite. It focuses on developing sports infrastructure, identifying and nurturing talent, and encouraging a healthy and active lifestyle.

The program has contributed significantly to the growth of sports in India, providing opportunities for young athletes to excel and promoting a healthy lifestyle.

Twelve Focus Areas:

1. Playfield Development
2. Community Coaching
3. State Khelo India Centres
4. Annual Sports Competitions
5. Talent Search and Development
6. Sports Infrastructure Development
7. Support for Sports Academies
8. Fitness Assessment in Schools
9. Sports for Women
10. Sports for Peace (especially in Jammu & Kashmir)
11. Sports for People with Disabilities
12. Promotion of Rural/Indigenous Games

In the first **Khelo India Youth Games (2018)**, **Haryana** topped the medal tally.

The **Khelo India Youth Games 2025**, held in Bihar, concluded with **Maharashtra** emerging as the top-performing state. This marked Maharashtra's third consecutive championship title in the event

- **Maharashtra**: 58 Gold, 47 Silver, 53 Bronze – **Total: 158 medals**
- **Haryana**: 39 Gold, 27 Silver, 51 Bronze – **Total: 117 medals**
- **Rajasthan**: 24 Gold, 12 Silver, 24 Bronze – **Total: 60 medals**

1.5.1 Fit India Movement

Launched: August 29, 2019 by **Prime Minister Narendra Modi**

To make fitness a way of life for every Indian, promoting a healthier and more active nation.

Fit India Movement is to bring about behavioural changes and move towards a more physically active lifestyle. Fit India proposes to undertake various initiatives and conduct events to achieve the following objectives: To promote fitness as easy, fun and free.

Objectives:

1. Encourage physical activity: Promote regular exercise and sports participation.
2. Adopt healthy lifestyle: Foster healthy habits and wellness.
3. Create awareness: Educate people about the importance of fitness.

Key Events in Indian Physical education & Sports History:

1948: Tara Chand committee established.
1948: Ncc started by HN Kunjuru.
1949: expert team sent to Stockhome to demonstrate some indiginious games.
1950: Central Advisory Board established.
1951: 1st Asian Gameswas held in New Delhi.
1953: Rajkumari Amrit Kaur Coaching Scheme started.
1954: School Games Federation of India established.
1954: All India Council for Sports established.
1956: National Plan for Physical Education and Recreation.
1956: Maulana Azad Trophy started for promoting games at the university level.
1957: L.C.P.E. Gwalior started under Vikram University, Ujjain.
1958: Ad-hoc inquiry committee established.
1959: Kunju Committee established.
1960: Kaul and Kapoor Committee established.
1961: NIS course started in Patiala
1961: Arjuna Award started
1963: C.D. Deshmukh Committee established
1963: M.P.Ed course started
1965: National fitness corps
1969: NSS started
1970: Rural sports started
1971: National talent search scheme
1972: Nehru Yuva Kendra
1975: Women's National Championship
1982: 9th Asian Games in India
1984: Sports Authority of India
1987: SNIPES merged with SAI
1985: Guru Dronacharya Award
1991: Rajiv Gandhi Khel Ratna Award (now Major Dhyanchand award)
1987: SAF Games
2003: Afro-Asian Games in Hyderabad
2002: Major Dhyan Chand Lifetime Achievement Award
2005: Chacha Nehru Sports Award (CBSE)

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

Q.1 Which of these is part of neuro-muscular development in Physical Education?

A) Understanding emotions (B) Coordination and balance
C) Reading and writing skills (D) Leadership skills

Q.2 What does *emotional development* in Physical Education focus on?

(A) Building muscles (B) Managing stress and gaining confidence
(C) Improving test scores (D) Making money through sports

Q.3 Which of the following is related to *social development* in Physical Education?

A) Diet planning (B) Respecting rules and teamwork
(C) Sleeping early(D) Practicing yoga alone

Q.4 Which committee was established in 1948 to assess the status of Physical Education in India?

A) Mudaliar Committee (B) Tara Chand Committee
C) Kothari Commission (D) Radhakrishnan Commission

Q.5 What was the primary objective of the National Plan of Physical Education and Recreation introduced in 1956?

A) To promote yoga in schools (B) To develop sports infrastructure in rural areas
(C) To integrate physical education into the national education system
(D) To organize international sports events

Q.6 A institution was established in 1957 as the first college dedicated to Physical Education in India?

A) Lakshmibai National College of Physical Education (LNCPE)
B) National Sports University
C) Indira Gandhi Institute of Physical Education
D) Netaji Subhas National Institute of Sports

Q.7 What significant event in Indian sports history took place in 1951?

A) Introduction of the Khelo India program
B) Establishment of the Sports Authority of India
C) Hosting of the first Asian Games in New Delhi
D) Formation of the Indian Olympic Association

Q.8 What is the primary aim of the Khelo India program launched in 2018?

A) To provide free gym memberships to citizens (B) To promote traditional Indian games

C) To revive the sports culture at the grassroots level (D) To train athletes for the Olympics exclusively

Q.9 A professional who helps athletes with diet and nutrition is called a:

A) Sports Psychologist (B) Sports Manager
(C) Sports Analyst (D) Sports Nutritionist

Q.10 Which of these professionals is responsible for preventing and treating sports injuries?

(A) Sports Physiotherapist (B) Sports Coach
(C) Event Manager (D) Biomechanist

Q.11 Who is responsible for writing reports, covering sports events, and analyzing games for media?

A) Sports Trainer (B) Sports Journalist
(C) Sports Official (D) Sports Therapist

Q.12 In which year was the Khelo India Programme launched?

(A) 2014 (B) 2016
(C) 2018 (D) 2020

Q.13 How much annual scholarship is provided under the Khelo India scheme to selected athletes?

A) ₹2 lakh (B) ₹5 lakh
(C) ₹10 lakh (D) ₹50,000

Q.14 Find incorrect option..

OPTION	A	B
A	1. Khelo India Programme	Launched in 2018 to revive grassroots sports
B	2. Fit India Movement	Launched in 2015 to promote fitness
C	3. Annual Athlete Scholarship	₹5 lakh annual scholarship
D	4. "Fitness Ka Dose, Aadha Ghanta Roz"	Slogan of Fit India Movement
E	5. Ministry implementing Khelo India	Ministry of Youth Affairs and Sports

Q.15 Which program was initiated in 1965 to promote physical fitness among the youth in India?A) (A)Fit India Movement
(B) National Fitness Corps
(C) Khelo India Youth Games
(D) National Sports Talent Search Scheme

ANSWER KEY:-

1-B	2-B	3-B	4-B	5-C	6-A	7-C	8-C	9-D	10-A	11-B	12-C	13-B	14-B	15-D

MULTIPLE CHOICE QUESTION AND ANSWERS (PRACTICE)

Q.1 What is the primary aim of the Khelo India program launched in 2018?

(A) To provide free gym memberships to citizens
(B) To promote traditional Indian games
(C) To revive the sports culture at the grassroots level
(D) To train athletes for the Olympics exclusively

Q.2 When was the National Institute of Sports (NIS) established in Patiala, Punjab?

(A) 1957 (B) 1961
(C) 1965 (D) 1970

Q.3 The concept of Physical Education focuses on:

(A) Academic memorization
(B) Physical fitness, motor skills, and emotional well-being
(C) Financial literacy
(D) Mechanical training

Q.4 Which of the following is *not* an objective of Physical Education?

A) Emotional development
B) Social development
C) Economic development
D) Physical development

Q.5 Which component of development in Physical Education involves feelings and behaviour?

A) Mental development B) Social development
C) Emotional development D) Physical development

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

Q.1 Define Physical Education according to Jay. B Nash?

ANS- "Physical education is that phase of the whole field of education that deals with big muscle activities and their related responses."

Q.2 State any two changing trends in physical education.

ANS-: (i) Increased use of technology in training
(ii) Rise in participation of women in sports

Q.3 Name any two career options in the field of physical education.

ANS- (i) Physiotherapist
(ii) Fitness Trainer

Q.4 What is meant by adapted physical education?

ANS:- It is a modified form of physical education designed to meet the needs of differently-abled students

Q.5 Name any two professional courses in physical education

ANS:- (i) B.P.Ed (Bachelor of Physical Education)
(ii) M.P.Ed (Master of Physical Education)

Q.6. Define sports journalism?

ANS:- It is a profession that involves reporting, writing, and broadcasting about sports events

Q.7 State any two objectives of the Khelo India programme.

ANS:- (i) To encourage mass participation in sports.
(ii) To identify and nurture talented athletes..

Q.8 Name the ministry that launched the Khelo India initiative.

ANS:- The Ministry of Youth Affairs and Sports, Government of India..

Q.9. What is the Fit India Movement?

ANS:- The Fit India Movement is a nationwide campaign launched by the Government of India on 29th August 2019 to encourage citizens to lead a healthier and more active lifestyle

<u>VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)</u>

Q.10 How can physical education contribute to national development?
ANS:- Promotes a healthy population, encourages discipline and teamwork, builds national pride through sports representation.

Q.1 What do you mean by Mental Development?

Q.2 What is the Aim of Physical Education

Q.3 Write any two career option in sports coaching?

Q.4How does Physical education develop Neuro-Muscular coordination?

Q.5 Write Two changes in Modern Playing surfaces

3.SHORT QUESTION SOLVED (3 MARKS)

Q 1.Explain any three objectives of the Khelo India programme.

ANS. (i) **Mass participation in sports** – To encourage youth across the country to take up sports as a way of life.
(ii) **Talent identification** – To find and support promising athletes from a young age.
(iii) **Infrastructure development** – To develop sports facilities at the school and college levels.

Q.2What benefits are provided to selected athletes under Khelo India?

ANS. Selected athletes receive financial assistance of ₹5 lakh per annum for 8 years, professional coaching, access to top-class training facilities, and support for education and nutrition.

Q.3 What is the importance of physical education in today's world?

(i) Promotes health and wellness.
(ii) Helps develop discipline and teamwork.
(iii) Reduces stress and improves focus

Q.4 Describe any three professional courses available in physical education.

ANS- (i) **B.P.Ed** – Bachelor of Physical Education.
(ii) **M.P.Ed** – Master of Physical Education.
(iii) **Diploma in Sports Coaching** – Specialized training for coaching roles.

Q.5 How has technology changed physical education?

(i) Fitness tracking through smartwatches and apps.
(ii) Online physical education classes and tutorials.

(ii) (iii) Use of AI and virtual simulations in training.

Q.6 Explain the concept of adapted physical education and its importance.

ANS- Adapted physical education is tailored for individuals with disabilities.
It ensures inclusive participation, builds confidence, and improves physical abilities.
It helps students overcome barriers and enjoy fitness activities.

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

Q.1 Write a short note on "Khelo India"

Q.2 Give three advantages of choosing a career in physical education.

Q.3 Enlist the various physical education institute of India?

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

1. A school organizes daily yoga sessions and fitness activities during Fit India Week. Teachers and students take the fitness pledge and conduct poster competitions on healthy living.

Q.1 Which national movement is shown in the case?

ANS-**Fit India Movement**.

Q.2 Name two activities mentioned.

ANS- (i) Daily yoga sessions
(ii) Poster competitions on healthy living

Q.3What is the aim of such school programs?

ANS- To **promote physical fitness, healthy lifestyle habits**, and create awareness about the importance of regular physical activity among students and teachers.

Q.4 Suggest one more activity that could be included.

ANS- **Fitness challenges** like step-count contests, aerobics sessions, or inter-class physical games can be included.

2. Meena wants to become a Physical Education teacher. She joins a B.P.Ed course and volunteers to conduct school fitness activities.

1. What course has Meena chosen?
   Meena has chosen the course B.P.Ed, which stands for **Bachelor of Physical Education**.

2. Name one responsibility of a physical education teacher.

   One responsibility of a physical education teacher is to organize and conduct physical activities and sports programs that help students develop fitness, motor skills, and teamwork.

3. List two qualities that make a good PE teacher.

   Two qualities that make a good Physical Education (PE) teacher are:

   Good communication skills – to explain rules, techniques, and instructions clearly.

   Leadership and motivation – to inspire students to participate actively and enjoy physical activities.

Q.4 Where can she apply for a job after completing her course?

ANS-After completing her **B.P.Ed** course, **Meena can apply for a job** in the following places:

→ **Schools** (government or private) as a Physical Education teacher
→ **Colleges or universities** as a sports instructor or assistant coach
→ **Sports academies or fitness centers** as a trainer or coach

→ **Government sports departments** or **Khelo India programs** as a coach or physical trainer

3.Anita is a school athlete who has developed an interest in the human body and injuries during sports. After recovering from a knee injury, she decides to help other athletes by studying human anatomy and injury prevention.

1.What career is Anita likely to choose?

ANS- Anita is likely to choose the career of a Physiotherapist.

2- Name one professional course suitable for this career.

ANS- **One professional course suitable for a career as a physiotherapist** is:

👉 **Bachelor of Physiotherapy (BPT)**

3- How can her personal experience help in her chosen career?

ANS-Her personal experience with sports injury can help her career as a physiotherapist by:

- Giving her **first hand understanding** of the physical and emotional challenges athletes face during injury and recovery.
- Enabling her to **empathize** with patients and provide better motivation and care.
- Helping her **apply practical knowledge** when designing effective rehabilitation programs tailored to athletes' needs.

4.Name one workplace where Anita could work in the future.

ANS- **A sports rehabilitation center or clinic.** Other options include hospitals, sports academies,

Arjun uses a smartwatch and a mobile app to track his running performance. His coach analyses the data weekly and adjusts his training accordingly.

Q.1 Mention two modern trends in physical education seen here.

ANS- Wearable technology (like smartwatches) for fitness tracking.

Data-driven training based on performance analysis.

Q.2 How does technology help athletes like Arjun?

ANS- It helps monitor important fitness metrics such as heart rate and calories burned, allowing personalized and effective training plans.

Q.3 What role does the coach play in using technology for training?

ANS- The coach analyses the data collected from wearable devices and adjusts training programs to improve the athlete's performance.

Q.4 Name one wearable fitness device.

ANS- Fitbit.

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Ravi loves teaching football to children and wants to become a professional coach. He plans to Enroll in a sports coaching diploma course.

1. What profession is Ravi aiming for?

2. Name one course that supports this profession..

3. Mention two skills needed to be a good coach.

4. List one place where Ravi could work after completing his course.

Priya watches a documentary about Indian Olympic athletes, which inspires her to take up athletics seriously.

1.What motivated Priya to enter sports?

2. Name two ways media influences youth in sports.

3. Name one female athlete who could inspire Priya.

4. How can media contribute to promoting sports careers?

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q.1 Describe the various career opportunities available in the field of physical education.

ANS- Physical education offers diverse career opportunities beyond teaching. Some key careers include:

- **Physical Education Teacher:** Teaching students fitness, sports skills, and healthy lifestyle habits.
- **Fitness Trainer:** Designing personalized exercise plans for individuals and groups.
- **Sports Coach:** Training athletes to improve their skills and strategies.
- **Physiotherapist:** Helping athletes recover from injuries and improve mobility.
- **Sports Psychologist:** Focusing on mental health and motivation of athletes.
- **Sports Journalist:** Reporting and analyzing sports events.

- **Athletic Trainer:** Managing athletes' conditioning and injury prevention.
  These careers require specific educational qualifications like B.P.Ed, diploma courses, or specialized certifications.

Q.2 What is the Fit India Movement? How has it influenced the lifestyle of Indians?

ANS- The Fit India Movement, launched by the Government of India in 2019, aims to encourage citizens to adopt healthier lifestyles through regular physical activity and fitness awareness. It promotes activities like walking, yoga, cycling, and balanced nutrition to reduce lifestyle diseases. The movement encourages schools, workplaces, and communities to organize fitness events and pledges. It has increased awareness about the importance of physical health, motivating many Indians to incorporate daily exercise, reduce sedentary habits, and focus on mental well-being. Overall, it is a nationwide campaign promoting a culture of fitness and wellness.

Q.3 Explain the development of physical education in India after independence?

After independence, India focused on improving physical education through various government efforts. In 1948, the **Tara Chand Committee** recommended creating institutions for sports development. The **Central Advisory Board of Physical Education** was formed in 1950 to make physical education compulsory in schools.

India hosted the **1951 Asian Games**, inspiring youth to take up sports. In 1961, the **National Institute of Sports (NIS)** was established to train coaches. The **All India Council of Sports** (1954) and **Lakshmibai College of Physical Education** (1957) helped develop sports and teacher training.

The government launched fitness drives in the 1950s and 60s and introduced rural sports schemes in the 1970s to find talent in villages. Women's participation was encouraged with the **National Sports Championship for Women** starting in 1975.

Hosting the **1982 Asian Games** led to the creation of the **Sports Authority of India (SAI)** in 1984, which further promoted sports development. India also hosted the **2010 Commonwealth Games** and in 2018, physical education became compulsory for classes IX to XII under CBSE.

LONG QUESTIONS ANSWER FOR PRACTICE (5 MARKS)

Q1.Describe the Technology Advancement in Sport?

Q2.How the Trends are changing in sports Equipment**?**

UNIT-II

OLYMPIC VALUE EDUCATION

Content:

- Olympic, Paralympics and Special Olympics
- Olympic Symbols, Ideals, Objectives & Values of Olympism
- Indian Olympic Association
- Olympism - Concept and Olympic values (Excellence, Friendship and Respect.)
- Olympic value Education - Joy of Effort, Fair Play, Respect for others, Pursuit of Excellence, Balance Among Body, Will and Mind.
- Olympic Movement Structure - IOC, NOC, IFS, Other members. (IOC - International Olympic Committee, NOC - National Olympic Committee, IFS - International federation of Sports

Learning Objectives / Learning Outcomes

By the end of this unit, students will be able to:

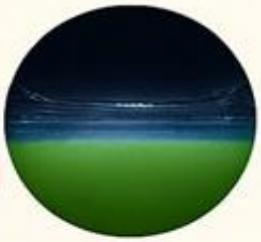
1. Recognize the importance of fair play, discipline, and perseverance in daily life.
2. Apply Olympic values to personal behavior in school, sports, and social settings.
3. Develop a spirit of unity and cooperation through appreciation of cultural and international diversity.
4. Practice ethical decision-making in competitive and non-competitive situations.
5. Demonstrate sportsmanship, teamwork, and empathy in both individual and group activities.
6. Value the role of physical activity in promoting peace and well-being in society.
7. Cultivate a growth mindset inspired by the Olympic motto: “Faster, Higher, Stronger – Together.”
8. Differentiate between Modern and Ancient Olympic Games, Paralympics and Special Olympic games.
9. Identify the Olympic Symbols and Ideals

MIND MAP

UNIT – 2

OLYMPIC VALUE EDUCATION

Weightage Allotted for this unit is-5 (Marks)



ANCIENT OLYMPIC GAMES

- Started in 776 BC in Olympia, Greece
- Held every 4 years
- Originated in sports javelin, discus, chariot races

OLYMPIC VALUES

MODERN OLYMPIC GAMES

- International multi-sport event
- Held every 4 years (Summer and Winter Games)

OLYMPIC VALUES

Excellence
Respect
Frieridship
Faster, Higher Stronger, and Together

PARALYMPICS

"For Athletes with physical impairments"

SPECIAL OLYMPICS

"Joy and Happiness to All the Children of the World"

THE OLYMPIC CREED

"Not to win but to take part..."

For children

OLYMPIC

Adults with intellectual and physical disabilities.

➤ **Core Values of Olympism**

- 💪 **Excellence** – Giving one's best
- 🤝 **Friendship** – Building understanding across cultures
- ⚖️ **Respect** – For rules, opponents, and oneself

➤ **Objectives of Olympic Value Education**

- 🎯 Promote moral and ethical development
- 🧠 Encourage education through sports
- 🕊️ Build peace and international understanding
- 🌱 Develop responsible citizenship through fair play

➤ **Cultural & Educational Aspects**

- 🏛️ Olympic Education Programmes
- 🎨 Art & Sports integration
- 👧🏽 Equal opportunity and gender inclusion

The key components of Olympic Value Education

- ❖ Ancient Olympic Games
- ❖ Modern Olympic Games
- ❖ Paralympics
- ❖ Special Olympics
- ❖ The Olympic Creed
- ❖ Olympic Symbols & Emblems
- ❖ The Olympic Flag
- ❖ The Olympic Motto
- ❖ The Olympic Anthem
- ❖ The Olympic Flame, Olympic Torches
- ❖ The Athletes' Oath
- ❖ Olympic Awards
- ❖ The Olympism
- ❖ Olympic Values

Each category is further elaborated with its specific elements.

ANNOTATIONS

- **Ancient Olympic Games**: The origin of the Olympic Games held in Olympia, Greece, from 776 BC.
- **Modern Olympic Games**: Revived in 1896 and includes events like Paralympics and Special Olympics.
- **Paralympics:** For athletes with physical impairments, held post-Olympics in same venue.
- **Special Olympics:** For individuals with intellectual disabilities, promoting inclusion.
- **Olympic Symbols**: Includes the Olympic Rings, Flag, and Motto which symbolize unity and sportsmanship.
- **Olympic Values**: Core values such as Excellence, Respect, and Friendship promoted through sports.
- Olympic Movement: Led by the IOC and IOA, it governs the organization of the Olympic Games and spreads Olympic ideals.

Olympic Values and the Olympic Creed

Values:

1. **Excellence** – Doing your best.
2. **Friendship** – Promoting understanding among individuals.
3. **Respect** – Observing rules, fair play, and appreciation for diversity.

Olympic Value Education-

- Joy of Effort
- Fair Play,
- Respect for Others
- Pursuit of Excellence,
- Balance Among Body will and Mind

Olympic Creed: "The most important thing in the Olympic Games is not to win but to take part..."

This encourages effort, persistence, and involvement.

Real-life Example: -Athletes helping each other during a marathon despite being competitors.

INTRODUCTION TO OLYMPIC GAMES

The Olympic Games are the world's foremost sports competition, held every four years with summer and winter editions. Originating in ancient Greece in 776 BCE, they were revived in 1896 by Pierre de Coubertin to foster international friendship and unity. The Olympics aim to bring athletes together, regardless of nationality, race, or religion, to celebrate excellence in sports.

Ancient and Modern Olympics

The ancient Olympics were held in Olympia, Greece, and were a religious festival honoring Zeus. Only Greek men could participate.

Events included-Foot races ,Wrestling , Discus , Javelin.

Modern Olympics -Governed by the International Olympic Committee (IOC).

started in 1896 in Athens.

Today, athletes from all over the world compete in hundreds of events representing various sports.

Key difference:

- **Ancient: -** Religious, limited participation
- **Modern:-** Inclusive, international and secular

OLYMPIC SYMBOLS AND MOTTO

- **Olympic Motto :**
  "Citius, Altius, Fortius, Communiter" (Faster, Higher, Stronger, Together)
- **Olympic Rings:**
  Five interlinked rings represent the unity of five inhabited continents.
- **Olympic Flag:**
  White background with rings symbolizes peace and unity.
- **Olympic Flame:**

Symbol of purity and the endeavor for perfection.

- **Mascots:**
  Represent cultural identity of the host country.

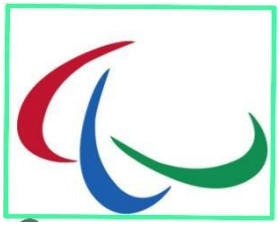
Olympic Movement and Key Organizations

- **IOC (International Olympic Committee):** Headquartered in Lausanne, Switzerland.
- **IOA (Indian Olympic Association):** Organizes India's participation.
- **NOCs (National Olympic Committees):** Represent individual countries.

The Olympic Movement includes athletes, coaches, officials, and volunteers worldwide, aiming for global peace through sport.

PARALYMPICS AND SPECIAL OLYMPICS

- **Paralympics:** For athletes with physical impairments, held post-Olympics in same venue.
- **Special Olympics:** For individuals with intellectual disabilities, promoting inclusion.



GIST OF THE CHAPTER

- The Olympics are more than games; they are a celebration of human potential and values.
- They inspire youth and promote healthy competition and peaceful coexistence.
- Olympic symbols, motto, and values hold deep meaning and application in real life.
- Organizations like the IOC, IOA, and events like the Paralympics and Special Olympics strengthen the Olympic Movement.

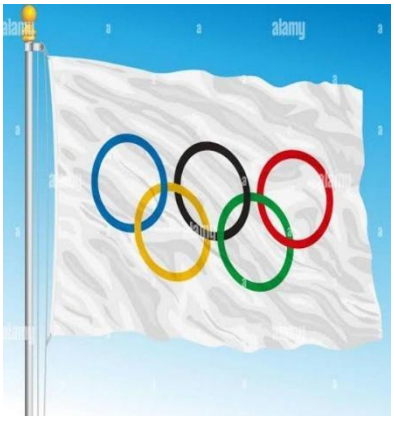
Examples:

- Jesse Owens defied racism at 1936 Berlin Olympics.
- Mary Kom represents women's empowerment through boxing.

Conceptual Frameworks:

- Participation > Winning

- Unity > Division
- Respect > Rivalry



OLYMPICS			
YEAR & HOST CITIES			
Winter Olympics		**Summer Olympics**	
Year	**Host Cities**	**Year**	**Host Cities**
1924	Chamonix, France	1896	Athens, Greece
1928	St. Moritz, Switzerland	1900	Paris, France
1932	Lake Placid, United States	1904	St. Louis, United States
1936	Garmisch-Partenkirchen, Germany	1908	London, United Kingdom
1940	Cancelled (WWII – Sapporo had been awarded)	1912	Stockholm, Sweden
1944	Cancelled (WWII – Cortina d'Ampezzo had been awarded)	1916	Cancelled (WWI – Berlin had been awarded)
1948	St. Moritz, Switzerland	1920	Antwerp, Belgium
1952	Oslo, Norway	1924	Paris, France
1956	Cortina d'Ampezzo, Italy	1928	Amsterdam, Netherlands
1960	Squaw Valley, United States	1932	Los Angeles, United States
1964	Innsbruck, Austria	1936	Berlin, Germany
1968	Grenoble, France	1940	Cancelled (WWII – Tokyo had been awarded)
1972	Sapporo, Japan	1944	Cancelled (WWII – London had been awarded)
1976	Innsbruck, Austria	1948	London, United Kingdom
1980	Lake Placid, United States	1952	Helsinki, Finland
1984	Sarajevo, Yugoslavia	1956	Melbourne, Australia
1988	Calgary, Canada	1960	Rome, Italy
1992	Albertville, France	1964	Tokyo, Japan
1994	Lillehammer, Norway	1968	Mexico City, Mexico
1998	Nagano, Japan	1972	Munich, West Germany
2002	Salt Lake City, United States	1976	Montreal, Canada
2006	Turin, Italy	1980	Moscow, Soviet Union
2010	Vancouver, Canada	1984	Los Angeles, United States

2014	Sochi, Russia	1988	Seoul, South Korea
2018	Pyeongchang, South Korea	1992	Barcelona, Spain
2022	Beijing, China	1996	Atlanta, United States
		2000	Sydney, Australia
		2004	Athens, Greece
		2008	Beijing, China
		2012	London, United Kingdom
		2016	Rio de Janeiro, Brazil
		2020	Tokyo, Japan (postponed to 2021 due to the coronavirus pandemic)

PARALYMPICS

Summer Paralympics		**Winter Paralympics**	
Year	**Host city**	**Year**	**Host city**
1960	Rome, Italy	**1976**	Ornskoldsvik, Sweden
1964	Tokyo, Japan	**1992**	Albertville, France
1968	Tel Aviv, Israel	**2002**	Salt Lake City, United States
1972	Heidelberg, West Germany	**2006**	Torino, Italy
1976	Toronto, Canada	**2010**	Vancouver, Canada
1980	Arnhem, Netherlands	**2014**	Sochi, Russia
1984	Stoke Mandeville, UK & New York, United States	**2018**	Pyeongchang, South Korea
1988	Seoul, South Korea	**2022**	Beijing, China
1992	Barcelona, Spain		
1996	Atlanta, United States		
2000	Sydney, Australia		
2004	Athens, Greece		
2008	Beijing, China		
2012	London, United Kingdom		
2016	Rio de Janeiro, Brazil		
2020	Tokyo, Japan (postponed to 2021)		
2024	Paris, France		

Reference: https://olympic.ind.in/ https://www.olympic.org/the-ioc

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

1. What is the meaning of the Olympic motto "Citius, Altius, Fortius, Communiter"?

a) Stronger, Taller, Louder, Together b) Faster, Higher, Stronger, Together ✅

c) Win, Compete, Unite, Together d) Run, Jump, Throw, Together

2. Where were the first modern Olympic Games held?

a) Paris b) Athens ✅ c) Rome d) London

3. The Olympic Games were originally held in honor of which Greek god?

a) Apollo b) Ares c) Zeus ✅ d) Hermes

4. Which of the following is NOT an Olympic value?

a) Respect b) Excellence c) Fair Play d) Aggression ✅

5. How often are the Olympic Games held?

a) Every 2 years b) Every 3 years c) Every 4 years ✅ d) Every year

6. The five rings of the Olympic symbol represent:

a) Five Olympic events b) Five world records

c) Five continents ✅ d) Five ancient cities

7. Who revived the modern Olympic Games?

a) Alexander the Great b) Socrates

c) Pierre de Coubertin ✅ d) Aristotle

8. What color is NOT found in the Olympic rings?

a) Red b) Green c) Purple ✅ d) Blue

9. Which country has hosted the most Olympic Games?

a) France b) USA ✅ c) Germany d) Japan

10. What is the purpose of the Olympic flame?

a) To cook food b) To represent unity ✅

c) To light the stadium d) To honor the winners

11. What is the Olympic creed mainly about?

a) Winning only b) Participating and making effort ✅

c) Breaking records d) Competing against rivals

12. Which of the following is related to the Olympic Movement?

a) UNESCO b) WHO c) IOC ✅ d) FIFA

13. Special Olympics are organized for:

a) Elderly people b) Athletes with physical disabilities

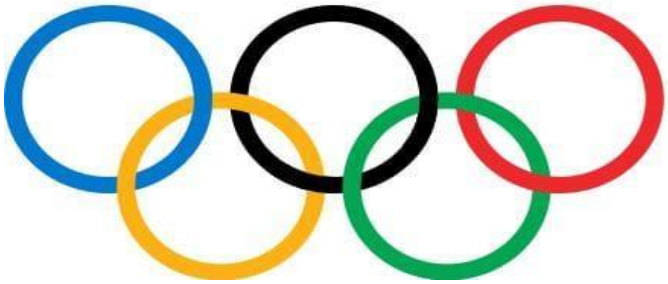
c) Athletes with intellectual disabilities ✅ d) None of these

14. Which of the following is a mascot feature in the Olympics?

a) Judges b) Country's cultural symbol ✅

c) Athletes' tattoos d) Advertisements

15. Observe the image below and answer the question that follows:



What do the five interlocking rings in the Olympic symbol represent?

a) The five rings reflect the union of the five continents namely North and South America, Africa, Asia, Australia, and Europe
b) Five Olympic values: Respect, Excellence, Friendship, Equality, and Fairness
c) Five types of Olympic medals
d) Five ancient Olympic sports

Answer: ✅ a) The five rings reflect the union of the five continents namely North and South, Europe, Asia, , Africa , Oceania, America

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

1. Who manages India's representation at the Olympic Games?

A) Sports Authority of India B) International Olympic Committee

C) Indian Olympic Association D) Ministry of Youth Affairs and Sports

2. The Olympic rings represent ____.

A) The five oceans B) The five sports

C) The five continents of the world D) The five Olympic values

3. The founder of the modern Olympics is ____.

A) Major Dhyan Chand B) Baron Pierre de Coubertin

C) Abhinav Bindra D) Thomas Bach

4. The value that teaches teamwork and cooperation is ____.

A) Respect B) Excellence

C) Courage D) Friendship

5. The Olympic Games promote unity through ____.

A) Education B) Celebrations

C) Sports D) Technology

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

1. **What is the Olympic Motto?**
   The Olympic Motto is "Citius, Altius, Fortius, Communiter," which means "Faster, Higher, Stronger, and Together."
2. **Name any two Olympic values.**
   Excellence and Respect.
3. **What is the significance of the Olympic rings?**
   They represent the union of the five continents – Africa, America, Asia, Europe, and Oceania.
4. **Who founded the modern Olympic Games?**
   Pierre de Coubertin in 1896.
5. **What is the Olympic Creed?**
   "The most important thing in life is not the triumph but the fight."
6. **Write any two features of Ancient Olympic Games.**
   Held in Olympia, only Greek men were allowed to compete.
7. **State any two differences between Paralympics and Special Olympics.**
   Paralympics are for physical disabilities, Special Olympics are for intellectual disabilities.
8. **Why is friendship considered an Olympic value?**
   It promotes international understanding and unity through sport.
9. **Name two Indian athletes who have participated in the Olympics.**
   Neeraj Chopra and P.V. Sindhu.
10. **What do the colors of the Olympic rings signify?**
    They include colors that appeared on all national flags at the time the symbol was created.

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

1. Write two objectives of Olympic value education.
2. What does the Olympic torch symbolize?
3. Mention two similarities between modern and ancient Olympics.
4. Write any two values promoted through school sports events.
5. Name any two Paralympic events.

3.SHORT QUESTION SOLVED (3 MARKS)

Q1.Explain the three core Olympic values with examples.
The three core values are:

- **Excellence:** Giving one's best (e.g., Neeraj Chopra's gold medal in javelin).
- **Friendship:** Promoting peace and unity (e.g., athletes supporting each other after a fall).
- **Respect:** Honoring rules and opponents (e.g., bowing to judges in martial arts).

Q2. How does Olympic Value Education influence daily life?
It promotes values like honesty, teamwork, and tolerance, helping students become responsible and respectful citizens in school and society.

Q3.Compare Ancient and Modern Olympic Games.
Ancient Olympics were held in Greece, featured only men, and focused on religion. Modern Olympics are global, include all genders, and emphasize values and international peace.

Q4.Write a short note on the Special Olympics.
The Special Olympics are organized for athletes with intellectual disabilities. It helps boost self-esteem and social integration through sports events.

Q5. Why are Olympic values important in school education?
They develop students' moral character, promote fairness, reduce bullying, and encourage cooperation among peers.

Q6. What is the relevance of the Olympic motto in academic life?
The motto inspires students to strive for improvement, set goals, and collaborate with others to achieve shared success.

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

Q1.Describe any three Olympic symbols and their meanings.

Q2.How do Paralympics inspire students in everyday life?

Q3. Write a short note on the role of sports in promoting international peace.

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

Case 1: Olympic Creed in Action

During the Tokyo 2020 Olympics, a young athlete from a developing country competed in the 100m race. Though he finished last, the crowd cheered him for his effort and spirit. In the post-race interview, he said, "It was my dream to be here. Winning was never the goal—participating was."

Questions:

1. What Olympic ideal is being emphasized in this case?
   → *Participation is more important than winning (Olympic Creed).*
2. Which Olympic value is demonstrated by the athlete's statement?
   → *Joy of effort and Respect.*
3. Define the Olympic Creed.
   → *"The most important thing in the Olympic Games is not to win but to take part..."*
4. Why is it important to promote such values in sports?
   → *It builds character, sportsmanship, and inclusion.*

Case 2: Flag and Symbol of Unity

During the opening ceremony, five interlocking rings of different colors were displayed, and athletes from all nations walked under the Olympic flag, signifying peace and unity.

Questions:

1. What do the five Olympic rings symbolize?
   → *The five continents united by Olympism.*
2. What is the significance of the Olympic flag's background color?
   → *White represents peace.*
3. Which value is reflected in athletes from around the world coming together?
   → *Solidarity and Respect.*
4. Name any two values promoted through the Olympic Games.
   → *Excellence, Friendship.*

Case 3: Paralympics and Fair Play

A visually impaired swimmer won a medal at the Paralympics. Despite facing multiple challenges, she showed remarkable determination and never violated any rules, displaying great sportsmanship.

Questions:

1. What is the Paralympics?
   → *International competition for athletes with disabilities.*
2. Which Olympic value did the athlete demonstrate?
   → *Fair play and Pursuit of Excellence.*
3. Mention one aim of organizing the Paralympic Games.
   → *To promote inclusiveness and provide equal opportunities.*
4. How do such stories inspire society?
   → *They show resilience, break stereotypes, and promote equality*

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Case 1: Embracing Diversity

During the Olympic Games, athletes from over 200 nations live together in the Olympic Village, sharing meals, traditions, and values.

Questions:

1. What value is reflected by this practice?
2. What does such interaction promote among athletes?
3. How does the Olympic movement contribute to global unity?
4. Define the concept of Olympic Solidarity.

Case 2: Youth Olympic Games

A 17-year-old Indian athlete wins a medal at the Youth Olympic Games. His coach highlights the importance of values like discipline and respect in shaping his success.

Questions:

1. What are the Youth Olympic Games?
2. Which Olympic value played a key role in this athlete's journey?
3. How do such values help young athletes in the long run?
4. What is the difference between Olympic values and Olympic motto?

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q1. Explain the importance of Olympic values in today's world with suitable examples.

Answer:
Olympic values—**Excellence, Respect, and Friendship**—go beyond sports and have universal relevance.

- **Excellence** motivates individuals to give their best, not just in sports but in academics and careers. For instance, athletes train rigorously, setting personal bests even if they don't win medals.
- **Respect** promotes dignity among competitors, officials, and fans. For example, players from rival nations shaking hands shows mutual admiration.
- **Friendship** builds bridges across cultures. The Olympic Village is a living example of unity in diversity.
  These values foster global peace, equality, and personal growth, making them vital for a harmonious society.

Q2. Describe the significance and symbolism of the Olympic flag and rings.

Answer:
The **Olympic flag** features **five interlaced rings** in blue, black, red, yellow, and green on a white background.

- These rings represent the **five continents**: Africa, the Americas, Asia, Europe, and Oceania, symbolizing **unity of the world through sport**.
- The colors were chosen because at least one appears in every national flag of the world.
- The **interlocking nature** of the rings shows universality and the coming together of athletes from all over the world.
- The white background symbolizes peace.
  The flag reflects the core Olympic goal: **bringing people together through fair and friendly competition**.

Q3. What is the Olympic Creed and how does it relate to real-life sportsmanship?

Answer:
The **Olympic Creed** states:
"The most important thing in the Olympic Games is not to win but to take part, just as the most important thing in life is not the triumph, but the struggle."
This creed promotes the idea of participation, effort, and fair play over victory.

- In real life, many athletes may not win medals, but their **dedication and effort inspire millions**.
- For instance, athletes who finish last still receive standing ovations for their determination.

- It encourages **resilience, dignity in defeat**, and focusing on self-improvement rather than just results.
  The creed embodies the true spirit of sportsmanship and lifelong values.

LONG QUESTIONS ANSWER FOR PRACTICE (5 MARKS)

Q4. Discuss the role of the Olympic Games in promoting global peace and cultural exchange.

Q5. Explain the differences and similarities between the Olympic Games, Paralympics, and Special

UNIT – III

CONTENTS OF CHAPTER:

Meaning and Importance of Yoga
Introduction to Ashtanga Yoga
Yogic Kriyas (Shat Karma)
Pranayama and its types
Active lifestyle and Stress Management through Yoga

Learning Objectives:

- Understand the meaning and importance of Yoga
- Identify and explain the eight limbs of Yoga (Ashtanga Yoga)
- Recognize the benefits of practicing Yamas and Niyamas
- Develop awareness of various Pranayama techniques
- Perform basic Yogic practices (Asanas and Pranayama)
- Appreciate Yoga as a preventive and promotive health practice
- Differentiate between types of Pranayama
- Foster discipline, concentration, and inner peace

Learning Outcomes:

At the end of the unit, the student will be able to:

- "Learn what Yoga is all about and understand why Yoga is important for staying healthy and feeling good every day."
- “Understand how daily yoga practice can support a healthy lifestyle and foster a positive mind-set both at home and in school."
- Identify the elements of Yoga i.e., Asanas, Pranayamas, meditation and Yogic kriyas and their benefits.
- Relate the elements of Yoga to everyday activities, such as using breathing techniques to stay calm before exams or competitions.
- Practice simple Asanas and breathing exercises in the morning or evening to feel more energetic and focused throughout the day.
- Classify various Yogic activities for enhancement of concentration.
- Use specific Yogic activities, such as Trataka or focused breathing, during study time to improve attention and memory.
- Know about relaxation techniques for improving concentration.
- Apply relaxation techniques like guided meditation or Shavasana after a tiring day to reduce stress and sleep better.

MIND MAP

1. MEANING AND IMPORTANCE OF YOGA

Meaning: The word "Yoga" is derived from the Sanskrit root "Yuj," which means to join or unite.

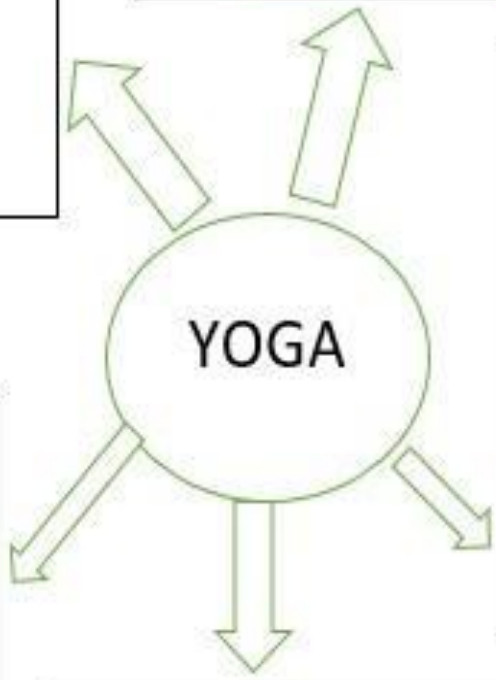
Importance/Benefits of yoga

1. Improves posture
2. Increases flexibility
3. Builds muscle strength
4. Boosts metabolism
5. Helps to maintain blood sugar
6. Increases blood flow
7. Keeps diseases at bay
8. Increases self-esteem
9. Improves lung function
10. Game wise benefits:

5. Active Life style and stress management through Yoga

- **Meaning of Active lifestyle**
- **Yogic Practices for Stress Management: Asanas, Pranayamas, Kriya and Relaxing practices**
  1. Omkara Chanting and Prayer, 2. Asanas, 3. Pranayama, 4. Kriyas, 5. Dhyana, 6. Ahara (Diet)
- **Components**

1. Vihara (Relaxation/rest), 2.Achara (Conduct)
3. Vichara (Thinking), 4. Vyavahara (Behaviour)



4. Types of Pranayama - (Techniques, Benefits, Precautions, Contraindication)

1. Nadishodhana (Anuloma Viloma Pranayama)
2. Surya Bhedan Pranayama – Vitality stimulating breath
3. Ujjayi Pranayama – The psychic breath
4. Sheetkari Pranayama – Hissing breath
5. Sheetali Pranayama – Cooling breath

2. ASHTANGA YOGA

Eight Limbs of Yoga:

1. **Yamas** (Self-restraints):
2. **Niyamas** (Observances)
3. **Asana** (Posture)
4. **Pranayama** (Breath control):
5. **Pratyahara** (Sense withdrawal)
6. **Dharana** (Concentration)
7. **Dhyana** (Meditation)

3. INTRODUCTION TO YOGIC KRIYAS (Shat Karma) Also known as Shat Karmas, are six cleansing techniques in yoga.

Six Practices

1. Dhauti: Cleansing of Digestive Tract
2. Basti: Cleaning of Large Intestine
3. Neti: Nasal cleaning
4. Trataka: Cleaning of Eyes
5. Nauli: Abdominal massage
6. Kapalabhati: Purification of frontal lobes and lungs

3.1 MEANING AND IMPORTANCE OF YOGA:

3.1.1: MEANING DEFINITION AND IMPORTANCE OF YOGA:

1. MEANING OF YOGA:

The word **"Yoga"** comes from the ancient Sanskrit word **"Yuj,"** which means **to join or unite**. It represents the **union of the individual self with the universal spirit**—a connection between body, mind, and soul.

In short, **Yoga helps you grow—not only physically, but mentally, emotionally, and spiritually**, guiding you toward a healthier, happier, and more meaningful life.

2. DEFINITIONS OF YOGA:

Different Yogic texts convey the concept of Yoga in different ways. This exposes the true essence and significance of Yoga.

1. **"Yogaḥ citta-vṛtti-nirodhaḥ"** -- *"Yoga is the cessation of the fluctuations of the mind."* By:Patanjali(Yoga sutras of Patanjali)
   --This means Yoga is about calming the mind and gaining control over our thoughts and emotions. Also means "Yoga is the removal of the mental modifications or thought impulses of the Chitta (Mind)".

2. **"Yogaḥ karmasu kauśalam"**-- *"Yoga is a skill in action."* Bhagavad Gita (Chapter 2, Verse 48)
   --This definition highlights how Yoga is about being mindful and efficient in whatever we do.
3. **"Yoga is the integration and harmony between thoughts, words, and deeds, or head, heart, and hands." By: Swamy Sivananda**
   -- This definition shows Yoga as a balanced way of living
4. **"Yoga is a light, which once lit, will never dim. The better your practice, the brighter the flame." By B.K.S. Iyengar**
   --This poetic definition emphasizes the inner transformation that Yoga brings.

3.1.2: IMPORTANCE OF YOGA:

Yoga is more than just a form of exercise—it's a **way of living** that helps build a **strong body and a calm, focused mind**. It supports overall **physical and mental well-being**, helping you feel healthier, more energetic, and emotionally balanced.

Unlike regular workouts that focus only on the body, **yoga connects the body and mind**, helping you deal with stress, anxiety, and even physical pain in a positive way.

The **Bhagavad Gita** beautifully explains that with **dedication and regular practice**, yoga can help you overcome challenges, remove inner fears and weaknesses, and grow stronger from within. It teaches us that pain can be turned into peace, failure into success, and illness into strength.

The following points show the importance of yoga:

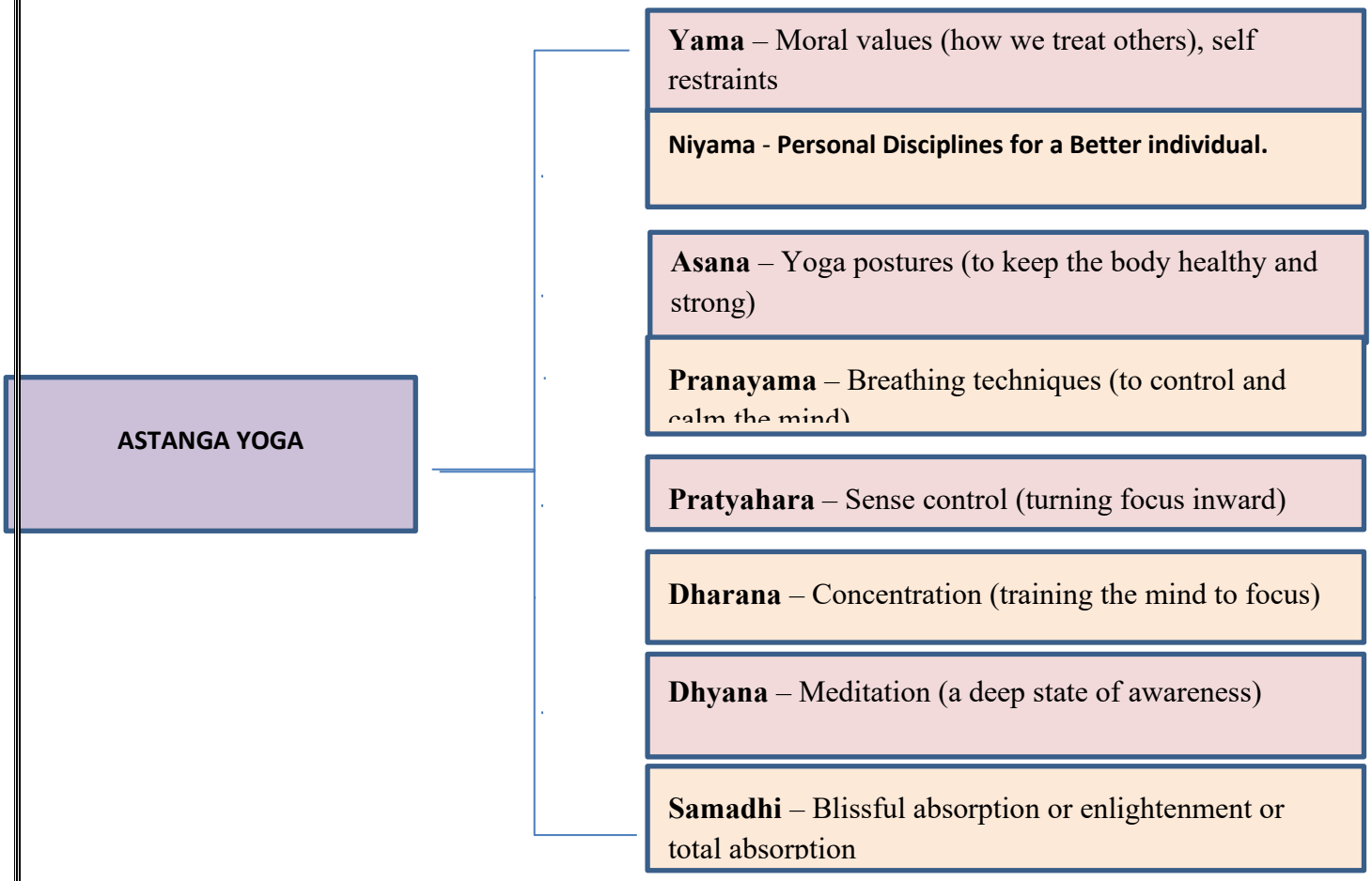
1. **Enhances Concentration and Focus**
   Yoga helps train the mind to stay present. Regular practice improves attention span, memory, and the ability to concentrate—especially helpful during exams or study time.
2. **Reduces Anxiety and Depression**
   The calming effects of yoga reduce stress hormones and promote feelings of peace. It can help students manage anxiety and feel more emotionally balanced.
3. **Improves Posture**
   Spending hours studying or using screens can hurt your back and neck. Yoga helps straighten your spine and improve your posture, reducing pain and discomfort.
4. **Improves Balance and Coordination**
   Many yoga poses develop body control and balance, which are useful not only in sports and physical activity but also in improving overall motor skills.
5. **Supports Heart Health**
   Yoga can help lower blood pressure, reduce stress levels, and improve heart rate—all contributing to a healthier cardiovascular system.
6. **Develops Discipline and Routine**
   A regular yoga practice encourages self-discipline, time management, and healthy habits—essential qualities for a student's personal and academic life.
7. **Improves Digestion**
   Certain yoga poses gently massage internal organs and help in better digestion, reducing problems like bloating and constipation.
8. **Enhances Creativity**
   Yoga clears mental clutter and encourages creative thinking by calming the mind and improving mental clarity.
9. **Increases Flexibility**
   Struggling to bend or stretch? Yoga gently loosens tight muscles over time, helping you become more flexible and comfortable in your body. **Builds Strength**
   Many yoga poses work your muscles without needing heavy weights. They help tone your body, increase strength, and reduce stiffness.
10. **Boosts Metabolism**
    Yoga supports a healthy metabolism and digestion. It also encourages better eating habits, which helps keep your body fit and active.
11. **Controls Blood Sugar**
    Regular yoga can help lower blood sugar levels, improve insulin use, and manage weight—great for preventing and managing diabetes.
12. **Improves Blood Circulation**
    Yoga poses like headstands and deep breathing improve blood flow, helping oxygen and nutrients reach every part of your body.

3.2.1: IMPORTANCE OF ASHTANGA YOGA :

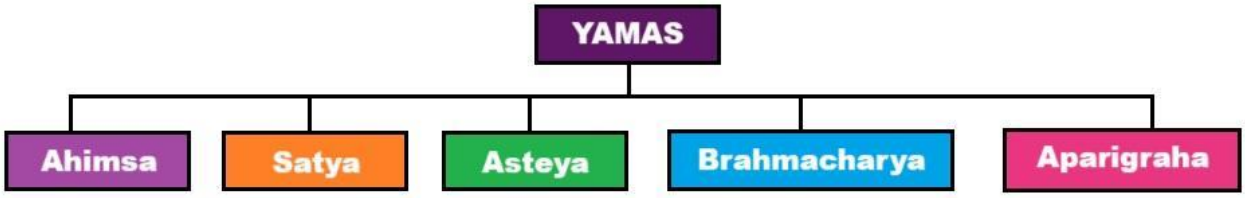
INTRODUCTION :ASHTANGA YOGA – (Eight Limbs of Yoga):

One of the most important paths in yoga is called Ashtanga Yoga, which means **"Eight Limbs of Yoga"**.

In Sanskrit, **"Ashta"** means eight, and **"Anga"** means limbs or parts — just like the limbs of a tree, each part of Ashtanga Yoga supports our growth and well-being. it's a complete way of life that helps us stay healthy, focused, and peaceful, both inside and out.



3.2.2: YAMAS (Self-restraints): The Yamas are guidelines to interact with the outside world at a social level. The Five Yamas are:



The **Yamas** are like guidelines for how we should behave with others and the world around us. They teach us values that help us live a peaceful, honest, and meaningful life. Let's explore each one.

1. **AHIMSA (Non-violence): Meaning** - Be kind and compassionate to all living beings. **In Action -** Avoid hurting others through words, actions, or even thoughts.
2. **SATYA (Truthfulness):**

Meaning: Speak the truth — but wisely.

In Action: Tell the truth, but not in a way that hurts others.

3. **ASTEYA (Non-stealing): "Asteya"** means **not taking anything that doesn't belong to us** — in any way.

4. BRAHMACHARYA (Abstinence)**:** means using your energy wisely — especially your physical and mental energy.

- Practice **self-control** in thoughts, actions, and habits.
- **Avoid distractions** that pull you away from your goals.
- Build **meaningful and respectful relationships**.

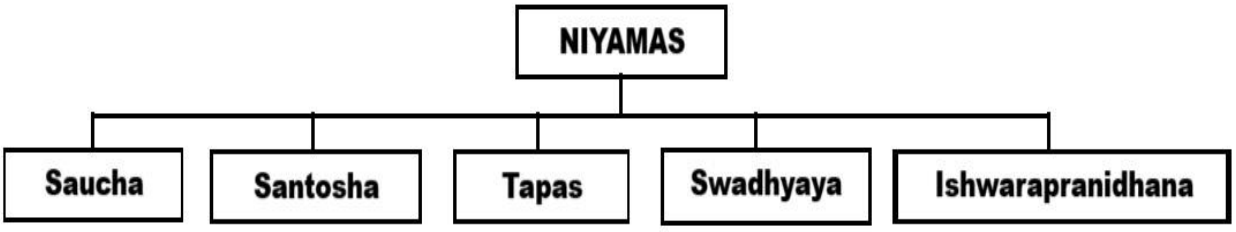
"Use your energy to grow, not to waste."
Brahmacharya helps us stay focused, balanced, and connected to our higher purpose.

5. APARIGRAHA (Non-hoarding): Aparigraha means **taking only what you truly need** and not being greedy. It teaches us to avoid collecting too many things or holding on to more than necessary. When we trust that life will provide what we need, we feel lighter and more peaceful. Letting go of extra stuff — and even negative thoughts — helps us focus on what really matters. **Simple Thought**: *"Let go and live free."*

3.2.3: NIYAMAS (Observances): – Personal Disciplines for a Better Individual.

Just like rules help keep a classroom peaceful, **Niyamas** are personal rules that help keep our **mind, body, and soul** in balance.

"Niyama" means **observance or personal discipline**. While the Yamas teach us how to behave with others, the Niyamas guide us on how to take care of **ourselves from the inside**.



I. SHAUCHA (Cleanliness):

It is the First Niyama- which means **cleanliness or purity** in yoga. It teaches us that true cleanliness goes beyond just taking a bath or wearing clean clothes — it also means **keeping our mind and heart pure**.

II.SANTHOSHA (Contentment):

It is the second Niyama which means being **happy and satisfied with what we have**, instead of always wishing for more. It teaches us to stay calm and peaceful even when life is difficult. True happiness doesn't come from things outside — it comes from being at peace with ourselves and trusting that everything happens for a reason or purpose. Yoga calls this

Karma. It entails being content with what we have rather than being dissatisfied with what we lack.

Simple Thought: *"Be grateful, not greedy.*

III. TAPAS (Austerity): means **self-discipline** and the inner fire that keeps us focused on our goals. It teaches us to **stay strong, control our desires**, and do what is right — even when it's hard. Tapas helps us stay healthy by paying attention to our **posture, eating habits, and breath**. It also means pushing ourselves to grow, not for show, but to become better from within.

Simple Thought: *"Discipline is the heat that shapes us."*Tapas is a Spanish word that means "to maintain the body fit".

IV. SVADHYAYA (Study of the Scriptures and self-study): The fourth Niyama is **Svadhyaya** means **self-study** — learning about who we are by observing our thoughts, actions, and emotions. The word comes from *"Swa"* means self and *"Adhyaya"* means Study/Inquiry/Examination. It also includes reading spiritual or inspiring texts to understand life better.

V. ISHWARAPRANIDHANA :The fifth Niyama which means **trusting and surrendering to a higher power**. It teaches us that we are not alone — there is a divine force guiding our lives. This practice helps us let go of ego, stay humble, and do our best without always worrying about results. Taking a moment each day to pray, meditate, or simply be grateful is a beautiful way to connect with this inner peace. Ishwarpranidhana means "to put all our deeds at the feet of God".

Simple Thought: *"Do your part, then trust the rest to the universe."*

3.2.4 BENEFITS OF PRACTISING YAMAS AND NIYAMAS :

Benefits of Yamas (Social discipline):

1. **Improves relationships** – Promotes honesty, non-violence, and respect.
2. **Builds self-control** – Helps in managing desires and emotions.
3. **Reduces stress** – Encourages truthfulness and contentment.
4. **Promotes peace in society** – Leads to harmony and ethical living.

Benefits of Niyamas (Personal discipline):

1. **Develops inner strength** – Through self-discipline and purity.
2. **Increases focus** – Helps with study and concentration.
3. **Boosts self-awareness** – Encourages self-study and reflection.
4. **Brings peace and joy** – Through contentment and devotion.

3.2.5 :ASANA (Posture): **Asana** means a **yoga posture** or position. In Patanjali's Yoga, it refers to sitting **still and comfortably** so the mind can become calm for **meditation**. When practiced regularly, asanas make the body strong, flexible, and steady. A true asana feels **firm yet relaxed**, helping us stay focused without being disturbed by discomfort or distractions.

Simple Thought: *"A steady body leads to a steady mind."*

3.2.5: Pranayama (Breath Control): The word Pranayama comes from Sanskrit word. It has two parts i.e, Prana means "vital force" and Yama means "the control of the Prana". means **controlling the breath** to control the flow of **vital energy (Prana)** in the body. It helps calm the mind, improve health, and bring inner peace. Pranayama has **three main parts**:

- **Puraka** – Breathing in (inhalation of air into the lungs.)
- **Rechaka** – Breathing out (exhalation of air from lungs)
- **Kumbhaka** – Holding the breath

By practicing Pranayama, we **cleanse our body**, **energize our mind**, and **strengthen our lungs**. It also helps reduce stress and prevent many diseases.

Simple Thought: **"Breathe right, live bright!"**

It is considered that through Pranayama each part of the body can be filled with Prana (Breath). This can prevent many diseases. It keeps the mind and the body alive.

TYPES OF PRANAYAMA :

1. Surya Bhedi Pranayama, 2. Ujjayi Pranayama ,3. Sitkari Pranayama

4. Sitali Pranayama, 5. Bhastrika Pranayama, 6. Bhramari Pranayama

7. Murcha Pranayama, 8. Kevali Pranayama

3.2.6: .PRATYAHARA (Sense withdrawal): means **withdrawing our senses** from the outside world — like turning the volume down on distractions. It's the practice of **focusing inward** by calming the senses (sight, sound, touch, etc.), so we can prepare the mind for deeper concentration and meditation. It's like a **turtle pulling its head and limbs inside its shell**— we disconnect from the noise around us and connect with our inner self as senses pull a person towards external desire of objects.

Simple Thought: *"Silence outside, peace inside."*

3.2.7: DHARANA (Concentration): Dharana means **concentration** — holding the mind steady on **one object, thought, or sound**. It's like training your brain to stay still, just like a camera focusing sharply on one subject.

This practice helps improve **memory, attention, and inner calm**. By focusing on one thing — like your breath, a candle flame, or a mantra — the mind becomes sharp and quiet, preparing for deep meditation.

Simple Thought: *"When the mind is focused, everything becomes clear."*

3.2.8: DHYANA (Meditation): Dhyana means **meditation** — a peaceful state where the mind stays focused **without any distractions**. It is like a deep, calm flow of awareness where we feel connected, peaceful, and still inside. In this stage, we don't just try to concentrate — we **naturally stay focused**, without effort. It helps reduce stress, increase clarity, and bring **inner peace**.
Simple Thought: *"A quiet mind is a peaceful heart."*

3.2.9: SAMADHI (Total Absorption): Samadhi is the final stage of yoga where the mind becomes **completely absorbed** in the object of focus. In this state, the person experiences **deep peace, joy, and unity** with the true self — beyond thoughts, ego, or identity.
It's like a drop of water merging into the ocean — **no separation, just oneness**. This is the ultimate goal of yoga: complete harmony of body, mind, and spirit.
Simple Thought: *"In Samadhi, we don't think peace — we become peace."*

3.3.1: INTRODUCTION TO YOGIC KRIYA (Shat Karma):

1.MEANING:

SHATKARMA – The Six Cleansing Techniques in Yoga

Shatkarma (also called **Shatkriya**) is a set of **six special cleansing practices** in Yoga. The word comes from Sanskrit — **"Shat"** means *six* and **"Karma"** means *action*. These were used by ancient Hatha Yogis to **cleanse the body from the inside** before doing advanced yoga like Asanas and Pranayama.

These six actions help **purify important body systems** like the digestive system, lungs, nose, eyes, and intestines. This keeps the body healthy, balanced, and disease-free.

In Yoga and Ayurveda, health depends on a balance of **Vata, Pitta, and Kapha** — the **three doshas**. When these are out of balance, diseases happen. **Shatkarma helps restore this balance.**

The **6 cleansing techniques** are:

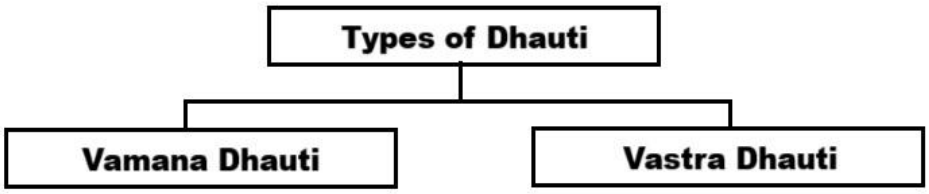
Shatkarma -
1. **Kaphalabhati** (Purification of frontal lobes/fore head region and lungs)
2. **Trataka** (Cleansing and strengthening of the eyes)
3. **Neti** (Nasal cleaning of Nasal passage)
4. **Dhauti** (Cleansing of Digestive Track)
5. **Nauli** (massages and tones abdominal muscles)
6. **Basti** (Cleansing of Large Intestine)

Simple **Thought**: *"Clean body, calm mind, healthy life."*

1. **DHAUTI: CLEANSING OF DIGESTIVE TRACT Dhauti** means **washing or cleansing**. It is the first and most important Shatkarma used to **clean the digestive system**, especially the **stomach and food pipe**. It helps remove **undigested food, toxins, and harmful substances** from the body.

Benefits:

- Improves digestion
- Removes acidity and gas
- Clears toxins and boosts energy



(a) VAMANA DHAUTI: – Stomach Cleansing (Kunjal Kriya)

Vamana Dhauti, also known as **Kunjal Kriya**, is a yogic method used to **clean the stomach and food pipe** by drinking warm water and gently **vomiting it out**. It helps remove **excess mucus, acidity**, and **toxins**.

Technique :-

1. Sit in a **squatting** position.
2. Drink **warm water quickly** until your stomach feels full.
3. Hold the water for a moment – don't vomit right away.
4. Lean forward slightly and press the stomach gently to **vomit the water out**.
5. Rest a bit and **repeat** until the water is fully released.

Precautions

- Drink **enough water**.
- Stay **calm and relaxed**.
- Drink water **quickly** to get the best result.

Who should NOT do it?

- People with **high blood pressure**
- Anyone with **heart problems, stroke history, hernia, peptic ulcer, or diabetes**

Benefits

- Clears acidity and indigestion
- Detoxifies the stomach

- Refreshes and energizes the body

(b) VASTRA DHAUTI: – Cloth Cleansing Technique --Vastra Dhauti is a yogic method where a **thin, clean cloth** is swallowed slowly and later pulled out. It helps **clean the food pipe and stomach lining**, removing **mucus and toxins**. It's done **under expert supervision only**.

Technique

1. Sit in a **comfortable position**.
2. Take a **clean, smooth cotton cloth** (around 1.5 to 2 meters long).
3. Dip the cloth in **warm water** to soften it.
4. **Slowly swallow** the cloth bit by bit, leaving a small part outside.
5. After a few minutes, **gently pull it out**.

Precautions

- should be done **only under the guidance** of a trained yoga teacher.
- The cloth must be **clean and sterilized**.
- Practice on an **empty stomach**.

Who should NOT do it?

- People with **digestive problems, high BP, or heart issues**.
- Anyone who feels **afraid or uncomfortable** with the practice.

Benefits

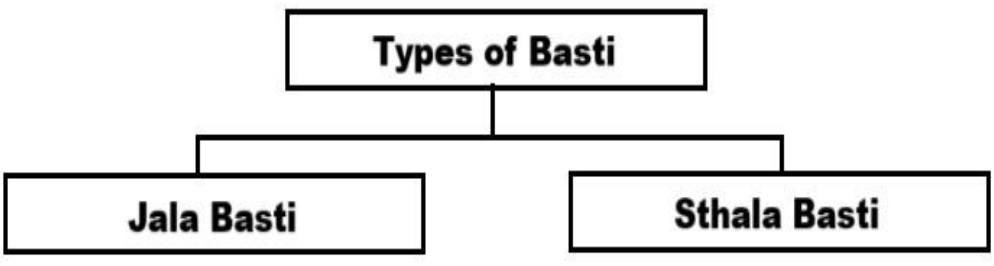
- Cleans the **food pipe and stomach**
- Helps in removing **excess mucus**
- Improves **digestion and appetite**

2. BASTI – Cleansing of the Large Intestine

Basti is the second practice in the sequence of *Shatkarma* (the six purification techniques in Hatha Yoga). It plays a vital role in treating nearly 50% of abdominal ailments. This yogic practice focuses on purifying the **colon (large intestine)**—a central organ responsible for nourishing various tissues in the body.

Types of Basti

Basti is broadly categorized into two types based on the procedure:



1. **<u>JALA BASTI & STHALA BASTI:</u>** In this method, **water is drawn into the colon through the anus**. The practitioner uses **abdominal muscle control** to retain and churn the water within the intestines, which helps dislodge waste materials. After sufficient churning, the water is expelled naturally.

Techniques, Benefits, Precautions & Contraindications

Technique:-

Jala Basti (Water Basti):

1. Sit in a **tub filled with clean water**, ideally at room temperature.
2. Bend forward, placing both **hands on the knees** in a stable posture.
3. **Draw water into the colon** through the anus using abdominal muscle control (aided by Nauli and Uddiyana Bandha).
4. **Retain the water** for a short period while gently churning the abdomen.
5. **Expel the water** naturally through the anus.
6. Repeat the process until the **bowels are fully cleansed**.

2. **<u>Sthala Basti (Dry/Air Basti):</u> Sthala Basti** (*Dry Basti or Air Basti*):
   This variation involves drawing **air instead of water** into the colon. Though less common, it similarly involves churning with abdominal muscles and helps stimulate intestinal function and removal of toxins.

- The technique is similar to Jala Basti, but instead of water, **air is drawn in** through the anus.
- Abdominal churning and breath control are used to manipulate and eventually expel the air, which helps massage and cleanse the intestines.

Benefits

- Stimulates and strengthens the **digestive system**.
- Balances the **three doshas**: *Vata, Pitta,* and *Kapha*.
- Deeply **cleanses the entire colon**, removing accumulated waste and toxins.
- Helps relieve issues like **constipation, gas, bloating**, and can support clarity of mind and emotional balance.

Precautions

- Avoid if suffering from **high blood pressure**, **hernia**, or **severe digestive disorders**.
- Perform **only in the morning** on an **empty stomach**.
- After the practice, **wait for 72 minutes** before consuming any food.
- Prior knowledge of **Nauli Kriya** and **Uddiyana Bandha** is essential.
- Use a **sterile catheter tube** for Jala Basti (if not using yogic suction technique), and ensure water is **pure and at body temperature**.
- Avoid practicing during **cloudy, windy, rainy, or stormy weather**.

Contraindications

- **Not recommended** for individuals with:
  - **Hernia**
  - **High blood pressure**
  - **Severe digestive issues**, such as ulcers or chronic colitis
- Should not be practiced during **pregnancy** or during recovery from major illness or surgery.

Top of Form

NETI - Nasal Cleansing (Shatkarma)

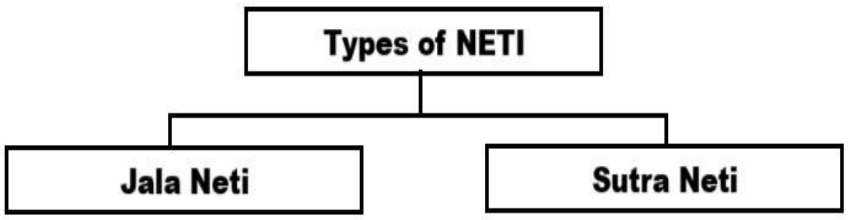
Neti is one of the six important yogic purification techniques known as **Shatkarmas**, and it focuses on **cleansing the nasal passages**. You might wonder – why is cleaning your nose so important?

There are different types of Neti, such as:

- **Jala Neti** – cleansing with warm salt water using a Neti pot.
- **Sutra Neti** – using a soft rubber or cotton thread to clear deeper nasal pathways.

By practicing Neti, you are not just cleaning your nose – you're **clearing the path to better health, energy, and peace of mind**.

Bottom of Form



The two types of Neti:-

Jala Neti – Nasal Cleansing with Water:

Jala Neti is a simple and powerful yogic technique that uses **warm salty water** to cleanse your nostrils. It helps you breathe better by flushing out dust, mucus, and allergens from your nasal passages using a **Neti pot** – a small teapot-like device.

How to Do It (Technique):

1. **Make the Solution**: Mix **½ teaspoon of salt** in **1 cup of warm water** (like body temperature).
2. **Fill the Neti Pot**: Pour the solution into the pot.

3. **Insert the Spout**: Gently place the spout into one nostril so it's sealed.
4. **Tilt Your Head**: Lean your head slightly forward and to one side. Let the water **flow in through one nostril and out the other**.
5. **Mouth Breathing Only**: While the water flows, **breathe through your mouth** only. Don't sniff or swallow.

Benefits:

- Clears nasal blockages and **improves breathing**
- Helps with **allergies**, colds, and **sinus problems**
- Reduces **post-nasal drip**
- Boosts your body's **resistance to infections**
- Supports mental clarity and even helps with some **digestive and menstrual** issues

Precautions:

- Always do it **under expert guidance**, especially when starting
- Begin with Jala Neti before trying more advanced techniques like Sutra Neti.

Avoid If:

- You have **persistent nose bleeds**
- You're not under the supervision of a trained instructor

(B) SUTRA NETI – NASAL CLEANSING WITH A THREAD:

Sutra Neti is an **advanced nasal cleansing** technique where a **thin, soft waxed thread** or **rubber catheter** is passed through the nose and taken out from the mouth. This helps clean deeper parts of the nasal cavity.

How to Do It (Technique):

1. **Take the Thread/Catheter**: Use a clean, soft thread or rubber catheter.
2. **Insert Carefully**: Gently push it into one nostril. Go slowly.
3. **Reach the Throat**: Once it touches the back of your throat, open your mouth.
4. **Pull through Mouth**: Use your fingers to grab the end from your throat and pull it partially out.
5. **Massage Motion**: Hold both ends and move the thread back and forth to clean the passage.
6. **Remove Gently**: Carefully pull it out from the nose.
7. **Repeat on other Side**

Benefits:

- Cleans deep inside the nose
- Helps with **allergies**, **asthma**, and **rhinitis**
- Can relieve **headaches**, **migraines**, and **sinus issues**
- Improves overall **nasal hygiene**

Precautions:

- Must be done **only after mastering Jala Neti**

- Always perform under a trained yoga teacher's guidance
- Be **very gentle** to avoid damaging sensitive nasal tissues

1. TRATAKA – CLEANSING OF EYES:

What is Trataka?
Trataka is a yogic cleansing technique and one of the **Shatkarmas** (six purification practices) in yoga. It involves **fixing your gaze on a single point or object** without blinking for a specific time. Trataka doesn't just clean the eyes – it also helps calm the mind and improve **concentration, focus, and inner awareness**.

When practiced regularly, Trataka can improve your **vision**, boost **memory**, and help you **stay mentally sharp and peaceful**.

Types of Tratak

(a) Internal Trataka:

- In this type, you focus your attention **inward**, usually on the **Trikuti (third eye)** – the spot between your eyebrows.
- You close your eyes and visualize a point of light or an image at the third eye area.
- **Purpose**: Helps to activate the **Ajna Chakra**, or the third eye, which is believed to enhance intuition, mental clarity, and spiritual awareness.

(b) External Trataka :

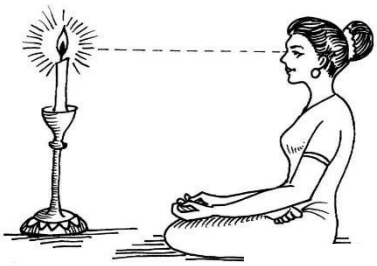
- Here, you focus your eyes on an **external object** without blinking.
- Common objects include:
  - A **candle flame**
  - A **black dot on a white wall**
  - A **symbol**, **flower**, or anything peaceful that holds your attention
- **Purpose**: Improves **eye strength**, reduces eye strain, and **clears mental distractions**. It also boosts concentration and can prepare your mind for deeper meditation.

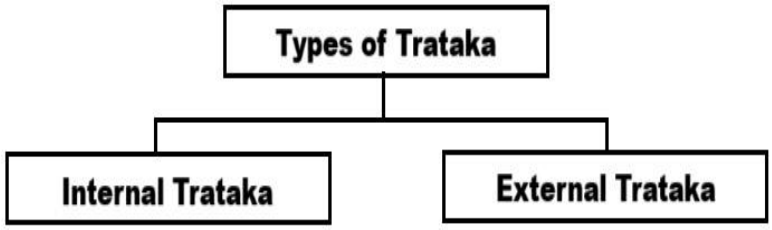
Benefits of Trataka : Strengthens and **cleanses the eyes**

- Improves **vision and focus**
- Sharpens **memory and mental clarity**
- Helps with **insomnia and anxiety**
- Develops **concentration** and prepares the mind for **meditation**
- Activates the **Ajna (third eye) chakra**

Precautions

- Do not strain your eyes – take breaks if needed.
- Avoid Trataka if you have serious **eye conditions** like glaucoma or recent eye surgery.
- Best practiced under the **guidance of a trained yoga instructor**, especially in the beginning.





NAULI - ABDOMINAL MASSAGE: **Nauli – Abdominal Cleansing & Massage :**

What is Nauli?

Nauli is a powerful **yogic cleansing technique** (Shatkarma) that involves the **movement and control of the abdominal muscles**. It's like giving your internal organs a deep massage – naturally and without using your hands!

The goal of Nauli is to **stimulate the digestive fire** (called *Agni* in yoga), which helps improve digestion, increase appetite, and keep your internal organs strong and healthy. It involves rotating or isolating the **abdominal muscles**, especially the **rectus abdominis** (the "abs"), in specific directions.

types of Nauli

1. **Madhya Nauli (Central Nauli)**
    - The abdominal muscles are pulled and held **in the center** along the middle line (called the **linea alba**).
    - Helps in **overall activation** of the digestive organs.
2. **Vama Nauli (Left Nauli)**
    - The muscles are moved and isolated **toward the left side** of the abdomen.
    - Especially activates the **organs on the left** side like part of the intestines and spleen.
3. **Dakshina Nauli (Right Nauli)**
    - The abdominal muscles are shifted **toward the right side**.
    - Helps stimulate **liver, gall bladder**, and organs on the right side.

Technique:

(i) legs apart and stand straight.
(ii) Take breaths through the nose.
(iii)Bend forward and exhale through your mouth while keeping back straight.
(iv)Keep both your hands on thighs and bend your knees a little.
(v) To produce a suction effect inside the abdominal cavity, muscles along the sides of the

abdomen should be drawn.

(vi) When you want to inhale, stand straight and take a deep breath. Repeat this process 5-6 times or for as long as the abdominal muscles can.

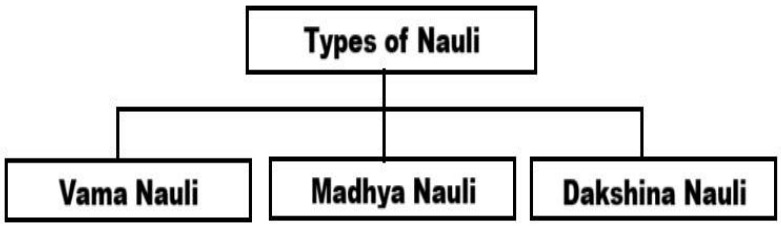
(vii) central abdomen can be moved in different directions and a circular movement after the kriya has been practiced for some time

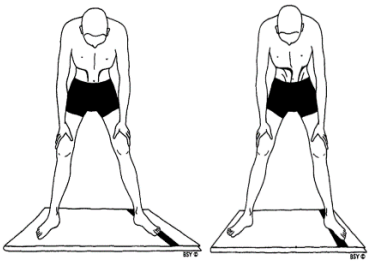
Benefits of Nauli

- Boosts **digestion and appetite**
- Massages and strengthens **internal organs**
- Balances the **nervous and hormonal systems**
- Improves **core strength** and tones abdominal muscles
- Prevents **constipation, acidity**, and other digestive issues
- Builds **willpower and focus** through deep control of body and breath

Precautions

- Nauli should only be practiced **on an empty stomach**
- Always learn it under the **guidance of an expert** – it's an advanced practice
- Not suitable for people with **abdominal injuries**, hernia, ulcers, or during **pregnancy**
- Beginners should first master **Uddiyana Bandha** (abdominal lock) before trying Nauli





2. KAPALABHATI – PURIFICATION OF FRONTAL LOBES AND LUNGS :

What is Kapalabhati?

Kapalabhati is the **sixth and final Shatkarma** in yogic cleansing techniques. The name comes from two Sanskrit words:

- **"Kapala"** means **skull or forehead**, and **"Bhati"** means **shining or illuminating**. So, Kapalabhati literally means **"Skull Shining Breathing."** It is a **breathing technique** that helps purify the **lungs, sinuses, and frontal brain region**, while also increasing energy, focus, and inner clarity.

Technique (Step-by-Step):

1. **Sit in Sukhasana** (easy cross-legged posture) with a straight spine.

2. Take a deep breath in.
3. **Forcefully exhale** by quickly pulling your **navel in toward the spine**. You'll feel the air pushed out.
4. Allow the **inhalation to happen naturally** – no effort.
5. Repeat this **10 quick breaths** in a row (this is 1 round).
6. After one round, breathe normally and notice how your body feels.
7. Repeat this **3 to 4 rounds** for full effect

Benefits of Kapalabhati

- Improves **blood circulation**
- Enhances **digestion** and nutrient absorption
- Helps in **weight loss** by speeding up metabolism
- Clears **Nadis** (energy channels)
- Calms and **clears the mind**
- Improves **lung and respiratory function**
- Treats **sinus infections**, asthma, and **acidity**
- Even supports in reducing **hair loss** and improves overall vitality

Precautions

Avoid if you have:

- High blood pressure
- Heart conditions or stroke history
- Epilepsy or serious lung disorders

Women should avoid during:

Menstruation

Pregnancy

- People with **ulcers**, or excessive mucus/fat should practice with care
- Always learn under **expert supervision**, especially if you're new

Contraindications

- **Pregnant women** must not practice Kapalabhati.
- **People with high blood pressure** should not increase the speed or intensity.

PURPOSE AND SIGNIFICANCE OF SHATKARMA IN YOGA SADH

Shatkarma refers to the **six yogic cleansing techniques** practised in **Hatha Yoga**. These powerful practices help prepare the body and mind for higher levels of yoga like **asana (postures), pranayama (breath control)**, and **meditation**. Shatkarma works like an inner purification system — just as we clean our outer body daily, these techniques clean our **internal body systems**.

Conclusion

The six Shatkarma techniques were designed by ancient **Hatha Yogis** as a complete system to **cleanse, balance, and prepare** the body and mind. These techniques make you feel lighter, sharper, healthier, and ready to progress in yoga.

Bottom of Form

These six cleansing processes are excellent practices designed by Hatha Yogis to purify the whole body and to get good health.

IV. PRANAYAMA AND ITS TYPES:

The word **Pranayama** is made up of two Sanskrit words:

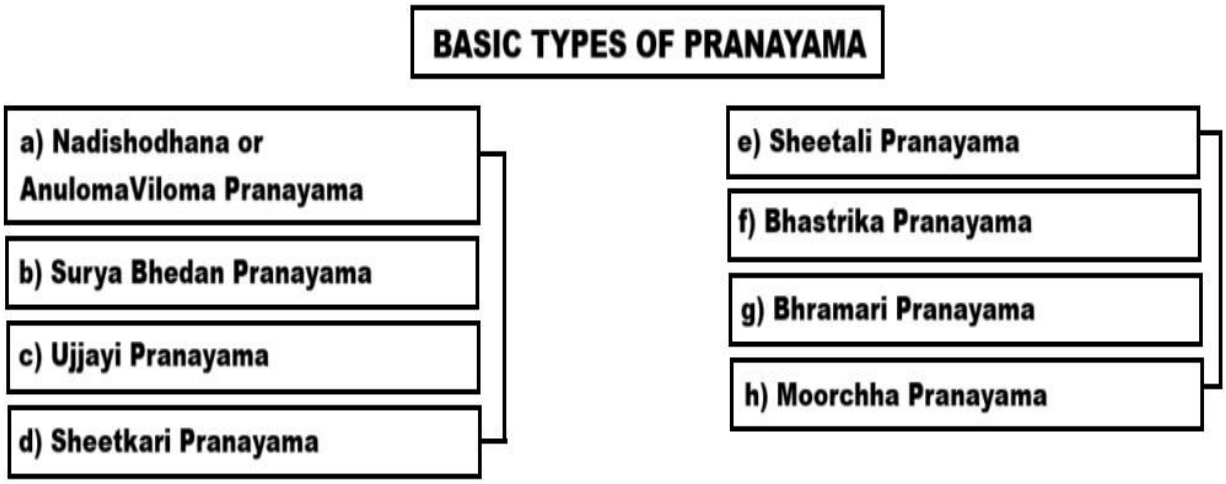
- **Prana** – means **vital energy** or **life force**, which flows through every living being.
- **Ayama** – means **expansion**, **stretching**, or **control**.

So, **Pranayama** is not just about breathing – it's about **expanding and regulating the life force** through controlled breathing techniques. It helps balance the body, mind, and emotions, and prepares a person for **meditation and higher spiritual practices**.

Importance of Pranayama

- Boosts **physical health** by improving oxygen supply.
- Helps in **mental relaxation** and **stress reduction**.
- Balances the **nervous system** and **hormonal functions**.
- Enhances **concentration**, **awareness**, and **emotional control**.
- Prepares the mind for **meditation and spiritual growth**.

2. TYPES OF PRANAYAMA:



(a) Nadishodhana or AnulomaViloma Pranayama (Alternate Nostril Breathing):

Technique:

- Sit in a comfortable position with your spine straight.
- Close the right nostril with your thumb, inhale through the left nostril.
- Close the left nostril with your ring finger, exhale through the right.
- Then inhale through the right, and exhale through the left.
- This is **one round**. Repeat for 5–10 rounds.

Benefits:

- Balances left and right brain.
- Reduces stress and anxiety.
- Improves concentration.
- Purifies the nervous system.

Contraindications:

- Avoid if you have a cold or blocked nostrils.
- Do not force the breath.

(b)Surya Bhedan Pranayama (Vitality Stimulating Breath):

- "Surya" = Sun ☼ (symbol of energy and heat)
- "Bhedan" = To pierce or activate
  This pranayama activates the **right nostril**, which is connected to the **Pingala Nadi**—the energy channel that increases **heat, vitality, and alertness** in the body

Technique – Step by Step (Two Methods)

Technique 1 – Basic Version *(Beginner Friendly):*

1. Lie down in a relaxing pose or sit comfortably with your back straight.
2. Rest your hands on your knees in **Chin Mudra** (thumb and index finger together).
3. Close your eyes and relax your body fully.
4. Breathe naturally until your breath becomes slow and deep.
5. Now form the **Nasagra Mudra** with your right hand (thumb on right nostril, ring finger on left).
6. Close the **left nostril** with your **ring finger**.
7. Slowly **inhale through the right nostril**.
8. Then **exhale slowly through the same (right) nostril**, keeping the left nostril closed.
9. This completes **one round**. You can do **5–10 rounds**.

Focus on calm breathing. Avoid rushing!

Benefits of Surya Bhedan Pranayama :

🔷 Benefit	What it means for students
🔥 Generates inner heat	Keeps the body warm and energetic
⚡ Activates "Pingala Nadi"	Boosts alertness, motivation, and brain power
🧠 Increases mental clarity	Helps with studying, thinking, and speaking
😊 Fights laziness and sadness	Great for students feeling tired or low
🎯 Prepares for meditation	Makes your mind calm and focused before yoga or exams

Contraindications (Who Should Avoid It):

🚫 Do **NOT** practice Surya Bhedan Pranayama if you have:

- ♡ **Heart disease**
- ☑ **High blood pressure (hypertension)**
- ⚡ **Epilepsy**
- 🔥 **Hyperthyroidism**
- 🩺 **Ulcers or acidity**
- 😰 **Severe anxiety or panic issues**

👉 *Always practice under guidance if unsure.*

(C) Ujjayi Pranayama (The Psychic Breath)

🧘 *Calms the mind, soothes the nerves, and improves sleep*

- **"Ujjayi"** means *"victorious"* or *"expanding"* breath.
- It is called the **psychic breath** because it creates calmness in both **body and mind**, especially at a **deeper mental level**.

Technique – Step by Step :

✔ How to Practice:

1. Sit in a comfortable meditation posture (like Sukhasana or Padmasana).
2. Close your eyes and relax your body completely.
3. Focus on your **natural breath**—let it become slow and steady.
4. Now shift your attention to your **throat area**.
5. **Imagine** that you are breathing in and out **through the throat**, not the nose.
6. **Slightly contract** the back of your throat (glottis) to make a **soft snoring sound**, like a **baby sleeping**.
7. The breath will sound like a **gentle ocean wave** or **whisper**.

8. Inhale and exhale **slowly, deeply, and evenly**.
9. Focus on the **sound** of your breath—it should be **smooth and steady**.

No force or tension. Let your abdomen move naturally.

✅ Benefits of Ujjayi Pranayama

Benefit	Why it's great for students
Deep relaxation	Reduces exam stress and overthinking
Helps with sleep	Best for students facing **insomnia**
Slows heart rate	Calms down anxiety and high blood pressure
Warms the body	Increases internal energy gently
Soothes the nervous system	Great before meditation or studies

Ideal for night-time practice or before meditation.

⚠ Contraindication – Who Should Avoid It?

- ✕ People who are **too introverted** or mentally withdrawn should **not** practice Ujjayi often, as it can make them **even more inward-focused**.

Always balance with active practices like Surya Bhedana if needed.

d) Sheetkari Pranayama – Hissing Breath

✔ Technique:

1. Sit comfortably and relax your body.
2. Gently **clench your teeth** together and **separate your lips** so the teeth are visible.
3. **Inhale slowly** through the teeth – a **hissing sound** will be produced.
4. **Close your mouth** after inhalation.
5. **Exhale gently** through the nose.

Awareness: On the hissing sound and the cool feeling of air.

✅ Benefits:

- Good for **mouth, tongue, and throat** problems.
- Supports **digestion** and **spleen health**.
- Helpful for **high blood pressure** and **hot weather**.
- Relieves **dental issues** like **pyorrhoea**.

⚠ Contraindications:

- People with **sensitive teeth**, **dentures**, or **missing teeth** should practice **Sheetali** instead.

(e) Sheetali Pranayama – Cooling Breath

✔ Technique:

1. Sit in a comfortable meditative posture.
2. Roll your tongue into a tube and stick it out slightly.
3. **Inhale slowly** through the rolled tongue – a **sucking sound** is heard.
4. **Withdraw the tongue**, **close the mouth**, and **exhale through the nose**.

🎧 **Awareness**: On the cool feeling on the tongue and roof of the mouth.

☑ Benefits:

- Cools the body and **controls body temperature**.
- Calms the **mind and emotions**.
- Reduces **hunger and thirst**.
- Aids in **better sleep** and **relaxation**.

⚠ Contraindications:

- Avoid if you have **low BP**, **asthma**, **bronchitis**, or **constipation**.
- Not recommended in **winter** or **cold weather**.
- People with **heart illness** should not hold breath during this practice.

(f) Bhastrika Pranayama – Bellows Breath 🔥👊

✔ Technique:

1. Sit straight. Take a **deep breath in** and **forcefully exhale** through the nose.
2. Inhale again with force.
3. Repeat fast, deep breaths using the **abdomen and diaphragm**.
4. Do **10 quick rounds** to complete one cycle.

🎧 **Awareness**: On **strong breath movement** and energy in the body.

☑ Benefits:

- Cleanses lungs and **improves digestion**.
- Increases **oxygen supply** and energy.
- Strengthens **abdominal muscles**.

- **Energizes body and calms the mind**.

⚠ Contraindications:

- Not for people with **heart problems**, **BP issues**, **pregnancy**, **eye conditions**, **fever**, or **vertigo**.

(g) Bhramari Pranayama – Humming Bee Breath 🐝🎵

✔ Technique:

1. Sit in padmasana or siddhasana, spine straight.
2. Close your eyes and relax.
3. Close ears using your fingers or ear flaps.
4. Inhale deeply and **hum like a bee** while exhaling (mouth closed).
5. Feel the **vibration in your head**.

🎧 **Awareness**: On the **humming sound** and **calmness within**.

☑ Benefits:

- Reduces **stress, anger, anxiety**, and helps **insomnia**.
- Enhances **concentration** and **voice clarity**.
- Induces a **meditative state** and balances emotions.

⚠ Contraindications:

- Avoid if you have a **serious ear infection**.
- Do not practice while **lying down**.

(h) Moorchha Pranayama – Fainting or Swooning Breath 😵🐟🧘

✔ Technique:

1. Sit in padmasana or siddhasana.
2. Practice **Khechari Mudra** (tongue rolled back).
3. Inhale slowly with **Ujjayi breath** while tilting the head back.
4. Make **Shambhavi Mudra** (gazing at eyebrow centre).
5. Hold the breath inside as long as possible.
6. Exhale, bring head forward, and relax.

🎧 **Awareness**: On **lightness**, **calmness**, and **mental stillness**.

☑ Benefits:

- Helps **withdraw the mind** from distractions.
- Prepares for **deep meditation**.
- Reduces **stress, anger, and anxiety**.
- Boosts **mental peace and energy (prana)**.

⚠ Contraindications:

- Avoid if you have **heart disease**, **BP issues**, **epilepsy**, **neurological disorders**, or **fainting history**.
- Stop immediately if you feel too dizzy or lightheaded.

V. ACTIVE LIFESTYLE AND STRESS MANAGEMENT THROUGH YOGA:

1. MEANING OF ACTIVE LIFE STYLE: A **lifestyle** is the way a person lives — including their **daily habits, behaviors, choices**, and how they interact with their **physical, mental, social, and economic environment**.

Types of Lifestyle:

✅ **Healthy Lifestyle:** Involves good food, regular physical activity, positive thinking, and discipline.
❌ **Unhealthy Lifestyle:** Involves junk food, laziness, negative thinking, and irregular sleep or habits. 💡
Key Features of an Active Lifestyle:

Involves **regular physical activity** (like walking, cycling, yoga, dancing).
Encourages **positive social interaction**.

Supports **mental health** and emotional stability.

Helps maintain a **balanced diet** and **healthy sleep patterns**.

🎯 **Why is Active Lifestyle Important?**

- **Improves health and immunity.**
- **Reduces risk of diseases** like obesity, diabetes, and heart problems.
- **Boosts energy, confidence, and mood.**
- Helps to **manage stress effectively**.

Expert Quote: "Happiness refers to three paths or pursuits: the pleasant life, the engaged life, and the meaningful life."
— *Jeffrey Cherubini*

💬 This means: To truly be happy, we need **enjoyment**, **involvement**, and a **purpose** in life — all of which are supported by an **active and healthy lifestyle**.

Conclusion:

Your **lifestyle is in your control**! By choosing to live **actively**, you take a powerful step toward:

- **Better physical health**
- **Balanced emotions**
- **Longer life**
- And most importantly, a **happier and more meaningful life**

2.YOGIC PRACTICES FOR STRESS MANAGEMENT:

Yoga helps reduce stress by:

- **Relaxing the body and calming the mind**
- **Balancing the nervous system**, especially activating the **parasympathetic system** (the "rest and restore" system)
- **Improving breathing**, awareness, and control of emotions

Key Practices:

1. Omkara Chanting and Prayer

- Calms the mind and nervous system
- Reduces anxiety and improves concentration

---

2. Asanas (Yogic Postures)

Some Stress-Relieving Asanas:

Asana Name	Key Benefit	Avoid If
Padahastasana (Hand-to-foot pose)	Improves digestion, increases blood flow to brain	Back pain, high BP
Shashankasana (Hare pose)	Reduces pressure, calms endocrine glands	Backache, cervical issues
Paschimottanasana (Seated forward bend)	Tones abdomen, reduces anxiety	Slipped disc, sciatica

☑ Other helpful asanas:
Tadasana, Ardha Chakrasana, Bhujangasana, Gomukhasana, Makrasana, Savasana, etc.

3. Pranayama (Breathing Techniques)

Pranayama	Key Benefit	Avoid If...
Anuloma-Viloma	Calms mind, purifies breath	Generally safe
Bhastrika	Energizes and detoxifies	Heart issues, pregnancy
Bhramari	Reduces anxiety and anger	Ear infections, heart disease
Sheetali	Cools the body, relieves stress	Asthma, cold weather

4. Kriya: Kapalbhati

- Cleanses respiratory system
- Recharges the **nervous system**
- Useful for **fighting stress, fatigue, and depression**

5. Dhyana (Meditation)

- Releases **mental tension and emotional stress**
- Increases **clarity**, **focus**, and **self-awareness**
- Improves mood and helps to see problems with a **calmer mindset**

3. Components of Yogic Lifestyle for Stress Management:

Yoga promotes a balanced way of life through five components:

Component	Meaning	Role in Stress Management
Ahara	Food/Diet	Sattvik diet keeps mind calm and promotes positivity
Vihara	Relaxation/Rest	Balanced work-rest pattern reduces exhaustion
Achara	Conduct	Ethical and disciplined behavior brings peace
Vichara	Positive Thinking	Healthy thoughts reduce inner tension
Vyavahara	Actions/Behavior	Mindful actions lead to better relationships and stress control

Ahara (Diet in Yoga)

There are 3 types of food in yogic texts:

1. **Sattvik** – Pure, calming (e.g., fruits, milk, grains) ✅ *Recommended*
2. **Rajsik** – Stimulating (e.g., spicy food, coffee) ⚠ *May cause restlessness*

3. **Tamsik** – Dull and heavy (e.g., fried, stale food) ❌ *Avoid*

Sattvik food enhances:

- **Life span (Ayu)**
- **Strength (Bala)**
- **Health (Arogya)**
- **Happiness (Sukha)**
- **Mental clarity (Satva)**

Conclusion:

Yoga is not just exercise — it's a **complete lifestyle** that helps us:

- **Stay active**
- **Control stress**
- **Live healthier and happier lives**

👉 By practicing **asanas**, **pranayama**, **meditation**, and following yogic values, anyone can **manage stress effectively** in today's fast-paced world.

Guidelines Before Starting Yoga

- **Personal and Environmental Cleanliness:** Make sure both your body and the area around you are clean to promote a fresh and focused practice.
- **Stomach Condition:** Practice yoga on an empty stomach or allow sufficient time (about 3–4 hours) after a meal.
- **Bowel and Bladder:** Ensure these are emptied before beginning.
- **Comfortable Clothing:** Wear breathable, loose-fitting cotton garments to allow free movement.
- **Practice Surface:** Choose a flat surface and use a yoga mat, folded blanket, or similar material for comfort and safety.
- **Mental Preparation:** Refrain from practicing when feeling unwell, extremely tired, or mentally disturbed.
- **Medical Precautions:** If you have persistent health issues, are experiencing pain, or are pregnant, consult a healthcare provider before starting.

🧘 During the Yoga Session

- **Opening the Session:** Begin with a short prayer or chant to foster calmness and concentration.
- **Movement Technique:** Move gently and mindfully, being fully aware of your body and breathing.
- **Breathing Norms:** Breathe naturally through the nose unless a specific technique suggests otherwise. Avoid holding your breath unless clearly guided.
- **Avoid Force:** Don't push your body beyond comfort. Avoid abrupt or forceful motions.
- **Know Your Limits:** Practice according to your own capacity. Don't overdo it.
- **Be Consistent:** Regular practice is key to experiencing the full benefits of yoga.

- **Understand Restrictions:** Learn about any contraindications associated with the practices you're doing.
- **Closing Practice:** End your session with a period of meditation, quiet reflection, or a peace chant to settle the mind.

Post-Yoga Recommendations:

- **Delay Bathing:** Wait at least 20 to 30 minutes before taking a shower.
- **Wait Before Eating:** Allow 20 to 30 minutes after your practice before consuming food.
- **Deep Relaxation:** Include **Shavasana (Corpse Pose)** at the end to let the body and mind fully relax and integrate the effects of the practice.

Note: These guidelines are designed to ensure a safe and effective yoga practice, promoting physical and mental well-being.

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

Q1. What is the main goal of yoga?

A) Physical strength B) Spiritual development

C) Mental peace D) Integration of body, mind, and soul

Answer: D

Q2. Which of the following is a physical benefit of practicing yoga regularly?

A) Increase in ego B) Tension in muscles

C) Improved flexibility D) Lack of sleep

Answer: C.

Q3. Who is considered the father of modern yoga?

A) Swami Vivekananda B) Maharishi Patanjali

C) B.K.S. Iyengar D) T. Krishnamacharya

Answer: B.

Q4. Which of the following is a sitting asana?

A) Bhujangasana B) Padmasana C)Tadasana D) Shavasana

Answer: B.

Q5. What is the purpose of Shavasana (Corpse Pose)?

A) Strength building B)Mental alertness C) Complete relaxation D) Weight loss

Answer: C

Q6. Which of the following is not a component of yoga?

A) Yama B) Niyama C) Pranayama D) Gymnastics

Answer: D

Q7. Pranayama is associated with:

A)Diet control B)Postures C) Breathing techniques D) Meditation

Answer: C

Q8. Which yoga practice helps in improving concentration?

A) Surya Namaskar B) Trataka C) Dhanurasana D) Bhastrika
Answer: B.

Q9. Kapalbhati is a type of:
A) Meditation B) Yogasana C) Pranayama D) Chanting
Answer: C.

Q10. How many limbs (parts) of yoga are mentioned in Patanjali's Yoga Sutras?
A) 6 B) 8 C) 10 D) 4
Answer: B.

Q11. What does the term "Asana" refer to?
A) Breath control B) Body postures C) Self-discipline D) Cleansing techniques
Answer: B
Q12. Which of the following is a backward-bending asana?
A) Paschimottanasana B) Ardha Matsyendrasana C) Bhujangasana D) Halasana
Answer: C.

Q13. Which of the following is a benefit of yoga for students?
A) Decreased memory B) Increased anxiety
C) Improved concentration D) Physical exhaustion
Answer: C.

Q14. The Sanskrit term "Yoga" is derived from which root word?
A) Yuj B) Yog C) Yagna D) Yam
Answer: A
Q15. Which of the following yoga techniques is best for calming the mind?
A) Surya Namaskar B) Dhanurasana C) Meditation D) Kapalbhat

Answer: C

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

Q1.Which of the following is a forward-bending asana?
A) Bhujangasana B) Tadasana C)Paschimottanasana D) Ustrasana

Q2. What is the primary purpose of practicing Yama in yoga?
A) To improve digestion B) To control breathing
C) To build external discipline and moral values D) To strengthen muscles

Q3.Surya Namaskar is a combination of how many yoga postures performed in a sequence?
A) 8 B) 10 C) 12 D)14

Q4Which practice is used in yoga to purify the nasal passage?
A) Kapalbhati B) Trataka C) Neti D) Shavasana

Q5.Bhramari Pranayama is best known for its effect on:
A) Improving digestion B) Reducing anxiety and calming the mind
C) Strengthening leg muscles D) Enhancing liver function

VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

Q1. What is the meaning of the term "Yoga"?
The word "Yoga" is derived from the Sanskrit root 'Yuj', which means to unite or join. It signifies the union of the individual soul (Atma) with the universal soul (Paramatma).

Q2. What are the benefits of practicing yoga regularly?
Regular yoga practice enhances **physical flexibility**, improves **mental concentration**, reduces **stress**, and promotes **overall well-being** by balancing body and mind.

Q3. Name any two sitting asanas and their uses.
1. **Padmasana** – Used for meditation and improving posture. 2. **Vajrasana** – Helps in digestion and calming the nervous system.

Q4. What is the importance of Shavasana?
Shavasana (Corpse Pose) promotes **deep relaxation**, reduces **fatigue**, and helps the body absorb the benefits of the yoga session by calming the mind.

Q5. Name any two backward bending asanas**.**
1. **Bhujangasana** (Cobra Pose)

2.**Dhanurasana** (Bow Pose)

Q6. What is Pranayama?
Pranayama is the practice of **controlled breathing** that involves regulation of inhalation, exhalation, and retention of breath to enhance life energy (Prana).

Q7. What is the role of yoga in preventing lifestyle diseases?
Yoga helps prevent lifestyle diseases like **diabetes**, **hypertension**, and **obesity** by improving **metabolism**, reducing **stress**, and promoting **healthy habits**.

Q8. What is Asana?
Asana refers to a **physical posture** or **position** used in yoga. It helps in **developing strength, flexibility**, and **mental focus**.

Q9. What are Yama and Niyama in yoga?
Yama refers to moral restraints like non-violence and truth.
Niyama refers to personal observances like cleanliness and contentment.

10. How does yoga help improve concentration**?**
    Yoga practices like **meditation** and **Trataka** train the mind to stay focused, enhancing **mental clarity** and **concentration**.
11. VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

Name two cleansing techniques (Shatkarmas) in yoga.
12. What is the importance of warm-up before yoga practice?
13. Mention any two contraindications for yoga practice.:

14. How does yoga promote mental health ?

15. State any two precautions to be followed during yoga practice.

SHORT QUESTION SOLVED (3 MARKS)

1. What are the benefits of Kapalbhati Pranayama?
Kapalbhati helps in:

- **Cleansing the respiratory system**
- **Improving digestion and metabolism**
- **Reducing stress and mental tension**
  It energizes the brain and improves lung capacity through forceful exhalations.

2. Describe any three forward bending asanas with their benefits.

1. **Paschimottanasana:** Improves flexibility and relieves stress.
2. **Halasana:** Stimulates abdominal organs and thyroid gland.
3. **Padahastasana:** Increases blood circulation to the brain and strengthens thighs and calves.

3. What precautions should be taken while performing yoga asanas**?**

- Practice on an empty stomach.
- Perform asanas slowly without jerks.
- Do not force the body; work within your physical limits.
- Avoid during illness or injuries unless advised.

4. Differentiate between Asana, Pranayama, and Dhyana.

- **Asana:** Physical postures that improve body flexibility and strength.
- **Pranayama:** Breathing techniques to regulate life force (prana).
- **Dhyana:** Meditation that enhances focus and inner peace.

5. Write any three benefits of performing Surya Namaskar

- Improves **blood circulation** and **cardiovascular health**
- Enhances **muscle flexibility** and **posture**
- Boosts **mental focus** and **inner calm**

6. State three benefits of Vajrasana

- Improves **digestion** and reduces acidity
- Relieves **lower back pain**
- Enhances **posture** and strengthens the lower body

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

Q1. Explain the physical, mental, and spiritual benefits of practicing Dhyana (meditation)
Q2. Write a short note on the role of yoga in preventing obesity.

Q3. List three contraindications for performing Halasana and explain why they should be consider

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

1.The path of yoga is a flight of eight steps. Efficiency in Yoga is attained through step by step process. These are also known as eight elements of Yoga. They are for the individual to think about and ponder over with a rational mind, because yoga is not about mindlessly accepting externally imposed rules. It is about finding the truth for oneself and connecting with it.

On the basis of your knowledge of Elements of yoga answer the following questions.

(a) Which is the first element of Yoga?
Answer: Yama

(b) Which is the last element of Yoga?
Answer: Samadhi

(c) The last three limbs of Ashtanga Yoga are the essential stages of meditation: name them.
Answer: Dharana, Dhyana and Samadhi

(d) Name the five Yamas or code of conduct towards the outside world?
Answer: Yama , Niyama ,Asana , Pranayama and Pratyahara

Q3. Case Study:
A survey was conducted among 100 students regarding their preferred type of yoga. The following pie chart represents the percentage of students practicing each form:

- Hatha Yoga: 30%
- Ashtanga Yoga: 20%
- Pranayama: 25%
- Meditation: 15%
- Others: 10%

Q1. How many students practice Hatha Yoga?
Answer: 30% of 100 = 30 students

Q2. Which yoga form is preferred the least?
Answer: Others, with 10% of students

Q3. What is the difference in number between students who practice Pranayama and Meditation?
Answer: 25 - 15 = 10 students

✅ Solved Case-Based Question 2:

Case Study:
The pie chart below shows the distribution of benefits experienced by 120 people after 3 months of yoga:

- Improved Flexibility – 40%
- Better Sleep – 20%

- Reduced Stress – 25%
- Weight Loss – 10%
- Others – 5%

Q1. How many people experienced improved flexibility?
Answer: 40% of 120 = **48 people**

Q2. Which benefit was experienced by the second-highest number of people?
Answer: Reduced Stress (25%)

Q3. How many people experienced benefits other than flexibility and stress reduction?
Answer: 20% (Sleep) + 10% (Weight Loss) + 5% (Others) = 35%
35% of 120 = **42 people**

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Case Study:
A pie chart shows how 80 students divided their time during a one-hour yoga session:

- Asanas: 40%
- Pranayama: 25%
- Meditation: 20%
- Warm-up and Cooldown: 15%

Questions:

1. How much time (in minutes) was spent on Asanas?
2. Which activity took 12 minutes of the session?
3. What is the time difference between Pranayama and Meditation?

Q2. Rakesh is a good football player. He wants to improve his skills by doing some yogic exercises.
Based on this case study answer the following questions:

(a) Which yogic exercise is good for controlling the breathing ?
(b) Which asana reduces the negative emotions?
(c) _____ is the best asana to improve his concentration level.
(d)_____ Pranayama supports the body with oxygen and decontaminate the body.

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q1. Define Yoga. Explain its importance in modern life.

Yoga is derived from the Sanskrit word **'Yuj'**, meaning **union**. It refers to the union of the individual soul with the universal spirit. Yoga is a holistic discipline that includes physical, mental, and spiritual practices to achieve harmony and balance in life.

Importance in modern life:

- **Stress Management:** Yoga helps reduce stress and anxiety through meditation and pranayama.
- **Improves Health:** It enhances immunity, flexibility, strength, and lung capacity.
- **Mental Clarity:** Practices like Dhyana improve focus and decision-making.
- **Prevents Lifestyle Diseases:** Regular yoga prevents diabetes, obesity, and hypertension.
- **Promotes Mindfulness:** Encourages self-discipline and awareness in day-to-day life.

Q2. Explain the role of yoga in managing lifestyle-related disease

Yoga is highly effective in preventing and managing lifestyle disorders:

- **Diabetes:** Asanas and pranayama regulate insulin levels and reduce blood sugar.
- **Obesity:** Increases metabolism and supports weight loss through physical activity.
- **Hypertension:** Meditation and breathing help in blood pressure regulation.
- **Asthma:** Breathing techniques improve lung capacity and respiratory efficiency.
- **Depression and Anxiety:** Meditation and relaxation techniques promote emotional health.

Q3. What is Ashtanga Yoga? Describe its eight limbs in brief.

Ashtanga Yoga, as described by **Maharishi Patanjali**, refers to the **eightfold path** for spiritual growth and self-discipline. It includes:

1. **Yama** – Social ethics (e.g., non-violence, truth)
2. **Niyama** – Personal disciplines (e.g., cleanliness, contentment)
3. **Asana** – Physical postures for bodily strength and flexibility
4. **Pranayama** – Breath control for energy regulation
5. **Pratyahara** – Withdrawal of senses to turn inward
6. **Dharana** – Focused concentration on one object
7. **Dhyana** – Meditation, uninterrupted flow of concentration
8. **Samadhi** – Ultimate goal: complete absorption or blissful union with the divine

LONG QUESTIONS ANSWER FOR PRACTICE (5 MARKS

Q4. Describe the physiological benefits of yoga.

Q5. Explain any five sitting asanas with their procedure and benefits.

UNIT IV

PHYSICAL EDUCATION & SPORTS FOR CWSN

CONTENT

- Concept of Disability and Disorder
- Types of Disability, its causes & nature (Intellectual disability, Physical disability).
- Disability Etiquette
- Aim and objectives of Adaptive Physical Education.
- Role of various professionals for children with special needs (Counsellor, Occupational Therapist, Physiotherapist, Physical Education Teacher, Speech Therapist, and Special Educator)

LEARNING OBJECTIVES/LEARNING OUTCOMES IN RELATED TO DAILY LIFE.

- **Development of Motor Skills:**

  Adaptive physical education aims to improve gross motor skills like Ball Handling etc.
- **Enhanced Self-Confidence:**

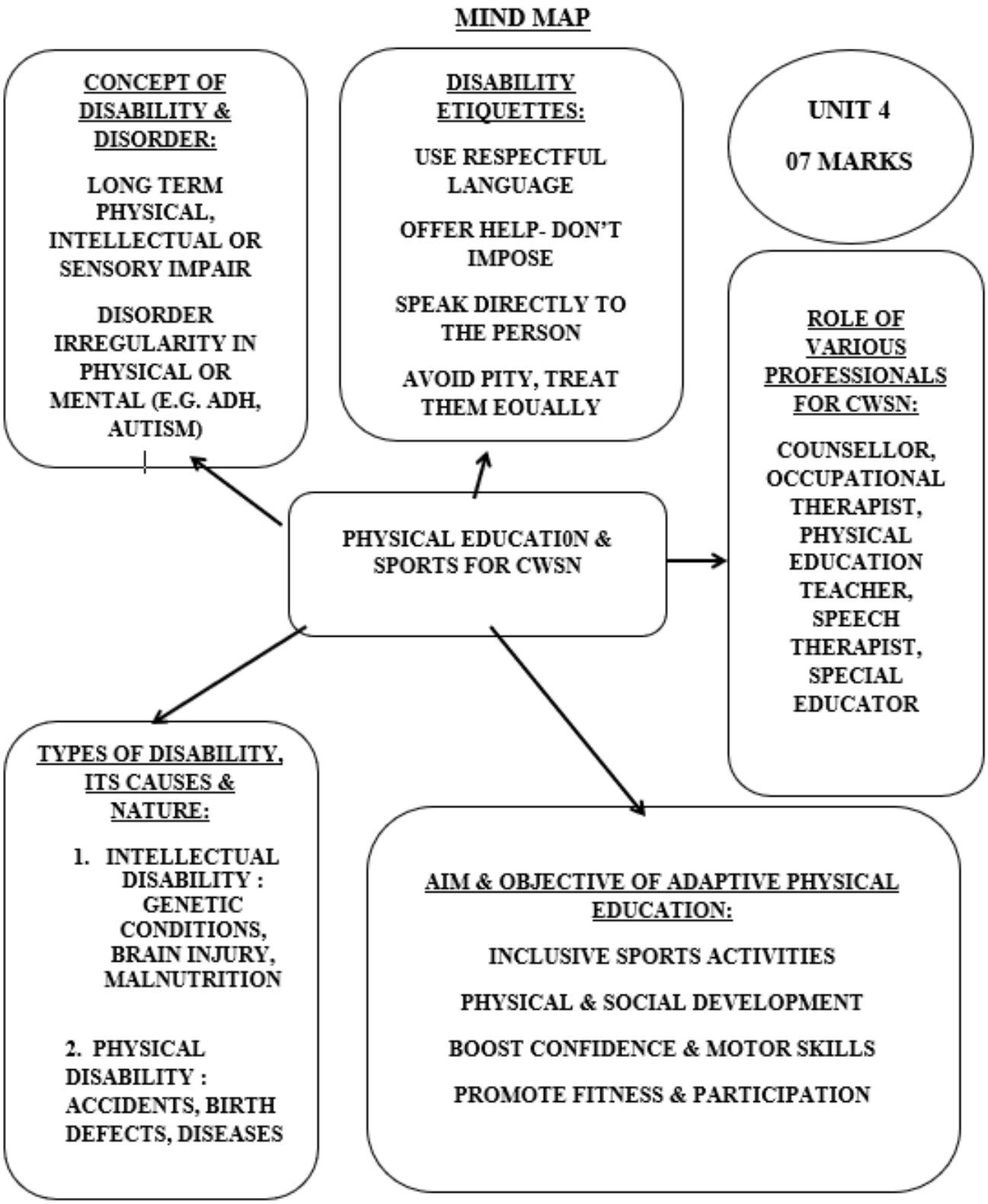
  Participation in physical activities can boost self-esteem and help students develop a sense of accomplishment.
- **Understanding of Rules and Strategies:**

  Students learn about the rules and strategies of various games and sports
- **Participation in Physical Activities:**

Students are encouraged to participate in a variety of physical activities, including recreational and leisure sports.

- **Understanding of Limitations:**

  Students develop an understanding of their physical and mental limitations and how to cope with the



CWSN (Divyank) CHILDREN WITH SPECIAL NEED

- Mental Retardation
- Deafness
- Speech or Language impairment
- Blindness
- Orthopedic impairment
- Autism
- Traumatic Brain Injury
- Poor body mechanics
- Various Impairments

Usually they have limited opportunities. It's important to include them with other children so that they get all the benefits of participating in Physical Education & Sports programmes

4.1 CONCEPT OF DISABILITY AND DISORDER

DISABILITY

- WHO- " A disability is a restriction or lack (resulting from impairment) of ability to perform an activity in the manner or within the range considered normal for a human being"
- A **disability** is a physical or mental condition that limits a person's movements, senses, or activities. It can be **congenital** (from birth) or acquired due to injury or illness.

TYPES OF DISABILITIES:

1. **Physical Disability** – Affects mobility (e.g., paralysis, cerebral palsy).

2. **Sensory Disability** – Affects senses (e.g., blindness, deafness).
3. **Intellectual Disability** – Affects cognitive functioning (e.g., Down syndrome).
4. **Learning Disability** – Affects ability to read, write, or understand (e.g., dyslexia).

DISORDER

A **disorder** is a disturbance in physical or mental health or functions. Unlike disabilities, disorders may not always be permanent and can be treated or managed.

Types of Disorders:

1. **ADHD (Attention Deficit Hyperactivity Disorder)** – Affects attention and self-control.
2. **Autism Spectrum Disorder (ASD)** – Affects communication and behavior.
3. **Oppositional Defiant Disorder (ODD)** – Involves hostile and defiant behavior.
4. **Sensory Processing Disorder** – Difficulty in processing sensory input.

4.2 TYPES OF DISABILITY, ITS CAUSES & NATURE (INTELLECTUAL DISABILITY, PHYSICAL DISABILITY)

TYPES OF DISABILITY

1. **INTELLECTUAL DISABILITY**

- Limitation in intellectual functioning-Reasoning, Learning & Problem Solving
- Limitation in adaptive behaviour- Emotions and thinking

Intellectual Disability: Nature and Causes

Nature of Intellectual Disability:

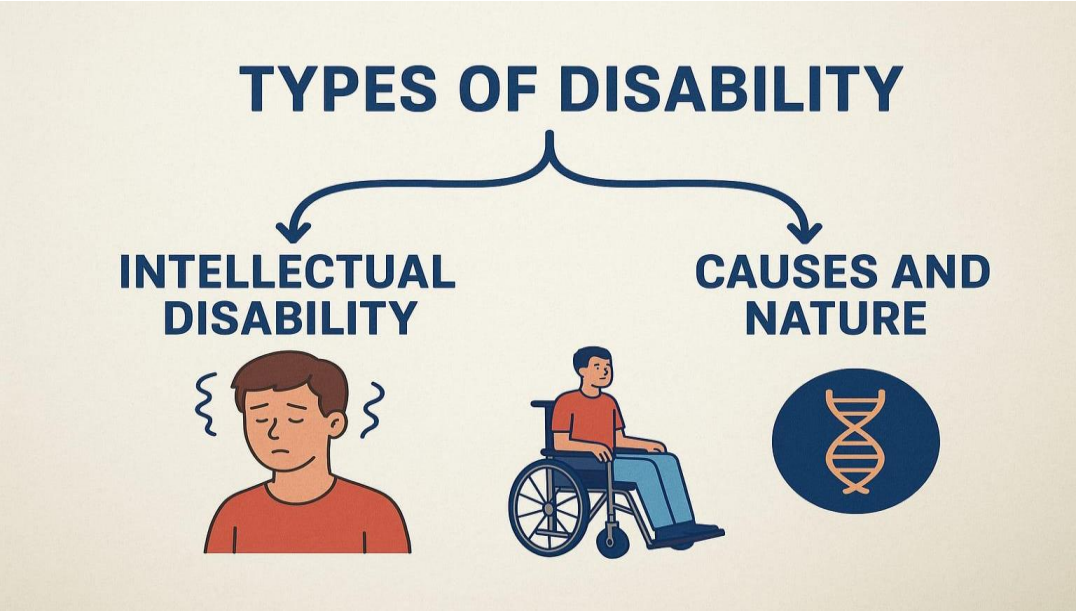
- Intellectual Disability (ID) refers to **limitations in intellectual functioning** (like reasoning, learning, and problem-solving) and **adaptive behaviour** (skills needed for daily living such as communication and self-care).
- It usually originates **before the age of 18**.
- Individuals with ID may have:
    - An **IQ below 70**.
    - Difficulty with academic learning.
    - Trouble with social and practical life skills.

Characteristics:

- Slower development of motor and language skills.
- Difficulty in understanding and remembering concepts.
- Lack of decision-making and problem-solving ability.
- Needs support for daily life activities.

Causes of Intellectual Disability:

1. **Genetic Causes:**
    - Inherited disorders (e.g., **Down Syndrome**, **Fragile X Syndrome**).
    - Chromosomal abnormalities affect brain development.
2. **Prenatal Causes (Before Birth):**
    - **Infections** during pregnancy (e.g., rubella, syphilis).
    - **Exposure to harmful substances** (alcohol, drugs, radiation).
    - **Malnutrition** of the mother.
    - **Brain development issues** in the foetus.
3. **Perinatal Causes (During Birth):**
    - **Premature birth** or **low birth weight**.
    - **Lack of oxygen** during delivery (birth asphyxia).
    - **Injuries to the brain** during birth.
4. **Postnatal Causes (After Birth):**
    - **Brain infections** (e.g., meningitis, encephalitis).
    - **Severe head injuries**.
    - **Poor nutrition**, environmental toxins (like lead).
    - Lack of stimulation and emotional support in early childhood.



2. PHYSICAL DISABILITY

- Limitation in individual's Physical functioning, mobility, dexterity or stamina.
- Also includes respiratory disorders, blindness, Epilepsy and sleep disorders.
- Might be Motor deficiency or sensory impairment

Physical Disability: Nature and Causes

Nature of Physical Disability:

- A **Physical Disability** is a condition that **limits a person's physical functioning**, mobility, stamina, or dexterity.
- It may affect the ability to move, coordinate muscles, or perform physical tasks.
- It can be **congenital** (from birth) or **acquired** due to injury or illness.

Common Features:

- Difficulty in walking, standing, or using hands/limbs.
- Limited strength, coordination, or endurance.
- May require assistive devices like wheelchairs, braces, or prosthetics.
- Does not necessarily affect cognitive abilities.

Examples of Physical Disabilities:

- **Poliomyelitis (Polio)**
- **Cerebral Palsy**
- **Amputation**
- **Spinal Cord Injury**
- **Muscular Dystrophy**

Causes of Physical Disability:

1. **Congenital Causes (from birth):**
    - Genetic disorders (e.g., muscular dystrophy).
    - Developmental abnormalities in the womb.
    - Birth defects due to poor maternal health or infections during pregnancy.
    - Lack of proper nutrition or exposure to harmful substances during pregnancy.
2. **Acquired Causes:**
    - **Accidents and Injuries:**
        - Road accidents, falls, sports injuries causing fractures, paralysis, or loss of limb.
    - **Diseases:**
        - Polio, arthritis, or bone tuberculosis can impair movement.
    - **Neurological Conditions:**
        - Stroke or brain injuries that damage the motor control areas.
    - **Environmental Causes:**
        - Lack of safety measures, exposure to toxins, or unsafe working conditions.

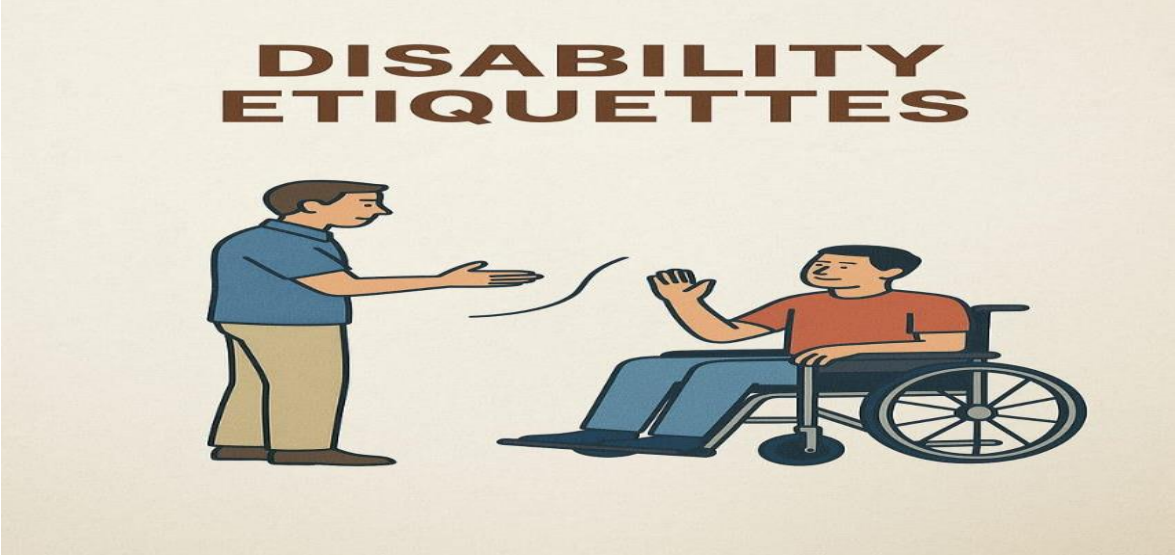
- **Medical Negligence:**
  - Improper treatment or errors during surgery.

4.3 DISABILITY ETIQUETTE

Disability Etiquette

Disability Etiquette refers to the **respectful and appropriate ways of interacting with people who have disabilities**. It promotes dignity, inclusion, and understanding while avoiding offense or discrimination.

Understanding disability etiquette is important for building an inclusive society and creating supportive environments in schools, workplaces, and public places.



Key Guidelines for Disability Etiquette:

1. Use Respectful Language:

- Use **"person-first language"** (e.g., "person with a disability" instead of "disabled person").
- Avoid negative or pitying terms like “crippled,” “handicapped,” or “suffering from.”

2. Ask Before Helping:

- Always **ask if someone needs help** before offering assistance.
- Don’t assume they can’t do things for themselves.

3. Speak Directly:

- Speak **directly to the person with the disability**, not to their interpreter, assistant, or companion.

4. Respect Personal Space and Assistive Devices:

- Do not touch a person’s **wheelchair, crutches, cane, or guide dog** without permission. These are part of their personal space.
- Never move assistive devices out of reach.

5. Be Patient and Listen Attentively:

- Be patient if the person has difficulty speaking, hearing, or understanding.

- Allow them time to express themselves fully.

6. Offer Choices and Independence:

- Let people make their own decisions.
- Support independence rather than doing things *for* them unnecessarily.

7. **Don't Stare or Make Assumptions:**

- Avoid staring or showing excessive sympathy.
- Do not assume someone's abilities or intelligence based on their disability.

Examples Based on Disability Types:

- **For Wheelchair Users:** Speak at eye level if possible. Don't push the chair unless asked.
- **For Hearing Impaired:** Use clear speech, face the person, and use gestures or writing if needed.
- **For Visually Impaired:** Identify yourself when you meet, and offer your arm for guidance if needed.

Importance of Disability Etiquette:

- Promotes **inclusion and equality**.
- Builds **self-esteem and confidence** in people with disabilities.
- Helps eliminate **social barriers and discrimination**.
-

4.4 AIM AND OBJECTIVES OF ADAPTIVE PHYSICAL EDUCATION

Aim

The chief aim of Adapted Physical Education (APE) is to provide every individual an opportunity to participate in Physical Education and sports and to make Physical

Education accessible to all as per their need.

Objectives

The main objectives of adapted physical education include

1. To create a program for Children With Special Needs (CWSN), Adapted Physical Education (APE) should be tailored to individual needs. This involves assessing the student on physical education parameters and designing a personalized plan. For example, a student with autism benefits from a structured schedule with clear timings, assigned trainers, defined activities, and visual aids to support learning and participation.

2. Adapted Physical Education (APE) helps **Children With Special Needs (CWSN)** stay functionally active throughout life by addressing their unique challenges such as movement restrictions, coordination issues, and cognitive or behavioral difficulties. APE trains the brain and body through structured activities, improving everyday skills. For example, a child with **Cerebral**

Palsy practicing hurdle-crossing learns balance, reflex control, and movement coordination with assistance, promoting long-term activeness.

3. A **safe and accessible Physical Education (PE) and sports program** must be tailored to individual needs, especially for **Children With Special Needs (CWSN)** who may face physical and psychological challenges. In **Adapted Physical Education (APE)**, the environment, instructions, and equipment are modified to ensure safety and inclusion. Special equipment and support are used, such as guided ropes for visually impaired students or lightweight gear for those with slower reaction times, making PE both safe and enjoyable for all.

4. Adapted Physical Education (APE) supports the **active participation and smooth transition** of **Children With Special Needs (CWSN)** into regular or integrated PE programs. Through individualized plans, APE promotes basic fitness, motor skills, and sports involvement based on the student's abilities. For example, a child with severe intellectual disability may participate passively with support, while a child with a mild disability may focus on learning specific sports skills like dribbling or swimming.

5. Adapted Physical Education (APE) helps build **self-esteem and self-image** in **Children With Special Needs (CWSN)** by enabling them to participate in activities and achieve success. When tasks are realistic and based on their abilities, success and recognition motivate them to set higher goals. For example, a student with a cognitive disability who succeeds in a sport experiences increased confidence and positive behavioral changes.

6. Adapted Physical Education (APE) promotes **regularity and discipline** in **Children With Special Needs (CWSN)** by encouraging consistent participation in physical activities, which fosters well-being and healthy habits. This routine helps manage challenges and supports overall development. For example, a child with **ADHD** benefits from regular sports by channeling energy positively, which can also improve focus and learning.

7. Adapted Physical Education (APE) helps promote **sportsmanship** in **Children With Special Needs (CWSN)** by teaching respect for rules, teammates, and fair play. Through participation in sports, students learn discipline, teamwork, patience, accepting outcomes, and showing appreciation for others. These values positively influence their behavior both on and off the field.

4.5 ROLE OF VARIOUS PROFESSIONALS FOR CHILDREN WITH SPECIAL NEEDS

Keeping in view the fact that Children with Special Needs form one of the largest groups that are still outside the fold of the general education system, Inclusive Education provides them with an opportunity to enter formal education. This makes it necessary for the school to employ various professionals such as school counsellor, occupational therapist, physiotherapist, etc., for CWSN. These professionals help and support children in achieving their full potential physically as well as academically, improve their motor skills, enhance their communication skills and in promote their mental as well as physical health. These professionals are as follows:

- A **School Counsellor** supports **Children With Special Needs (CWSN)** by helping them achieve academic, personal, social, and career goals through a comprehensive program. They work with parents, teachers, and the community to create a positive school environment and ensure coordinated support. Counsellors use individual and group sessions to develop students'

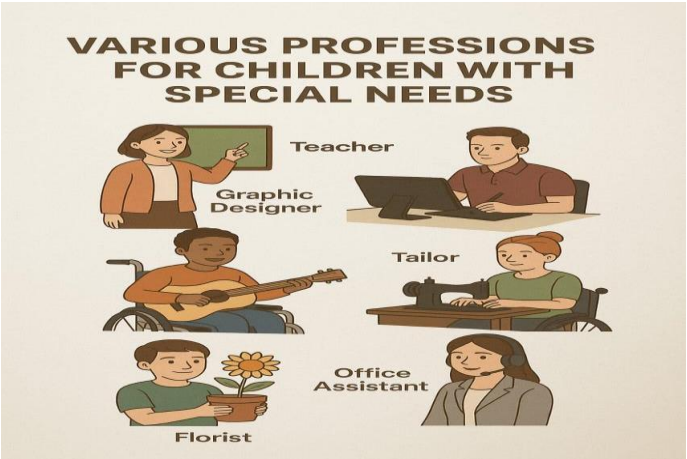
communication, decision-making, health awareness, self-confidence, career planning, and appreciation of diversity.

- A **Physiotherapist** helps **Children With Special Needs (CWSN)** improve and maintain physical abilities through exercises and therapies. They aim to enhance mobility, posture, balance, and reduce pain or fatigue. Their role includes assessing body mechanics, improving joint and motor movements, managing movement disorders, preventing physical deterioration, and using therapies like massage, exercise, hydrotherapy, and electrotherapy for rehabilitation.

- An **Occupational Therapist** helps **Children With Special Needs (CWSN)** develop **daily living skills**, **fine motor skills**, and **hand-eye coordination**. They train children in self-care tasks like dressing, writing, and playing, and use **sensory integration** techniques to manage sensory challenges and behaviors. A **Physical Education (PE) Teacher** supports CWSN by assessing their abilities and ensuring participation in general, modified, or specialized PE programs. They focus on improving **movement skills**, **sports abilities**, **social interaction**, and provide **psychological support** to build self-esteem and reduce stress or isolation.

- A **Speech Therapist** helps **Children With Special Needs (CWSN)** improve their **communication skills**. They support students who struggle with speech sounds, pronunciation, or fluency issues like stammering. They also train students in using tools and strategies for effective two-way communication through speech and language therapy.

- A **Special Educator** plays a key role in supporting **Children With Special Needs (CWSN)** by coordinating with teachers, parents, and school staff. They assess each child's abilities, design a suitable curriculum, and create an **Individual Education Plan (IEP)** with short- and long-term goals. Their responsibilities also include performance observation, reporting, facilitating inclusion, and guiding the child's transition within the education system.



MULTIPLE CHOICE QUESTIONS(SOLVED/UNSOLVED) 1 MARK

Q1. What does APE stand for in the context of special education?
A. Advanced Physical Education **B.** Applied Physical Education
C. Adapted Physical Education **D.** Academic Physical Education
✅ **Answer: C**

Q2. Intellectual disability typically originates:
A. After the age of 25 **B.** During old age
C. Before the age of 18 **D.** At any age
✅ **Answer: C**

Q3. Which is a common cause of physical disability?
A. Heart disease **B.** Birth defects
C. High blood pressure **D.** Common cold
✅ **Answer: B**

Q4. ADHD is classified as a:
A. Physical disability **B.** Sensory disorder
C. Mental disorder **D.** Behavioural disorder
✅ **Answer: D**

Q5. Which of the following is a principle of disability etiquette?
A. Speak loudly **B.** Avoid direct conversation
C. Speak directly to the person **D.** Assume the person's needs
✅ **Answer: C**

Q6. The main aim of Adapted Physical Education is to:
A. Teach sports to all children
B. Provide physical education as per the individual's needs
C. Avoid competitive games
D. Replace general PE
✅ **Answer: B**

Q7. Who helps CWSN develop communication skills?
A. Occupational therapist **B.** Speech therapist
C. Physiotherapist **D.** PE teacher
✅ **Answer: B**

Q8. What is the key role of a special educator?
A. Teach general education **B.** Supervise sports
C. Design individual education plans **D.** Conduct physical therapy
✅ **Answer: C**

Q9. A person-first language example is:
A. Crippled child **B.** Disabled boy
C. Child with a disability **D.** Handicapped person
✅ **Answer: C**

Q10. Which of the following is an example of a fine motor skill?
A. Running **B.** Lifting weights

C. Tying shoelaces **D.** Jumping

✅ **Answer: C**

Q11. A physiotherapist mainly focuses on:

A. Teaching academics **B.** Improving body movement

C. Speech development **D.** Social behavior

✅ **Answer: B**

Q12. A student with autism benefits most from:

A. Unstructured play **B.** Strict discipline

C. A structured program with visual cards **D.** Competitive sports

✅ **Answer: C**

Q13. What is the role of a PE teacher for CWSN?

A. Develop reading habits **B.** Ignore physical challenges

C. Improve physical and social skills **D.** Avoid sports activities

✅ **Answer: C**

Q14. The term "disorder" refers to:

A. A permanent disability **B.** A curable disease

C. A disturbance in mental or physical health **D.** A sensory disability

✅ **Answer: C**

Q15. Which of the following promotes self-esteem in CWSN?

A. Isolation **B.** Successful participation and recognition

C. Avoiding challenges **D.** Being passive

✅ **Answer: B**

UNSOLVED MCQ'S

Q1. What is the primary focus of occupational therapy for CWSN?

A. Speech clarity **B.** Self-care and motor skills

C. Sports strategy **D.** Pain relief

Q2. Which disability affects cognitive functioning like reasoning and learning?

A. Sensory disability **B.** Physical disability

C. Intellectual disability **D.** Visual impairment

Q3. What should you avoid when interacting with a person with a disability?

A. Offering help **B.** Speaking directly

C. Making assumptions **D.** Being patient

Q4. Which professional helps with planning a student's educational and career goals?

A. Speech therapist **B.** Physiotherapist

C. School counsellor **D.** PE teacher

Q5. What does an Individual Education Plan (IEP) include?

A. General syllabus only

B. Health advice

C. Customized goals and learning strategies

D. Therapy procedures

VERY SHORT ANSWER TYPE QUESTIONS(SOLVED/UNSOLVED) 2MARKS

1. What is Adapted Physical Education (APE)?

✅ **Answer:** Adapted Physical Education is a specially designed physical education program developed according to the individual needs of Children With Special Needs (CWSN) to promote fitness, motor skills, and participation.

2. What are two causes of intellectual disability?

✅ **Answer:** Genetic conditions (e.g., Down Syndrome) and prenatal factors like infections or malnutrition during pregnancy.

3. Name two examples of physical disabilities.

✅ **Answer:** Cerebral Palsy and Spinal Cord Injury.

4. What is meant by disability etiquette?

✅ **Answer:** Disability etiquette refers to respectful and appropriate ways of interacting with people with disabilities to promote inclusion and dignity.

5. Mention two objectives of Adapted Physical Education.

✅ **Answer:** 1) To promote participation in inclusive sports activities. 2) To enhance motor skills and physical fitness.

6. How does APE help students with ADHD?

✅ **Answer:** APE helps by channelizing their energy in a structured way, reducing hyperactivity and improving focus.

7. What is the role of a speech therapist for CWSN?

✅ **Answer:** A speech therapist helps improve communication skills and treats speech and fluency disorders.

8. List any two responsibilities of a special educator.

✅ **Answer:** 1) Creating Individual Education Plans (IEPs). 2) Assessing student performance and setting goals.

9. Define physical disability.

✅ **Answer:** A physical disability is a condition that limits a person's physical functioning, mobility, stamina, or dexterity.

10. State two basic principles of disability etiquette.

✅ **Answer:** 1) Speak directly to the person. 2) Ask before offering help.

UNSOLVED VERY SHORT ANSWER QUESTIONS (2 MARKS EACH)

1. Define intellectual disability and give one characteristic of it.

2. What are two modifications made in PE for CWSN?

3. How does a physiotherapist help children with special needs?

4. Name any two learning outcomes of APE related to daily life.

5. How can CWSN be encouraged to develop self-esteem through APE?

SHORT ANSWER TYPE QUESTIONS(SOLVED/UNSOLVED) 3MARKS

1. Explain any three key guidelines of disability etiquette.

✅ **Answer:**

1. **Use respectful language:** Use person-first language (e.g., "person with a disability").
2. **Ask before helping:** Never assume help is needed; always ask first.
3. **Speak directly:** Always communicate directly with the person, not through others.

2. State three objectives of Adapted Physical Education (APE).

✅ **Answer:**

1. Promote inclusive participation in physical education and sports.
2. Improve motor skills and overall physical fitness.
3. Enhance self-confidence and self-esteem through structured activities.

3. Describe the nature of intellectual disability.

✅ **Answer:**

Intellectual disability is characterized by limitations in intellectual functioning (reasoning, learning, problem-solving) and adaptive behavior (communication, self-care). It originates before age 18 and often involves difficulties in academic learning and social functioning.

4. What is the role of a physiotherapist for CWSN?

✅ **Answer:**

A physiotherapist improves mobility, posture, and physical function in CWSN through exercises and therapies like hydrotherapy, electrotherapy, and massage. They assess movement, reduce pain, and prevent deterioration of muscles and joints.

5. How does APE help in developing self-esteem in CWSN?

✅ **Answer:**

APE helps CWSN build self-esteem by enabling success in physical activities. Realistic goals and recognition of effort lead to confidence and improved self-image. Achievement encourages students to aim for higher tasks and engage more socially.

6. Explain any three roles of a special educator in supporting CWSN.

✅ **Answer:**

1. **Assessment of abilities** – Evaluates a child's performance and sets educational goals.
2. **IEP development** – Prepares Individual Education Plans tailored to the student's needs.
3. **Facilitating inclusion** – Supports transition to integrated classrooms and monitors progress.

UNSOLVED SHORT ANSWER QUESTIONS (3 MARKS EACH)

1. List three causes of physical disability and give one example of each.

2. How does Adapted Physical Education promote inclusion in schools?

3. Describe the role of a speech therapist in helping students with special needs.

CASE STUDY BASED QUESTIONS(SOLVED/UNSOLVED) 4 MARKS

1. Case Study:

Ravi, a student with **cerebral palsy**, has difficulty in balancing while walking and performing sports activities. His school includes him in Adapted Physical Education (APE) classes where he practices walking over low hurdles with support and uses visual markers for better coordination.

Q: Identify and explain three benefits Ravi receives from participating in APE.

✅ **Answer:**

1. **Improved motor coordination** – Exercises help Ravi control reflexes and build balance.
2. **Functional skill development** – Practicing over hurdles improves walking and mobility for daily tasks.
3. **Psychological benefit** – Participation boosts Ravi's confidence and self-esteem.

2. Case Study:

Anjali, a 14-year-old student with **visual impairment**, is participating in PE class using guided ropes and verbal cues. Her coach ensures safety and accessibility through adapted equipment and modified instructions.

Q: How is her participation made safe and inclusive in PE?

✅ **Answer:**

1. **Use of guided ropes** helps in safe navigation.
2. **Verbal cues** provide orientation and direction.
3. **Modified equipment** (like lighter balls) ensures accessibility.
4. **Inclusive approach** gives her equal opportunity to participate.

3. Case Study:

Mohit, diagnosed with **ADHD**, shows signs of restlessness and lack of attention in class. However, after being enrolled in regular PE sessions with structured routines, his focus and social behavior have improved.

Q: How has APE contributed to Mohit's overall development?

✅ **Answer:**

1. **Energy channelization** – Physical activity helps manage hyperactivity.
2. **Improved focus** – Structured sessions build attention and discipline.
3. **Better social interaction** – Team sports develop cooperation and listening skills.
4. **Mental health benefit** – Regular activity reduces anxiety and improves mood.

4. Case Study:

Sara, a child with **speech and language impairment**, attends school with support from a speech therapist. The therapist uses picture cards and sound-practice exercises to help her communicate better.

Q: What is the role of the speech therapist in Sara's development?

✅ **Answer:**

1. **Improves communication** – Helps her express herself better using visuals and speech tools.
2. **Builds fluency** – Exercises reduce repetition or stammering.
3. **Boosts confidence** – Success in communication improves participation.
4. **Supports classroom learning** – Aids in writing, reading aloud, and social interaction.

UNSOLVED CASE STUDY-BASED QUESTIONS (4 MARKS EACH)

1. Case Study:
Rahul, a student with **Down syndrome**, is included in group sports. He participates with assistance and receives appreciation from peers for his efforts.

Q: How does this inclusive environment help in Rahul's personal and social development?

2. Case Study:
Meena, who has difficulty using her hands due to a physical disability, is being helped by an occupational therapist to improve her fine motor skills.

Q: What could be the possible goals and benefits of her occupational therapy sessions?

LONG ANSWER TYPE QUESTIONS(SOLVED/UNSOLVED) 5 MARKS

1. Explain the causes and nature of intellectual disability in detail.

Nature of Intellectual Disability:

- It involves limitations in intellectual functioning (reasoning, learning, problem-solving) and adaptive behavior (communication, social, and practical skills).
- It appears before the age of 18.
- Characteristics include low IQ (below 70), difficulty in learning, and challenges with daily life tasks.

Causes:

1. **Genetic Causes** – e.g., Down Syndrome, Fragile X Syndrome.
2. **Prenatal Causes** – Maternal infections, poor nutrition, exposure to toxins.
3. **Perinatal Causes** – Premature birth, low birth weight, lack of oxygen.
4. **Postnatal Causes** – Brain infections, head injuries, malnutrition, or emotional neglect.

2. ***Describe the role of different professionals involved in supporting CWSN.***

1. **School Counsellor** – Helps with academic, social, and career guidance; supports emotional well-being.
2. **Occupational Therapist** – Trains CWSN in fine motor skills and daily activities like dressing and writing.
3. **Physiotherapist** – Works on body movement, balance, posture, and muscle coordination.
4. **Speech Therapist** – Assists with speech development, pronunciation, and communication tools.
5. **Special Educator** – Designs and implements Individual Education Plans (IEPs), tracks progress, and supports inclusion.
6. **PE Teacher** – Promotes physical fitness, social skills, and adapted sports participation.

3. Discuss the aims and objectives of Adapted Physical Education (APE) for CWSN.
Aim:

- To provide equal opportunity for participation in physical education and sports for CWSN, tailored to individual needs.

Objectives:

1. To develop motor skills and physical fitness.
2. To promote inclusion through structured and safe activities.
3. To build self-esteem and confidence.
4. To encourage regular participation and discipline.
5. To facilitate smooth transition into regular PE settings.

APE improves functional independence and overall development in CWSN.

Unsolved Long Answer Questions (5 Marks Each)

1. What is disability etiquette? Explain its importance and any five key guidelines with examples.

2. Describe in detail the nature and causes of physical disability. Give examples to support your answer.

UNIT-V

PHYSICAL FITNESS, WELLNESS AND LIFESTYLE

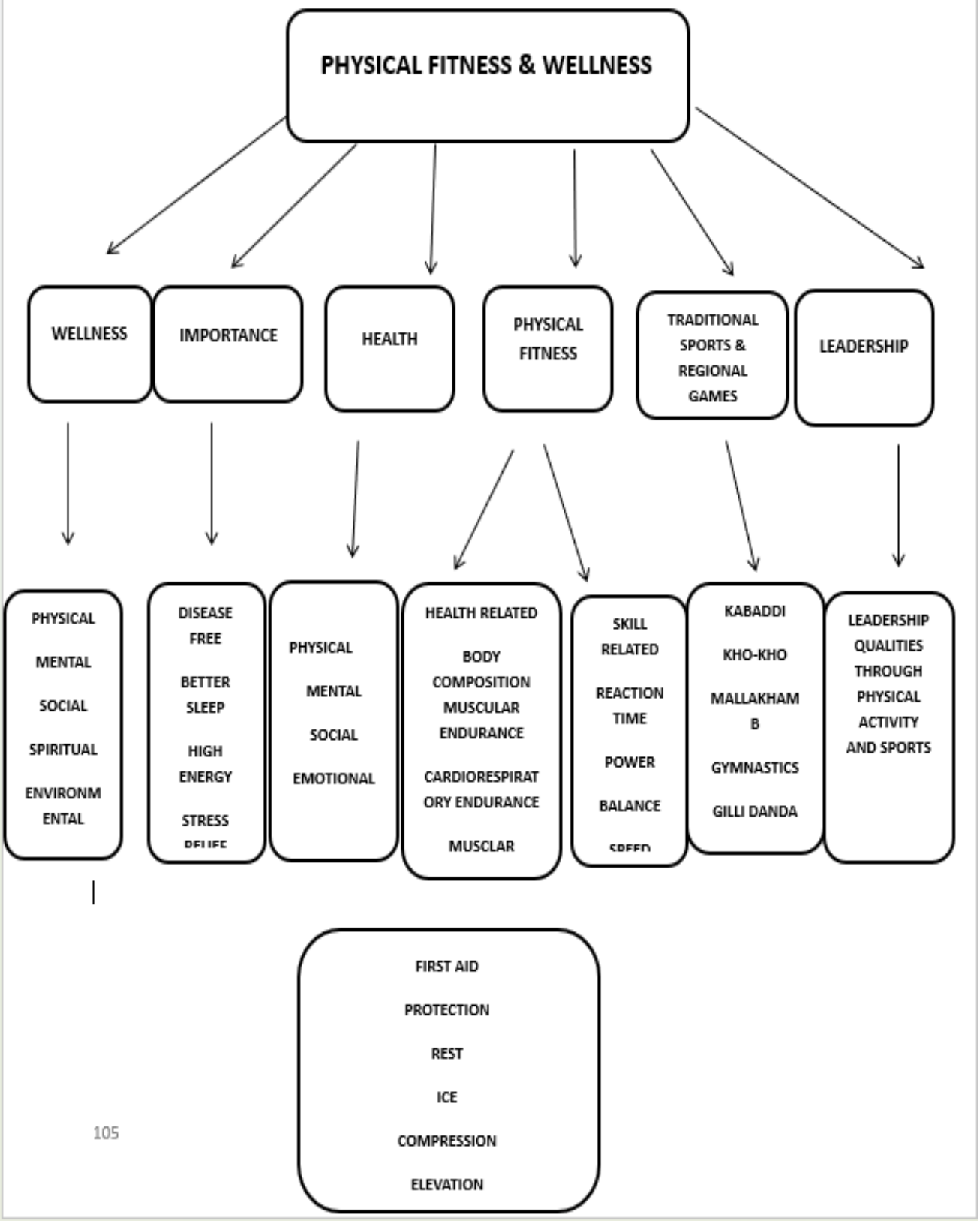
- **Meaning and importance of Wellness, Health and Physical fitness.**
- **Components / Dimensions of Wellness, Health and Physical fitness.**
- **Traditional Sports and Regional games for promoting wellness.**
- **Leadership through physical activity and Sports.**
- **Introduction to First Aid – PRICE**

LEARNING OBJECTIVES/ OUTCOMES

- **Understanding Wellness and Fitness concepts, its application to personal life**
- **Distinguishing between skill related and health related components of physical fitness.**
- **Understanding the importance of Health**
- **Understanding the need & importance of nutrition, participating in Physical activity, rest & stress control**
- **Illustrating traditional Sports and Regional games for promoting wellness.**
- **Developing leadership through Physical activity and Sports**
- **To know the different steps used in First Aid - PRICE**

MINDMAP

Weightage - 05marks



105

5.1 MEANING & IMPORTANCE OF WELLNESS, HEALTH AND PHYSICAL-FITNESS

WELLNESS

It is a holistic state of well-being that extends beyond the absence of illness, aiming for an optimal balance of physical, mental, emotional & spiritual health.

It is an active process of making choices and adopting habits to improve one's overall health and quality of life. It is an ongoing journey of self-care and personal growth. It helps to manage stress and build resilience against life's challenges.

Wellness is an active process through which people become aware of and make choices toward, a more successful existence.

COURTESY -National Wellness Institute

IMPORTANCE OF WELLNESS

1. Enhanced Physical, Health

Wellness practices like regular exercise, a balanced diet and sufficient rest helps to improve Cardio - Vascular efficiency, strengthens muscular and skeletal system.

It prevents and manages diseases like heart disease, diabetes, cancer, obesity, and other lifestyle diseases.

2. Improved mental & emotional wellbeing

It improves mental health, including managing stress, promoting quality thinking and enhancing good decision making.

3, Strengthened social relationships

It helps to connect with and contribute to society through nurturing relationships and building support networks, which provides happiness and improves overall wellbeing.

4. Improved quality of life

Wellness contributes to a higher quality of life as it helps to manage the routine work and tasks efficiently without getting fatigued / being tired.

5. Harmonious growth and development

Regular training can improve the efficiency of various organs which can be beneficial for an individual.

HEALTH Meaning of health is freedom from disease, sound body and mind, that condition in which functions of body and mind are duly discharged:

“A state of complete physical, mental, and social wellbeing and not merely the absence of disease and infirmity” - WHO (World Health Organization).

Health is the way: there is no other way to health.

IMPORTANCE OF HEALTH

1. A healthy lifestyle can extend lifespan and improve the quality of life.
2. Ensuring health through healthy habits like balanced diet, exercise, and stress management. It helps to prevent chronic diseases like diabetes, diseases, and certain types of cancer.
3. Maintaining a healthy body can improve mood, reduce stress, promote better sleep, and contribute to overall mental wellbeing.
4. A healthy body functions more efficiently, leading to higher energy levels and increased productivity in daily life and work.
5. Healthy habits improve immune system, making the body more resilient to infections and illness.
6. Good health can enhance social interactions by allowing individuals to participate fully in social activities and maintain strong relationships.
7. Overall health develops the sense of wellbeing and personal fulfillment, which allows individual to live a more meaningful and purposeful life.

PHYSICAL FITNESS

Physical fitness refers to the organic capacity of an individual to perform the normal task of daily living without undue tiredness or fatigue, having reserves of strength and energy available to meet satisfactorily any emergency demands placed upon him.

Fitness is an Individual matter, Fitness program has to be taken systematically and seriously , it requires a lifelong commitment of time and effort .

Physical fitness is the ability to carry out daily tasks with vigor and alertness without undue fatigue and with ample energy to enjoy leisure time pursuits and to meet unforeseen emergencies.

-H. Harrison Clarke

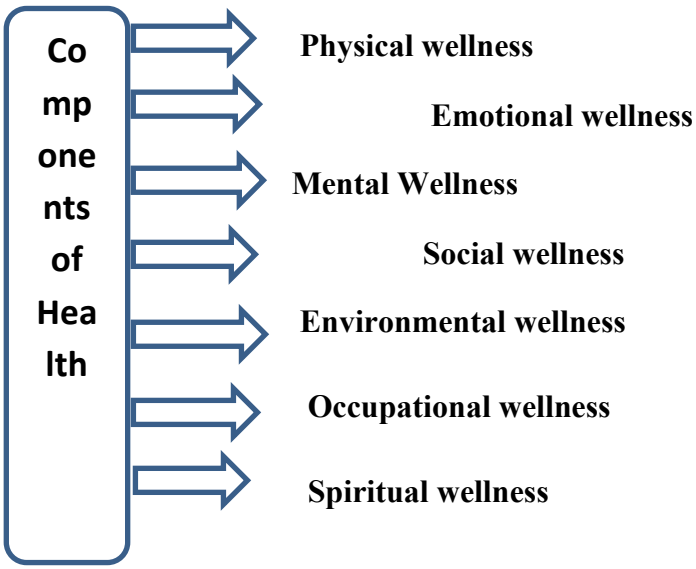
IMPORTANCE OF PHYSICAL FITNESS.

1) **Physical and psychological importance**
   Regular exercise improves posture, physical appearance, and balance. It helps to maintain body weight and the balance between lean body mass and fat. It helps to maintain healthy bones and toned muscles. It also improves efficiency of functions of various systems in the body such as cardiac system, Respiratory system, immune system etc.
2) **Mental and psychological importance**
   Regular Physical exercise increases the functions of brain, enhances memory and develops creative thinking. It enhances self-image, increases morale, self-confidence and self-esteem. It reduces tension, stress, and anxiety.

3) **Social importance**
   Improved emotional health and self-esteem improves social relations. Increased self-confidence prompts an individual to reach out to others. Participating in sports activities provides opportunity to meet a new person who shares a common interest. It establishes new friendships and developing a support network.
4) **Improved health**
   Continuous Physical activity increases longevity and slows down the process of ageing, reduces the mortality rate from chronic diseases. It enhances the quality of life. Regular physical activity reduces risk of heart diseases, Type 2 diabetes high blood pressure, cancer etc.
5) **Improves financial condition**
   Regular physical activity reduces the risk of diseases such as cardiac disease, Diabetes, obesity etc. so that less money is spent on doctor's visit, medication and treatments.

5.2COMPONENTS OF WELLNESS

Wellness is concept that involves multiple inter related components that contributes to overall health and well-being.



1) **Physical wellness**
   Physical wellness is an individual's ability to meet the demands of day-to-day work and being able to take care of his/her health. Overall Physical wellness encourages the balance of physical activity,

nutrition, and mental well-being to keep the body in top condition. Obtaining an optimal level of physical wellness allows the individual to nurture personal responsibility for own health. Physical wellness includes regular vigorous activities, balanced diet, proper rest, avoiding addictive substances, living in a healthy environment, and following safety precautions etc. A physically fit individual would have optimum muscular strength, cardiovascular endurance, flexibility, and a fit body composition.

2) **Emotional wellness**

It is an individual's ability to understand and balance emotions, accept one's weaknesses and respect other's strength. It is the process of understanding and managing emotions, building healthy relationships, and expressing one authentically.

3) **Mental wellness**

It is the ability to learn, evaluate, accept new ideas, develop creative thinking, have a good sense of humor, and develop a lifelong learning process. It is the process of cultivating a positive mindset through engaging in creative activities and managing stress.

4) **Social wellness**

It is an individual's ability to build and maintain strong social connections, participating in community activities and feeling a sense of belongingness. Social wellness includes building healthy, nurturing, and supportive relationships. Surrounding oneself with a positive social network increases one's self esteem. Social wellness enables an individual to establish communication, trust and to manage conflict.

5) **Environmental wellness**

It refers to understanding and respecting the environment, making sustainable choices, and promoting environmental responsibilities. It inspires the individual to protect the environment and respect for all species living in it. It encourages the individuals to adopt healthy habits and balanced lifestyle like producing and eating organic food, reducing the pollution and food contamination.

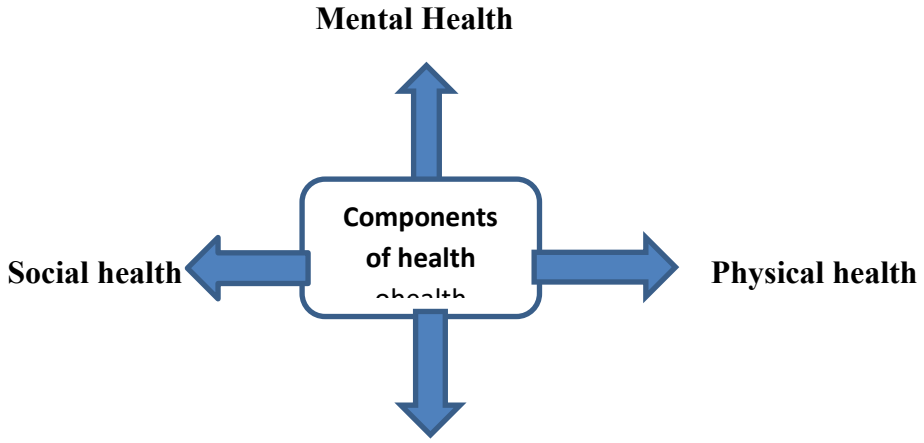
6) **Occupational wellness**

It is the ability to achieve a balance between work and leisure time, finding satisfaction and purpose in one's work, maintaining a healthy life balance and developing professional skills.

7) **Spiritual wellness**

It is the ability of finding meaning and purpose in life, connecting with one's values and exploring religious or philosophical beliefs, principles and values which guides and strengthen one's life. The individual gets faith, love, peace, joy, togetherness, selflessness, compassion and forgiveness.

COMPONENTS OF HEALTH

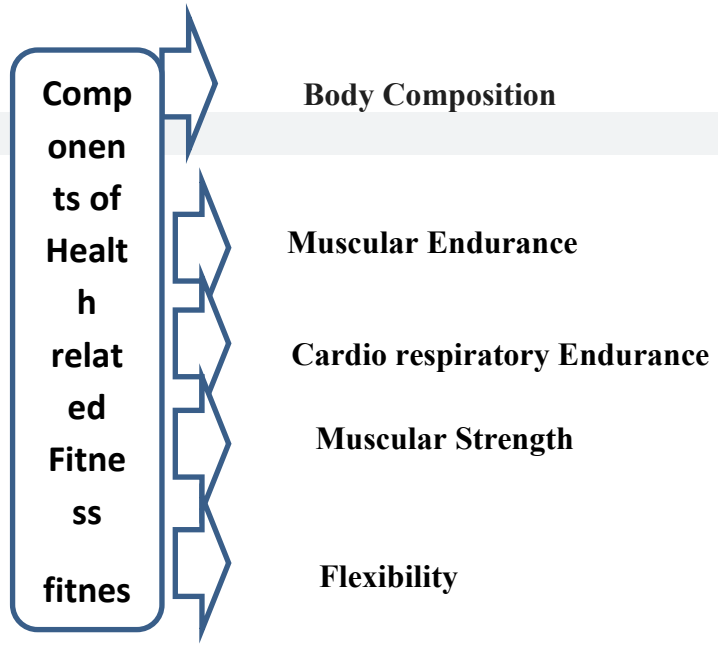


Emotional Health

1) **Physical health**
   It is the state of health in which all the systems of the body function in its optimal level. It can be achieved through exercise, nutritious food, rest and sleep, avoiding drugs and other addictive substances.
2) **Mental health**
   It refers to a healthy mind. It includes positive mind, managing stress, engaging in creative activities, decision making abilities, judgment, and reaction time.
3) **Social health**
   It is the state of health in which an individual is comfortable to make connections with another individual and does not find it difficult to adjust in the society.
4) **Emotional health**
   It is the state of self-awareness and acceptance of one's conditions and feelings; it can be achieved by staying positive, controlling stress and expressing feelings.

COMPONENTS OF PHYSICAL FITNESS

- **Health related Physical components.**
- **Skill related physical fitness components.**



COMPONENTS OF HEALTH -RELATED FITNESS.

1.Body composition

It is defined as the relative percentage of fat and lean body mass. Lean body mass is fat free mass of our body which covers muscle, bone, and other tissues that makes up the body except fat. A healthy individual should have relatively low percentage of fat in the body.

2.Muscular endurance

It is the ability of the muscle group to execute repeated contractions over a period of sufficient time to cause muscular fatigue, or to maintain a specific percentage of the maximum voluntary contraction for a prolonged time.

3.Cardio-respiratory endurance

Cardio-respiratory endurance is the ability of the heart, blood vessels, blood and respiratory systems to supply nutrients and oxygen to the muscle and the ability of the muscles to utilize fuel to allow continuous exercise. A healthy individual can sustain physical activity for a longer duration without undue stress.

4.Muscular strength

It is the ability of the muscles to exert an external force or lift a heavy weight. Muscular strength is the maximal force that can be generated by a specific muscle or muscle group. It is defined as the maximum amount of force that a muscle can exert against some form of resistance in a single effort.

5. Flexibility

It is the ability to perform a joint action through a range of movement.

eg; Yoga and gymnastics exercises

SKILL RELATED PHYSICAL FITNESS COMPONENTS

1) **Reaction time**

Reaction time is an individual's ability to quickly respond to a stimulus. It is the intervening time between the presentation of stimulus and initiation of the muscular response to that stimulus.eg- A sprint start, Reaction of the goalkeeper during penalty kick.

2) **Power**

It refers to an individual's ability to act fast with resistance, it is a combination of strength and speed.eg- Throwing shot-put, long jump.

3) **Speed**

It refers to an individual's ability to perform the movement in the shortest possible time, it is the minimum time taken to complete the task.eg- 100m and 200m sprint, ice hockey.

4) **Agility**

It is the ability to change the directions of the body rapidly and accurately. Eg: Shuttle run, lateral plyometric jumps (jumping side to side over an object or line) , forward running , high knee drills, dot drills (quick , repeated foot movements on a specific patterns of dot).

5) **Balance**

It is the ability of the individual to maintain a state of equilibrium while moving or in a stationary position. eg. Gymnast Walk Flips.

There are two types of balance.

1. Static balance

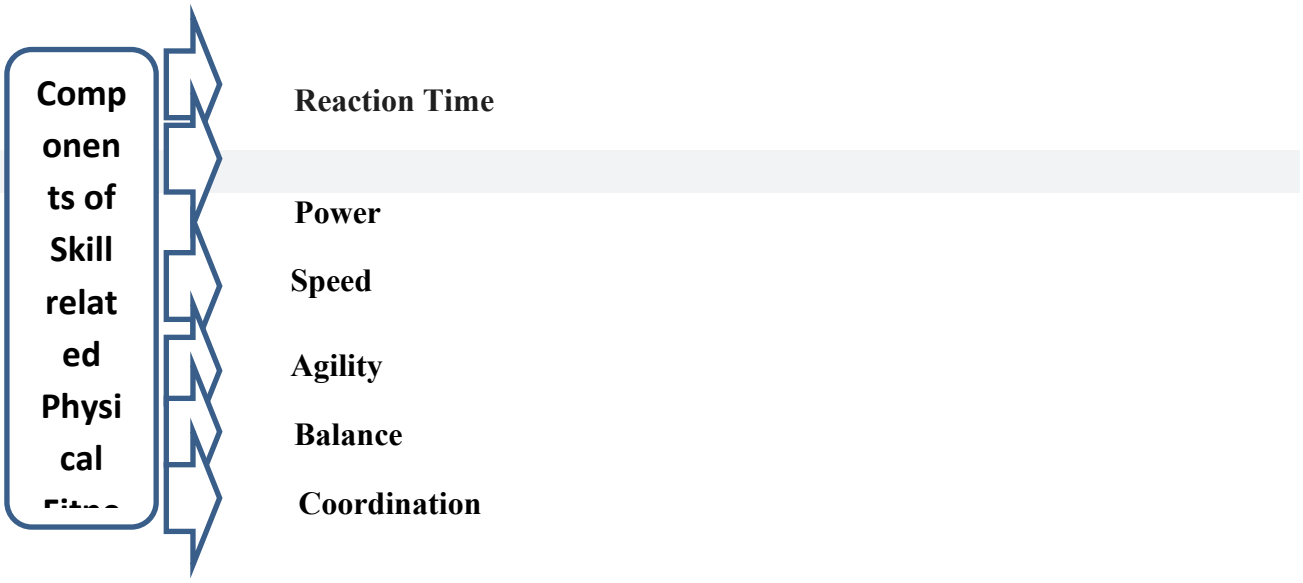
2. Dynamic balance

Static balance is where an individual maintains the state of equilibrium in a stationary position.

Dynamic balance refers to maintaining equilibrium during motion.

6) **Coordination**

It is the ability of an individual to perform a motor task by using body movements and senses accurately and fluently.eg: juggling in football, hitting a tennis ball with racket, and kicking of football.



5.3TRADITIONAL SPORTS & REGIONAL GAMES FOR PROMOTING WELLNESS

Traditional Indian games like Kabaddi, Kho- Kho, Gilli Danda, Mallakhamb, Kushti are valuable tools for promoting wellness, particularly among children and younger individuals. These games offer a unique blend of physical activity, social interaction, and cultural preservation, contributing to improved physical fitness, mental wellbeing and a sense of community.

KABADDI: This Indian game is known for its high intensity and strategic elements, enhances strength, stamina, agility, and teamwork. It also promotes mental focus and strategic thinking, contributing to overall well-being.

KHO-KHO: Kho-Kho is a fast paced, endurance-based sporting event which improves cardiovascular fitness, speed, and agility. The game also encourages cooperation and communication among players

MALLAKHAMB

It is a traditional Indian sport combining gymnastics, wrestling, and yoga, performed on a rope. It involves performing acrobatic and gymnastic posture, as well as wrestling grips, against gravity. It helps to develop strength, flexibility, balance, agility, and mental discipline. Malla means wrestling and khamb means pole, together mallakhamb means wrestling on a pole.

GYMNASTICS

Gymnastics is a sport which involves physical exercises requiring balance, strength, flexibility, agility, coordination and endurance. It can be competitive sport, or used for general fitness and physical conditioning.

GILLI DANDA

This traditional Indian game, involving a wooden bat and a small piece of wood, enhances eye-hand coordination, balance, and physical fitness. It also promotes strategic thinking and teamwork.

KUSHTI

It is a form of ancient martial arts intended as a training aid for wrestlers and ancient warriors. It is one of the oldest way of enhancing strength, reaction time and mental alertness.

5.4LEADERSHIP THROUGH PHYSICAL ACTIVITY AND SPORTS

Leadership is the art of motivating a group of people to act towards achieving a common goal. It ia an ability to build up confidence and zeal among people and create an urge in them to be lead.

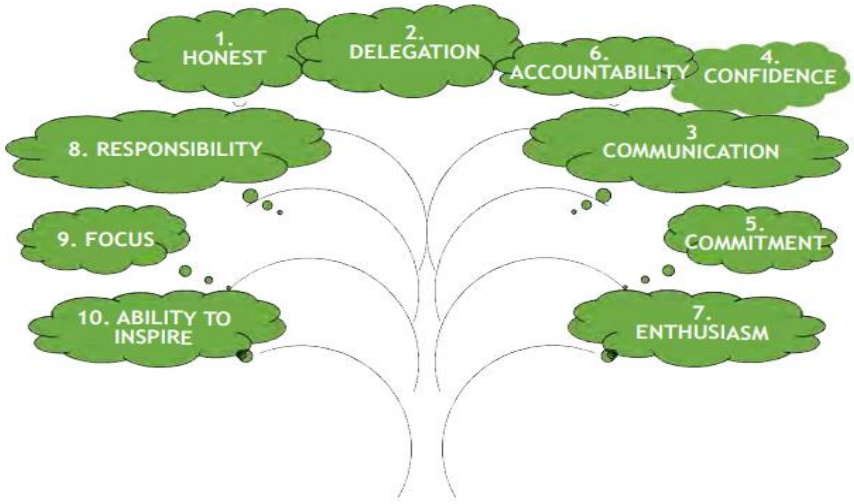
Leadership is the activity of influencing people to strive willingly for group objectives.

George R Terry

Sense of Leadership

1) To excel, to be in advance, to be prominent
2) To guide others

QUALITIES OF A LEADER



L- Loyalty

E- Enthusiasm

A-Alertness, Adjustments, Ability to coordinate activity

D- Discipline, Decision making

E- Energetic

R- Reliability

S- Sincerity, sympathy, self-control, sacrifice, skill of communication

H- Health

I – Intelligent, impartial

P- Patience, Personality, Public Relation

Leadership skills are developed through engaging in physical activity and sports. Team sports , foster essential leadership traits like teamwork, communication, and decision-making. Activities like rock climbing and adventure sports demand courage, resilience, and strategic thinking, further strengthening leadership capabilities.

Major leadership skills are as follows.

Teamwork and communication, Decision making, Resilience and perseverance, decision making, problem solving, responsibility and accountability, character building, confidence and self estee

5.5 INTRODUCTION TO FIRST AID: - PRICE

FIRST AID

It is the immediate assistance given to a casualty before the arrival of a medical doctor.

PURPOSE OF FIRST AID: 1) To preserve life, 2) To assist recovery 3) Prevent aggravation of the condition. 4) Provide initial support until professional help arrives.

There are several principles of first aid and among which **PRICE** theory is the most accepted one.

PROTECTION, REST, ICE, COMPRESSION, ELEVATION.

Protection - Protect the injured area from further worsening.

Rest – avoid using the injured part to protect aggravation.

Ice – apply ice packs (15-20 mins in every two to three hours) to reduce swelling and pain.

Compression – Use an elastic bandage to apply gentle pressure on injured part and limit swelling.

Elevation – Raise the injured area above heart level to reduce swelling

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

1. Which one of the following is not a component of physical fitness?

(a) Speed b) Strength **(c) Cardiovascular endurance** (d) Flexibility

2. Which one of the following is not a component of health-related fitness?

(a) Body composition (b) Cardiovascular endurance (c) Flexibility **(d) Speed**

3. Which one of the following is not a part of dynamic strength?

(a) Maximum strength (b) Strength endurance (c) Explosive strength **(d) Static strength**

4**. What should be the body fat percentage in women?**

(a) 5 to 10 (b) 10 to 15 (c) 15 to 20 **(d) 20 to 25**

5. Which is a component of wellness in the following?

(a) Nutritional wellness (b) Physical wellness (c) Social wellness **(d) All of the above**

6. What should be the body fat percentage for men?

(a) 5 to 10 (b) 10 to 15 **(c) 15 to 18** (d)18 to 20

7. In which unit the strength of a body is measured?

(a) pounds (b) dynes **(c) 'a' and 'b'** (d) None of these

8. The percentage of bones, tendons, muscles, water, ligaments, organs, etc., in comparison to body fat is called:

(a) Muscular strength (b) Muscular endurance **(c) Body composition** (d) None of these

9. The ability of a body to execute movements with greater range is called:

(a) Strength **(b) Flexibility** (c) Body composition (d) Endurance

10. **When an athlete performs 'pull ups' what type of strength is required?**

(a) Explosive strength **(b) Dynamic strength** (c) Static strength (d) None of these

11. How many components of health-related fitness are there?

(a) 3 (b) 4 **(c) 5** (d) 6

12. Which one of the following affects flexibility?

(a) Muscle strength (b) Joint structure (c) Ligaments **(d) All of the above**

13. The ability to overcome resistance is called:

(a) Muscular strength (b) Muscular endurance

(c) Body composition (d) Flexibility

14. **Which one of the following is not a component health related fitness.**

(a) Cardio-respiratory endurance (b) Muscular endurance (c) Flexibility **(d) Speed**

15. **The ability to overcome resistance for longer duration is called:**

(a) Speed (b) Strength (c) Flexibility **(d) Endurance**

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

1. Which one of the following is not a technique to assess body fat?

(a) Body Mass Index (b) Skinfold thickness

(c) Hydrostatic weighing (d) Air displacement

2. What is the other name of synchronization?

(a) Flexibility (b) Speed

(c) Co-ordination (d) Endurance

3. What is the other name of suppleness?

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

4.. Which one of the following muscle fibers help in speed?

(a) White muscle fibers (b) Red muscle fibers (c) Yellow muscle fibers (d) Both 'a' & 'b'

5. Which type of muscle fibers are beneficial for endurance activities?

(a) White muscle fibers (b) Red muscle fibers (c) Red muscle fibers (d) Both 'a' & 'b'

2. VERY SHORT ANSWER QUESTIONS WITH SOLUTIONS (2 MARKS)

1. Discuss any two components of wellness.

Answer- Physical wellness, social wellness, emotional wellness, nutritional wellness, financial wellness, intellectual wellness, environment wellness

2. What do you mean by First Aid?

Answer- First aid is the initial help and support given to try to save the precious life of the wounded person or victim till professional help arrives.

3. What do you understand by the following terms – a) Health b) Health related physical fitness?

Answer- (a) Health is a valuable asset for every individual. So, it is said that health is wealth or the first wealth for each individual is health. It is the foremost and indispensable requirement of an individual.

(b) health- related physical fitness is important for all the people throughout their life. Its main aim is to achieve and maintain those specific qualities which enhance the working efficiency of the individual and his/her standard of health.

4. What do you mean by muscular strength?

Answer- Muscular Strength: Muscular strength is also an important component of health-related physical fitness. Muscular strength is the amount of force the muscle or a group of muscles can exert against resistance.

5. Discuss 'Body Composition' as a component of health-related fitness.

Answer- Body Composition: Body composition is one of the major components of health related fitness. Body composition is the percentage of lean body mass, i.e., bones, tendons, muscles, water, ligaments, organs etc.

6. Clarify the meaning of speed.

Answer- Speed is the ability to move the body as fast as possible, especially in running

7. Discuss the role of a leader in holding a team together.

Answer- A team leader plays a crucial role in holding a team together by providing direction, guidance, and motivation, while also fostering a positive and collaborative work environment

8. What do you mean by health?

Answer- Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity.

9. What is physical health?

Answer- Physical health is the state of well-being of the body, encompassing both the absence of illness and the ability to function effectively. It involves the efficient functioning of organs, systems, and tissues, and the capacity to perform daily activities and physical tasks.

10. What do you mean by traditional sports and regional games?

Answer-Traditional sports and games, are physical activities that have a rich history and are culturally significant to specific regions or communities

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

1.How can you make an effective leader in the field of physical education and sports?

2.Explain any two qualities of a leader in the field of physical education.

3.Why must a good leader be a good communicator?

4.What do you mean by P.R.I.C.E. ?

5.Discuss the objectives of first aid.

3.SHORT ANSWER TYPE QUESTIONS SOLVED (3 MARKS)

1. Elucidate any three dimensions of health.

Answer: Three key dimensions of health are physical, mental, and social well-being. Physical health refers to the functioning of the body, including factors like nutrition, exercise, and sleep. Mental health encompasses emotional, psychological, and cognitive well-being, including stress management and mental stability. Social health involves the quality of relationships, interactions, and connections with others, contributing to emotional support and a sense of belonging.

2. Elucidate the importance of physical fitness and wellness in brief.

Answer: Physical fitness and wellness are crucial for a healthy and fulfilling life, encompassing both physical and mental well-being. Physical fitness improves physical abilities, reduces health risks, and boosts overall health, while wellness encompasses a holistic approach to achieving optimal health and happiness.

3. Define strength and discuss its types in brief.

Answer: Strength, in a physical context, is the ability of a muscle or group of muscles to exert force against resistance. It can be categorized into different types, including maximal strength, explosive strength, and strength endurance.

4. What is flexibility?

Answer: Flexibility, in general, refers to the ability of a joint to move through its full range of motion, which is essentially the degree to which a joint can move. There are two main types of flexibility: static and dynamic.

5. Briefly discuss about coordinative abilities.

Answer: Coordinative abilities are the innate traits that allow individuals to perform smooth, efficient, and accurate movements. They are essentially the body's ability to integrate sensory information, make quick decisions, and execute motor actions effectively. These abilities are crucial for various sports and activities, and they depend on the central nervous system's control and regulation of motor activity.

6. What is first aid? Discuss the objectives of first aid.

Answer: First aid is the immediate, temporary care given to someone who is injured or suddenly ill, until professional medical help arrives. Its main objectives are to preserve life, prevent further harm, and promote recovery.

SHORT ANSWER QUESTIONS FOR PRACTICE (3 MARKS)

1.Discuss any three components of health-related physical fitness.

2. Explain health and its components?

3. What do you understand by the term "Traditional Sports and Regional Games?" Enlist some of the traditional games of India".

4. CASE BASED QUESTIONS WITH ANSWERS (4 MARKS)

1. Rohit is a 17-year-old student who spends most of his time studying or playing video games. He sleeps late and skips breakfast frequently. He avoids physical activity, feels tired often, and has gained weight over the past few months. His school organized a wellness seminar, where students learned about the importance of balanced diet, regular exercise, mental well-being, and maintaining a healthy lifestyle.

A. What are some negative effects of Rohit skipping breakfast regularly?

Answer: Low energy, poor concentration, weight gain, mood swings, nutrient deficiency

B. How can regular physical activity benefit Rohit's physical and mental health?

Answer: Increases fitness and strength, controls weight, boosts mood and reduces stress, improves sleep enhances focus and confidence

C. What lifestyle changes should Rohit make to improve his overall well-being?

Answer: Eat breakfast daily, exercise regularly, sleep on time, limit screen time, stay hydrated.

D. Why is it important for students like Rohit to maintain a balanced routine of study, exercise, and rest?

Answer: Improves learning and health, reduces stress, increases energy, builds good habits, promotes overall development

2. Meena is a 45-year-old working woman. She spends most of her day sitting at her office desk. Due to her hectic schedule, she often skips meals and rarely exercises. She has been experiencing frequent headaches, increased stress levels, and irregular sleeping patterns. During a recent health check-up, she was found to have high blood pressure and borderline diabetes.

A. What are the lifestyle-related disorders Meena is at risk of?

Answer: Obesity, High blood pressure, Diabetes, Heart disease

B. Suggest three wellness strategies that could help Meena manage her health better.

Answer: Daily exercise, Eat balanced meals, Practice stress relief (e.g., yoga)

C. How can physical fitness reduce the risk of lifestyle diseases?

Answer: Controls weight, lowers blood pressure, manages blood sugar, reduces stress.

D. Explain the importance of stress management in overall wellness.

Answer: Improves health, reduces illness risk, enhances sleep and mood, boosts daily performance

3. Ravi is a 16-year-old student who avoids physical activity, eats fast food daily, and spends hours playing video games. Lately, he feels tired, has gained weight, and finds it hard to concentrate in class. His doctor advised lifestyle changes to improve his overall health.

A. Suggest one change in Ravi's daily routine to improve his wellness.

Answer: Ravi should include at least 30 minutes of daily exercise.

B. How does physical activity help in improving concentration?

Answer: Physical activity increases blood flow to the brain, enhancing concentration and mental clarity.

C. Define "wellness" in one sentence.

Answer: Wellness is a state of overall physical, mental, and social well-being.

D. Mention one lifestyle disease Ravi is at risk of?

Answer: Ravi is at risk of type 2 diabetes.

4. Priya joined her school's Fit India campaign and now feels healthier.

A. What is one benefit she gained?

Answer: She became healthier.

B. Name one healthy habit she followed.

Answer: She exercised daily.

C. How can such campaigns help students?

Answer: They promote fitness awareness.

D. When did Fit India programme start?

Answer: It started on 29 August 2019.

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

1.Arjun studies long hours, skips meals, and drinks too much coffee.

A What is one unhealthy habit in Arjun's routine?

B. Suggest a way to improve his lifestyle.

C. Why is sleep important for wellness?

D. What are the food habits he has to follow?

2. Ananya is the captain of her school basketball team. During an important match, her team was losing in the first half. Some players were demotivated and started blaming each other. Ananya stayed calm, encouraged her teammates, and discussed a new strategy. With teamwork and motivation, the team made a strong comeback and won the match.

A. What type of leadership quality did Ananya show during the match?

B. How did her leadership impact the team's performance?

C. Mention one key trait of a good sports leader.

D. Why is communication important in leadership?

5. LONG ANSWER QUESTIONS SOLVED (5 MARKS)

Q.1. What do you mean by physical fitness and wellness? Expound the importance of physical fitness and wellness.

Answer: Physical fitness refers to the body's ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist diseases, and to handle emergency situations. It involves components such as cardiovascular endurance, muscular strength, flexibility, and body composition.

Wellness is a broader concept that includes not only physical health but also mental, emotional, social, and spiritual well-being. It is a continuous process of making lifestyle choices that lead to a balanced and fulfilling life.

Importance of Physical Fitness and Wellness

Promotes Good Health

Regular physical activity improves the function of the heart, lungs, and muscles, reducing the risk of chronic diseases like heart disease, diabetes, and obesity. Wellness encourages healthy habits that support long-term health and vitality.

Improves Mental Health

Physical fitness has a positive impact on mental health by reducing stress, anxiety, and depression. Exercise releases endorphins—natural mood enhancers—that improve emotional well-being. Wellness also includes mental and emotional stability, leading to a more balanced life.

Boosts Energy and Endurance

A fit body has better stamina and strength to perform daily tasks without fatigue. Wellness practices, such as proper sleep and nutrition, further enhance energy levels and productivity.

Enhances Quality of Life

Being physically fit and well helps individuals enjoy life more fully. It enables participation in a wide range of activities, supports independence in old age, and increases life satisfaction.

Support Longevity

People who maintain physical fitness and wellness tend to live longer, healthier lives. They are better able to fight illnesses and maintain mobility and strength as they age.

Physical fitness refers to the ability of an individual to perform daily tasks efficiently with enough energy left over to enjoy leisure activities and respond to emergencies. It is a state of health and well-being that involves the proper functioning of the body systems, muscular strength, flexibility, and endurance. Physical fitness not only enhances physical capabilities but also contributes to mental and emotional well-being. It can be achieved through regular exercise, proper nutrition, adequate rest, and a healthy lifestyle.

Physical fitness is generally categorized into health-related and skill-related components. Two important components of health-related physical fitness are cardiovascular endurance and muscular strength.

- Cardio vascular Endurance

  Cardiovascular endurance is the ability of the heart, lungs, and blood vessels to deliver oxygen efficiently to the working muscles during sustained physical activity.

  It plays a critical role in overall fitness and is essential for activities such as running, swimming, cycling, and aerobic exercises. High cardiovascular endurance allows an individual to perform prolonged exercise without excessive fatigue. Regular aerobic exercises improve heart function, lower blood pressure, reduce the risk of chronic diseases, and increase stamina.

- Muscular Strength

Muscular strength refers to the maximum amount of force that a muscle or muscle group can generate during a single effort. It is vital for performing everyday tasks such as lifting, pushing, or carrying heavy objects. Strength training exercises like weightlifting, resistance band workouts, and bodyweight exercises help in building muscular strength. Strong muscles also contribute to better posture, enhanced bone density, and injury prevention. physical fitness is a multidimensional concept that enhances overall quality of life. Components like cardiovascular endurance and muscular strength are essential

for maintaining a healthy body and performing everyday activities effectively. Regular involvement in physical activities targeting these components leads to a more active and fulfilling life.

Q.2. What do you mean by health? Explain the various dimensions of health in detail.

Answer: Health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity, as defined by the World Health Organization (WHO). It is a holistic concept that encompasses various aspects of a person's life and functioning. Good health enables individuals to live a productive and satisfying life. It is influenced by genetics, lifestyle choices, environment, and healthcare access.

Health can be understood through the following key dimensions:

1. Physical Health
   Physical health refers to the proper functioning of the body and its systems. It involves regular physical activity, balanced nutrition, adequate rest, and the absence of illness or injury. Indicators of good physical health include normal body weight, good stamina, strength, and the ability to perform daily activities without undue fatigue.

2. Mental Health
   Mental health includes emotional, psychological, and cognitive well-being. It involves the ability to handle stress, express emotions appropriately, think clearly, and make sound decisions. A mentally healthy person has a positive self-image, good coping skills, and healthy relationships. Issues like anxiety, depression, or chronic stress can affect overall health.

3. Social Health
   Social health refers to the ability of a person to form satisfying interpersonal relationships and interact well within society. It includes effective communication skills, empathy, and a sense of belonging. Strong family bonds, friendships, and community connections are signs of good social health.

4. Emotional Health
   Emotional health is the ability to understand and manage emotions. It involves self-awareness, self-control, and resilience. Emotionally healthy individuals can deal with life's challenges and recover from setbacks more easily.

5. Spiritual Health
   Spiritual health relates to a sense of purpose, values, and inner peace. It may or may not be linked to religious beliefs. A spiritually healthy person feels connected to something greater and lives in harmony with their values.

True health is multi-dimensional, requiring balance and care in all aspects of life.

Health is defined by the World Health Organization (WHO) as a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. This definition highlights that health is a holistic concept involving overall wellness in various aspects of life, rather than simply being free from illness.

In the contemporary world, the importance of health has increased significantly due to rapid lifestyle changes, increasing stress, environmental pollution, and the rise of chronic diseases. Health is the

foundation for a productive and fulfilling life. Without good health, individuals cannot perform daily activities effectively, pursue goals, or contribute to society.

Importance of Health in the Modern Era:

1. Enhanced Productivity
   Healthy individuals are more energetic and efficient in their personal and professional lives. Good health reduces absenteeism at workplaces and schools, thereby improving performance and economic growth.

2. Better Quality of Life
   Physical and mental well-being contributes to happiness, independence, and active participation in social and recreational activities. This leads to a higher quality of life and life satisfaction.

3. Prevention of Diseases
   In the modern world, unhealthy diets, sedentary lifestyles, and high stress have led to a rise in non-communicable diseases like diabetes, heart disease, and obesity. Maintaining good health through exercise, nutrition, and positive mindset helps in preventing such conditions.

4. Mental and Emotional Stability
   Mental health is crucial in today's fast-paced and stressful environment. Emotional well-being supports better decision-making, relationships, and coping with challenges.

5. Economic Benefits
   A healthy population reduces the burden on healthcare systems and government resources. Individuals spend less on medical treatments and enjoy longer, more active lives.

Maintaining good health is essential in the contemporary world not just for individual wellbeing, but also for building strong, prosperous, and resilient communities.

Q.3. Write a note on Traditional and Regional Games for promoting wellness?

Answer: Traditional Indian games like Kabaddi, Kho- Kho, Gilli Danda, Mallakhamb, Kushti are valuable tools for promoting wellness, particularly among children and younger individuals. These games offer a unique blend of physical activity, social interaction, and cultural preservation, contributing to improved physical fitness, mental wellbeing and a sense of community.

KABADDI: This Indian game is known for its high intensity and strategic elements. It enhances strength, stamina, agility, and teamwork. It also promotes mental focus and strategic thinking, contributing to overall well-being.

KHO-KHO: Kho-Kho is a fast paced, endurance-based sporting event which improves cardiovascular fitness, speed, and agility. The game also encourages cooperation and communication among players

MALLAKHAMB

It is a traditional Indian sport combining gymnastics, wrestling, and yoga, performed on a rope. It involves performing acrobatic and gymnastic posture, as well as wrestling grips, against gravity. It helps to develop strength, flexibility, balance, agility, and mental discipline. Malla means wrestling and khamb means pole, together mallakhamb means wrestling on a pole.

GYMNASTICS Gymnastics is a sport which involves physical exercises requiring balance, strength, flexibility, agility, coordination and endurance. It can be competitive sport, or used for general fitness and physical conditioning.

GILLI DANDA

This traditional Indian game, involving a wooden bat and a small piece of wood, enhances eye hand coordination, balance, and physical fitness. It also promotes strategic thinking and teamwork.

KUSHTI

It is a form of ancient martial arts intended as a training aid for wrestlers and ancient warriors. It is one of the oldest way of enhancing strength, reaction time and mental alertness.

LONG ANSWER QUESTIONS FOR PRACTICE (5 MARKS)

Q.1 Why must a good leader be accountable?

Q.2 Define First Aid? Write a short note on PRICE

UNIT -VI

TEST, MEASUREMENTS AND EVALUATION

CONTENT

- Define Test, Measurements and Evaluation
- Importance of Test, Measurements and Evaluation in Sports
- Calculation of BMI, Waist- Hip Ratio, Skin fold measurement(3-site)
- Somato types (Endomorphy, Mesomorphy & Ectomorphy)
- Measurement of Health- related fitness

Learning Objectives

- To introduce the students with the terms like test, measurement and evaluation along with its importance
- To introduce them methods of calculating BMI, Waist-hip ratio and skinfold Measurement
- To make the students aware of the different somatotypes.
- To make the students to learn the methods to measure health related fitness

Learning Outcomes

After Studying this unit, Student will be able to:

- Understand the difference between Test, Measurement and Evaluation
- Know the Importance of measurement and evaluation processes
- Understand BMI: A popular clinical standard and its computation
- Understand Waist-hip ratio
- Differentiate between Endomorphy, Mesomorphy and Ectomorphy
- Describe the procedure of measurement of health-related fitness

MIND MAPPING

Test: It Implies Tools
Set of questions
*To measure the dimension
* Quality or Condition

Measurements:
Quantitative form of assessment
-Nominal measurement scale
-Ordinal Scale
-Interval Scale
-Raio Scale

Evaluation:
* It is statement of Quality, goodness and merit
*Judging Decision

1.Cardiovscular Endurance
- 600m run
2.Muscular Strength
-partial curl up
3. Muscular Endurance
- Push ups
4.Flexibility
-Sit & reach test
5. Body Composition
-BMI

- Placement
- Diagnosis
- Prediction
- Motivation
- Achievement
- Programme evaluation

Endomorph: Rounded physique

Excessive mass

Mesomorph: Thick bone and Muscles

Rectangular shape body

Ectomorph: Muscles and Limbs are Elongated

Flat chest and less muscle mass

BMI – Body Mass Index
= Body mass (kg)/ Stature (m2)

Waist Hip Ratio

Determine possibility of health risk

Determine the Coronary artery risk

Skin Fold Measurement

Measuring Skin fold thickness

6.1 Define Test, Measurement and Evaluation

Test

A Test is a specific tool of measurement and implies (involve) a response from the person being measured

Meaning of Test:

➢ Test is the tool to obtain information about the individual.

➢ Test used only for specific purpose.

➢ Testing is the tool of measurement.

➢ Tests are for skills, strength, endurance, knowledge behaviour etc.

Measurement

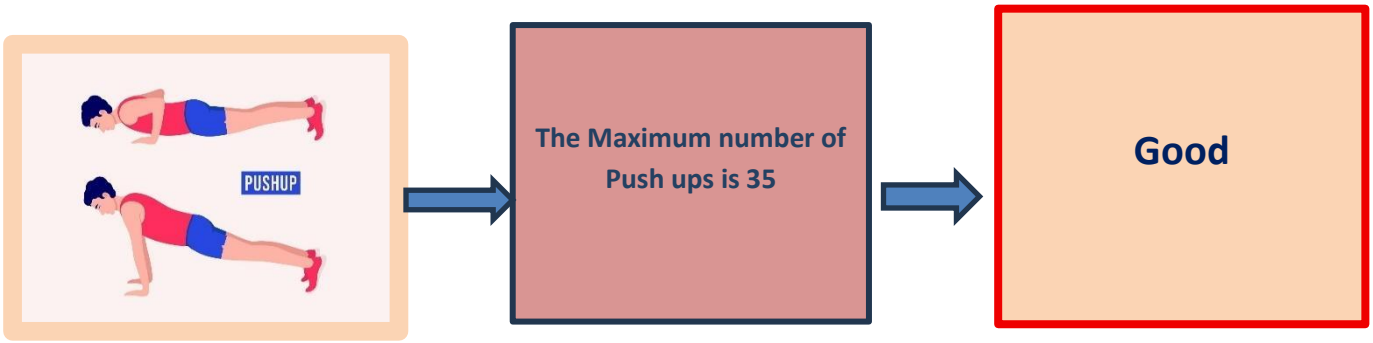
Measurement refers to the quantitative form of assessment and also refers to the scores obtained through test. Measurement is requisite for evaluation in a quantitative form of numbers or scores.

Evaluation

Evaluation is "the process of delineating, and obtaining, and providing useful information for judging decision alternatives." Other definitions simply categorize evaluation as professional judgment or as a process that allows one to make a judgment about the desirability or value of something. Thus, measurement is not the same as evaluation. Two athletes may obtain the same measure (test score), but we might evaluate those measures differently because of the different criteria for evaluation available in-terms of norms and measures.

Example: Push up test

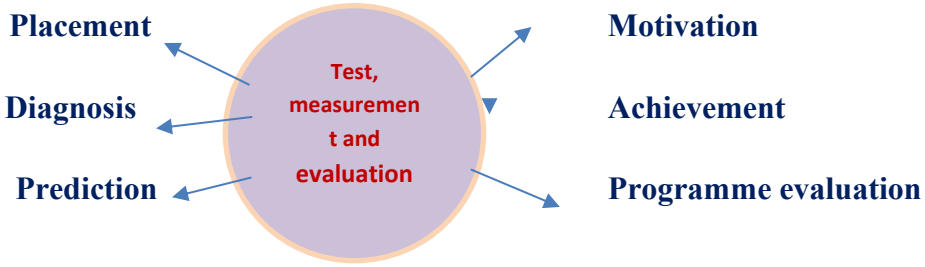
Test **Measurement** **Evaluation**



6.2 Importance of Test, Measurement and evaluation in sports

A physical educationist might be interested in knowing whether the students are physically fit or whether they are equipped with sufficient fundamental skills for them to participate in different activities. So, in order to give them the best form of physical education programme, a physical education needs to have the knowledge of test, Measurement and Evaluation cause the ultimate goal is to make an informed decision. Measurement and evaluation are

- To frame the objectives
- To help the selection of player
- To help the evaluate the learners
- To evaluate the teaching programme.
- To know the capacities and abilities of players.



- **Placement:** Every student cannot be given the same training programme. Placement refers to the grouping of the students into categories like high fitness and low fitness, swimmers and non-swimmers, skilled an unskilled because students must be put into categories for being imparted the most suitable training. In other words, test and measurement is important to provide a means of classifying students for instructions and participation.
- **Diagnosis:** Diagnosis is important to determine the strengths, weakness and limitations of individuals in physical education activity so that appropriate training can be provided.
- **Prediction**: Test scores can be viewed as predictors of one's future success in school. Physical Education teachers may use the physical activity patterns, cardiovascular endurance, blood pressure, body fat, or other factors to predict the student's fitness level.
- **Motivation:** Test is frequently administered for motivational purposes. Successful achievement of importance standards can encourage one to achieve higher levels of performance. The skill tests may encourage the students to improve their skills further. Skin fold measure motivates overweight pupils to lose weight. It can motivate the students to

practice skill with greater intensity. The comparison of current score with a previous score may be a motivational factor to the students.

- **Achievement**: Test is used to assess the achievement. It is the final ability level at a designated time and is sometimes relative to a standard norm criterion.
- **Programme Evaluation**: The result of participants can be used as evidence to evaluate programme

"NEED AND IMPORTANT OF MESUREMENT AND EVALUATION IN PHYSICAL EDUCATION

To help teacher assess students" performance.

To help teacher assess students" performance. Helps students to evaluate their own knowledge and or skills in various physical activities.

Enable the teacher of objectively measure improvement by testing before and after the unit or instruction.

Assist the teacher in evaluating different methods of instruction.

Motivates students when there appears to be a levelling of interest in the instruction.

Rest also helps the teacher to end the unit of institution with high level of interest.

Provides basis for the classification of players and teams for practice and competitors.

Help to determine the relative rules of sports activities in terms of meeting desire objective.

6.3 Calculation of BMI, Waist- Hip Ratio and Skin fold measurement

Body Mass Index (BMI)

Body Mass Index is a value derived from the mass (weight) and height of a person. The BMI is defined as the body mass divided by the square of body height, and is expressed in units of kg/m^2, resulting from mass in kilograms and height in meters (m).

BMI is categorized in to underweight Healthy weight, overweight, and obesity.

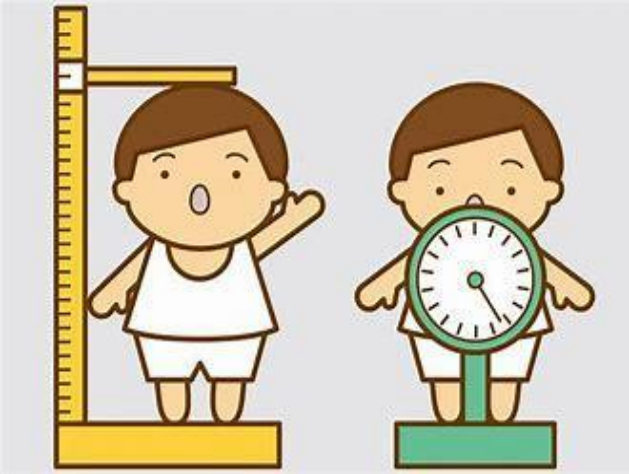
Obesity is further subdivided into three classes.

BMI= Weight (Kg)/Height^2 (m)

Example: Male Stature: 1.68m Weight : 65kg

BMI=65/$(1.68)^2$ =23.05

BMI	Classification
< 18.5	Under Weight
18.5 – 24.9	Normal Weight
25.0 – 29.9	Over weight
30.0 – 34.9	Class I obesity
35.0 – 39.9	Class II obesity
> 40.0	Class III obesity



Waist-Hip Ratio

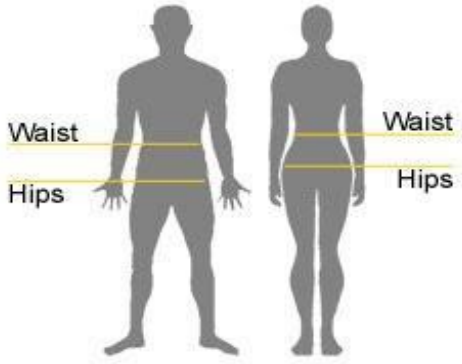
The waist to hip ratio determines the possibility of health risks and is an individual of whether you have an apple or pear- shaped figure. The waist to hip ratio measurement of your waist by your hip measurement.

How to Calculate WHR

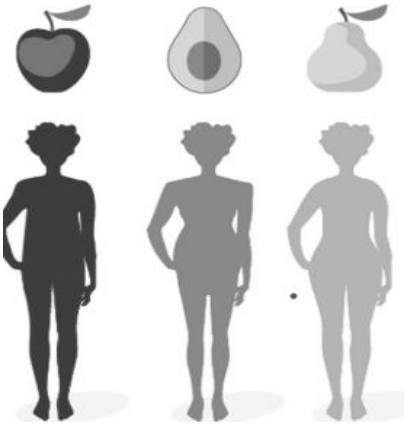
Measure Your Waist: Use a tape measure to find the circumference of your waist at its narrowest point, typically just above the belly button.

- **Measure Your Hips**: Measure the circumference of your hips at the widest point, around the buttocks.

- **Calculate WHR**: Divide your waist measurement by your hip measurement. For example, if your waist is 70 cm and your hips are 100 cm, your WHR would be 70÷100=0.770÷100=0.7.



$$WHR = \frac{\text{Waist Circumference}}{\text{Hip Circumference.}}$$

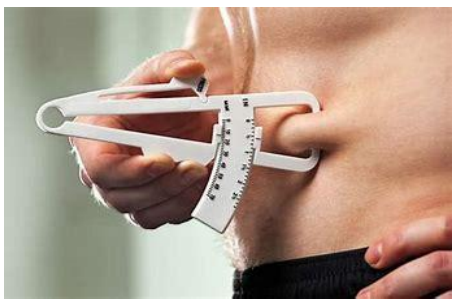


WOMEN	HEALTH RISK	BODY SHAPE
0.80 or below	Low	Pear
0.81 to 0.85	Moderate	Avacado
0.85+	High	Apple
MEN	HEALTH RISK	BODY SHAPE
0.95 or below	Low	Pear
0.96 to 1.0	Moderate	Avacado
1.0+	High	Apple

Skinfold measurements

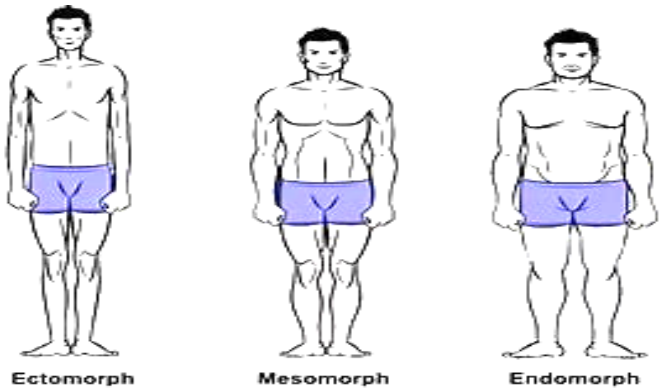
Skinfold measurements are a common method used to estimate body fat percentage by measuring the thickness of skinfolds at various sites on the body using callipers.

- Skinfold testing is often used in fitness assessment and can provide a convenient and affordable way to approximate body composition.
- Accurate measurement technique is crucial for reliable results, and it is recommended to combine skinfold measurements with other assessments, such as circumference measurements and weight for a comprehensive view of health.



6.4 Smato Types (Endomorph, Mesomorph, Ectomorph)

Somatotype refers to the classification of body shape and composition into three main categories



Endomorph	Mesomorph	Ectomorph
Endomorphic individuals tend toward a "soft" and rounded appearance: • **Large skeletal frame**: wide hips, thicker long bones, large joint diameters • **Higher adipose deposition** : especially around the abdomen, chest, and lower back • **Robust muscle mass**: thick	The mesomorphic body type exhibits a naturally athletic and muscular frame. Key features include: • **Moderate skeletal frame**: wrist and ankle widths between ectomorphs and endomorphs • **Muscle-friendly architecture**: thicker muscle bellies, broader clavicles, well-defined insertions • **Balanced fat distribution**: moderate subcutaneous fat, visible muscle definition with proper training • **Fast-to-moderate metabolism**: growth hormone and testosterone advantage, facilitating muscle protein synthesis • **Appearance**: pronounced "V-shape" (broad shoulders, narrow waist), strong posture	People with an ectomorphic build are often described as "linear" or "pencil-framed." They have: • **Small skeletal frame**: narrow wrist and ankle diameters, slender bone structure • **Thin musculature**: long, stringy muscles with low cross-sectional area • **Minimal subcutaneous fat**: very low body-fat percentage, flat chest, minimal gluteal and thigh fat • **Fast metabolism**: thyroid-dominant, high resting metabolic rate (RMR), high carbohydrate tolerance • **Appearance**: narrow shoulders, slim waist, delicate joints

muscle bellies but often obscured by fat tissue • **Slow metabolism**: insulin-dominant, lower RMR, reduced carbohydrate tolerance • **Appearance**: shorter limbs relative to torso, broader waist, pronounced glutei femoral region		

6.4 Measurement of Health Related Physical Fitness

Health-related fitness refers to the components of physical fitness that contribute to overall health and well-being. Unlike performance-related fitness, which focuses on athletic ability, health-related fitness emphasizes the importance of maintaining a healthy body and preventing chronic diseases.

The five key health-related fitness components are cardiovascular endurance, muscular strength, muscular endurance, flexibility, and body composition

Health related Fitness components	Test items
Cardiovascular endurance	**600m Run/Walk**
Muscular strength	**Partial Curl up**
Muscular Endurance	**Push up**
Flexibility	**Sit and Reach**
Body composition	**BMI**

a.600Run/Walk (Cardiovascular endurance): The test is recommended to assess cardiovascular endurance for school children by asking them to run or walk for 600mt and record the time for covering the distance.

Procedure:

- The track can be a standard or a modified arena of 600mt distance
- The participant can run or walk for the given distance.
- Participate should be motivated to cover the distance in shortest possible time.

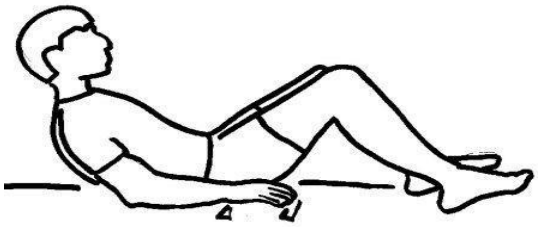
Cardiovascular, or cardio, fitness refers to your body's ability to sustain exercise for longer. It's also known cardiorespiratory endurance or aerobic fitness.

b. Partial Curl up (Muscular Strength): The curl up test measures abdominal muscular strength and endurance of the abdominals and hip- Flexors, important in back support and

core stability.

Equipment: A comfortable mat and Stop watch

Procedure –



The athlete lies in supine position on cushioned surface. Knees should be flexed and feet should be 12 inches from buttocks. The athlete curls up with a slow controlled movement until his/her shoulders come off the cushioned surface 2 inches then go down again. One complete curl up is completed in 3 seconds

Scoring - The curl ups should not be counted if the shoulders are not lifted by 2 inches

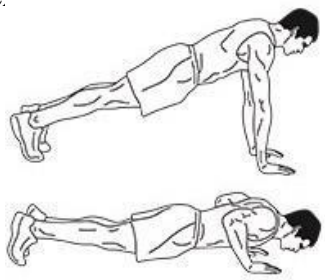
Muscular strength is the ability of a muscle group to exert force or lift and carry weight. The stronger your muscles, the heavier weight you can lift and move

c. Push Up for Boys/ Modified Push up for Girls (Muscular endurance)

Push ups Procedure:

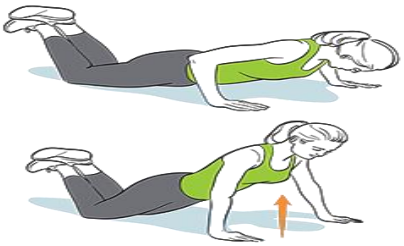
- Warm up before performing any fitness testing.
- Position your hands and toes shoulder-width apart and elbows fully e
- Lower your upper body so your elbows bend to 90 degrees.

  Keep a straight line from the toes to the hips to the shoulders.
- Push back up to the start position. That is one rep.
- Complete as many repetitions as possible without breaking form.
- Record the total number of full push-ups completed.



Modified Push ups Procedure:

A modified version of the push-up test is used for women, who tend to have less relative upper body strength than men. The test is conducted like above but uses an "on the knee" push-up position. Position will be with knees bent, ankles crossed and resting on the floor.



Muscular endurance refers to the ability of a given muscle to exert force against a load, constituently and repetitively trusted source over a period of time. Exerting force is also known as a contraction.

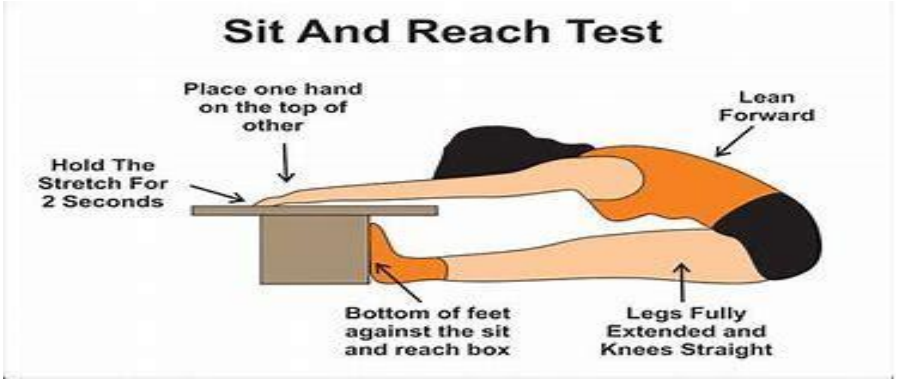
d. Sit and Reach Test (Flexibility)

Sit and reach test helps in the measurement of flexibility of the lower back muscles and hamstring muscle group. For this test, a sit and reach box, and mat are required

Equipment:

To conduct this test, you will need a sit and reach box that contains a graded scale on the top. Alternatively, you can use a simple block and a yardstick as well. And it is advisable to have an assistant conduct the test and note the measurements.

Procedur



- Before you begin, warm-up exercises, such as stretching, squatting, or a slow jog. After that, remove your shoes and take your position on the ground.
- Place the sit and reach box against a wall or another static surface. Then place the soles of your feet against the box flatly. Make sure that the heels are a couple of inches apart and the legs are lying flat on the ground. If you are having trouble keeping your legs flat, you can ask the assistant to hold them down.
- Keeping your palms facing downwards, extend your arms forward slowly. Place one arm over the other and stretch out as much as possible over the box. Once you have reached the maximum stretchable

Scoring: Difference between initial position and final position is recorded in cm and mm as the final score**.**

> **Flexibility** is defined as the range of motion of a joint or group of joints without pain or difficulty.

e. BMI (Body composition)

Body Mass Index (BMI) (35 cm) Excellent 16 in (40 cm) This assessment gives the information of an individual's level of obesity. BMI is calculated by dividing the weight of a person by the square of his/her height

Measurement of Body Weight

It can be done with the help of a weighing machine.

Procedure

The individual is asked to stand on the weighing machine. The readings of the machine should be noted. While taking the weight, the individual should wear minimum garments. Reading of the weight should be noted down in Kilograms

Measurement of Height

It can be done with the help of an Anthropometer or Stadiometer.

Procedure

The subject is asked to stand straight against the wall, with the back and head touching the wall, looking in forward direction. The measuring bar of anthropometric rod should be touched at the highest point of the subject's head (vertex point). The reading should be noted down in centimetres

BMI Formula Calculator:

$$\text{BMI} = \frac{\text{weight}\,(\text{kg})}{\text{height}^2\,(\text{m}^2)}$$

Body composition is the last health-related component of fitness. It describes the ratio of fat mass to fat-free mass.

1. MULTIPLE CHOICE QUESTIONS-1MARKS

Q1. . Instrument used for measuring of behaviour is?

A. Test B. Measurement C. Assessment D. Evaluation

Answer: A. Test

Q2. Skin fold technique is used to measure.

A. Weight B. Fat percentage

C. Girth measurement D. Over fatness

Answer: B. Fat percentage

Q3. The excellent value of waist – Hip ratio in male is

A. 0.95 B.0.75

C.1.0 D.1.3

Answer: A. 0.95

Q 4. What is the primary purpose of testing in physical education?

A. To punish students B. To evaluate student progress

C. To compare students D. To promote students

Answer: B. To evaluate student progress

Q5. According to the World Health Organization (WHO), a healthy WHR is

A. 0.9 for male and 0.85 for female

B. 0.8 for both male and female

C. 0.5 for male and 0.7 for female

D. 0.65 for male and 0.72 for female.

Answer: A. **0.9 for male and 0.85 for female**

Q6. To measure Lower body flexibility fitness, which one of the following is best?

A. Harvard Step Test. B. Sit and reach test

C) Barrow fitness test D. General fitness test

Answer: B. Sit and reach test

Q7. In order to know Rahul's abdominal strength which, test need to be performed?

A. Partial curl up B. 50 M standing start

C. 600 M Run/Walk D. Sit and reach

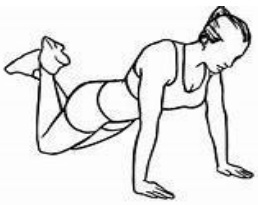
Answer :A. Partial curl up

Q8. the purpose of the evaluation is to make?

A. Decision B. Prediction C. Judgement D. Opinion

Answer :A. Partial curl up

Q9. Identify the test shown in the image



A. Partial Curl ups B. Modified push up

C. Push ups D. Sit and Reach test

Q10. …….. are generally long and thin.

A. Ectomorphs B. Endomorphs

C. Mesomorphs D. None of the above

Answer : A. Ectomorphs

Q11. 600 M Run/ Walk is used to measure

A. Upper body strength B. Flexibility

C. Endurance D. Back strength

Answer : C. Endurance

Q12.Assertion (A) and Reason (R) Question:

Assertion (A): Body Mass Index (BMI) is a reliable method to measure the level of physical fitness.
Reason (R): BMI is calculated by dividing a person's weight in kilograms by the square of their height in meters.

Choose the correct option:
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.

Answer: D. A is false, but R is true.

Q13. Instrument used for measuring of behaviour is?

A. Test B. Measurement C. Assessment D. Evaluation

Answer : A. Test

Q14. Which of the following is **not** a Health-related Fitness?

A. Body composition B. Muscular Endurance

C. Flexibility D. coordination

Answer : D. coordination

Q15. The Formula of BMI is.

A. Weight(kg)/Height (m) B. Height^2(m)/Weight(kg)

C. Weight(kg)/Height^2(m) D. Weight^2(kg)/Height(m)

Answer : C. Weight(kg)/Height^2(m)

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

Q1.the assignment of number to express in quantitative terms the degree to which a pupil possesses a given characteristic is called

A. Test B. Measurement

C. Evaluation D. None.

Q2. Evaluation provides a meaningful status to measure only when it is compared to judge against.

A. to some established Standards B. Day to day experience

C. human understanding D. some relative theory

Q3. The physical make up of a person's body is called their _____.

A. Size. B. Height.

C. Shape. D. Body type.

Q4.. limited to quantitative description of pupil's performance is?

A. Test B. Measurement

C. Assessment D. Evaluation

Q5. The purpose of Modified Push ups is to measure

A. Muscular Strength B. Muscular Endurance

C. Cardiovascular Endurance D. Physical fitness

2. Very Short Answer Questions-2MARKS

Q1.Define Test?

Test is usually considered the narrowest of the three terms; it implies to the tools, instrument or set of questions to measure a dimension, quality or condition of a any person, object, event.

Q2. Define Measurement?

Measurement can be quantitative, qualitative or both. It is a score or data in numerical/grading values, indicating the capacity or ability of an individual, which is obtained on the basis of applied test. Students score in their test and examination either on the field or in the classroom is called measurement.

Q3.Define Evaluation?

It is the process of interpreting the collected data to measure and make the professional judgement of value or worth. After giving the test, everyone wants to know the feedback or effectiveness of the measures, which can be gathered through Evaluation.

Q4.What is the role of Diagnosis in Measurement and Evaluation?

Diagnosis is important to determine the strengths, weakness and limitations of individuals in physical education activity so that appropriate training can be provided.

Q5.What is the role of Achievement in Measurement and Evaluation?

Test is used to assess the achievement. It is the final ability level at a designated time and is sometimes relative to a standard norm criterion.

Q6.What is BMI?

Body Mass Index is a value derived from the mass (weight) and height of a person. The BMI is defined as the body mass divided by the square of body height, and is expressed in units of kg/m^2, resulting from mass in kilograms and height in metres(m).

Q7.What is Obesity?

Obesity is a long-term (chronic) health condition that progresses over time. Obesity is defined by excess body fat (adipose tissue) that may impair health.

Q8. What is cardiovascular Endurance?

Cardiovascular, or cardio, fitness refers to your body's ability to sustain exercise for longer. It's also known cardiorespiratory endurance or aerobic fitness.

Q9. Define Flexibility?

Flexibility is defined as the range of motion of a joint or group of joints without pain or difficulty.

Q10. What is Muscular Strength?

Muscular strength is the ability of a muscle group to exert force or lift and carry weight. The stronger your muscles, the heavier weight you can lift and move

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

Q1.Write importance of Health-related fitness?

Q2 What is Muscular Endurance?

Q3.What is Ectomorph body type?

Q4. What is Body composition?

Q5. What is Motivation?

3.SHORT QUESTION SOLVED (3 MARKS)

Q1.Write brief about skinfold Calliper

A skinfold caliper is a tool used to measure the thickness of subcutaneous fat, providing an estimate of body fat percentage.

Key Features
1. Precise measurement: Skinfold calipers measure the thickness of skin folds in millimeters.
2. Specific sites: Measurements are taken at specific body sites (e.g., triceps, biceps, abdomen).

Uses
1. Body fat assessment: Estimates body fat percentage.
2. Fitness evaluations: Tracks changes in body composition.
3. Health assessments: Helps identify potential health risks associated with excess body fat.

Benefits

- -Non-invasive: Quick and easy to use.
- Cost-effective: Compared to other body fat measurement methods.
- -Accurate: When used correctly, provides reliable measurements.

-

Q2.What is the difference between a test and measurement?

Test

A test is a tool or procedure used to assess a specific aspect of knowledge, skill, or physical fitness. It's a standardized way to evaluate performance or attributes.

Measurement

Measurement refers to the process of assigning a numerical value to a physical attribute or performance. It's the act of quantifying or assessing something.

Key Difference

The key difference is that a test is the tool or procedure, while measurement is the process of collecting data or assigning a numerical value.

Q3.Write Three Difference Between Endomorph and Ectomorph body type.

Endomorph vs Ectomorph

Endomorph

Body shape: Typically has a curvier figure with a larger bone structure and more body fat.
Metabolism: Slower metabolism, making it easier to gain weight.
Weight loss: May struggle with weight loss due to slower metabolism

Ectomorph

Body shape: Typically has a lean and slender build with a smaller bone structure.
Metabolism: Faster metabolism, making it easier to lose weight.
Weight gain**:** May struggle to gain weight due to fast metabolism.

Q3. Explain any Three points about Importance of Test and Measurement.

- **Prediction**: Test scores can be viewed as predictors of one's future success in school. Physical Education teachers may use the physical activity patterns, cardiovascular endurance, blood pressure, body fat, or other factors to predict the student's fitness level.
- **Motivation:** Test is frequently administered for motivational purposes. Successful achievement of importance standards can encourage one to achieve higher levels of performance. The skill tests may encourage the students to improve their skills further. Skin fold measure motivates overweight pupils to lose weight. It can motivate the students to practice skill with greater intensity. The comparison of current score with a previous score may be a motivational factor to the students.
- **Achievement**: Test is used to assess the achievement. It is the final ability level at a designated time and is sometimes relative to a standard norm criterion.

Q.4 Explain Push up Test?

Push-up Test is a widely used assessment of upper body strength and endurance. Here's how it works:

Procedure
1. Start in a plank position with hands shoulder-width apart and toes on the ground.
2. Lower your body until your chest nearly touches the ground.
3. Push back up to the starting position.
4. Repeat for a specified time (e.g., 30 seconds or 1 minute) or until exhaustion

Scoring
The score is typically the number of push-ups completed within the time frame or until exhaustion.

Q5. Explain any three Health- related fitness components?

Body Composition- is the last health-related component of fitness. It describes the ratio of fat mass to fat-free mass.

Muscular Endurance: refers to the ability of a given muscle to exert force against a load, constituently and repetitively trusted source over a period of time. Exerting force is also known as a contraction

Muscular Strength: is the ability of a muscle group to exert force or lift and carry weight. The stronger your muscles, the heavier weight you can lift and move

Q6. Define BMI? Explain the procedure for the calculation of BMI?

Body Mass Index (BMI) is a widely used measurement to assess an individual's weight status.

Calculation
BMI is calculated by dividing a person's weight in kilograms by their height in meters squared (kg/m^2).

Categories
The World Health Organization (WHO) defines the following BMI categories:

1. Underweight: BMI < 18.5
2. Normal weight: BMI = 18.5-24.9
3. Overweight: BMI = 25-29.9
4. Obese: BMI ≥ 30

SHORT ANSWER QUESTIONS FOR PRACTICE (3MARKS)

Q1.What is the purpose of measurement in physical education?

Q2. Explain brief about procedure of Anthropometric measurement of height?

Q3. Explain Procedure of Sit and Reach Test?sssss

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

Q1. **Case Study Question**:
"Ravi is a 16-year-old student who participates in school athletics, particularly running. His coach wants to assess his speed and endurance. Ravi's coach conducts a 50-meter sprint test to measure his speed and a 12-minute run test to measure his endurance. After these tests, the coach compares Ravi's results with the standard norms for his age group. Ravi performs well in the sprint but struggles with

maintaining his pace in the 12-minute run. Based on the test results, the coach decides to design a training program focused on improving Ravi's cardiovascular endurance."
Based on the above case study answer the following questions:

1. What does the 50-meter sprint test measure?
2. 2. What aspect of Ravi's fitness was identified as a weakness?
3. Why did Ravi's coach use the 12-minute run test?
4. How did the test results help Ravi's coach?

Answers:
1. The 50-meter sprint test measures an athlete's speed.
2. Ravi's endurance was identified as a weakness.
3.The coach used the 12-minute run test to assess Ravi's cardiovascular endurance.
4. The test results helped the coach identify that Ravi had good speed but needed to improve his endurance, leading to a focus on cardiovascular training.
.

Q Case 2: Somato Typing
A coach wants to determine the somato type of an athlete to design a training program. Describe the procedure for somato typing and explain how it can be used to inform training and nutrition planning.
Answer: Somatotyping is a method of classifying body shape and composition.

Procedure
1. Anthropometric measurements: Take measurements of skinfolds, girths, and bone diameters.
2. Calculate somatotype components: Use the Heath-Carter formula to calculate three components:
   - Endomorphy: Relative fatness
   - Mesomorphy: Muscularity and bone structure
   - Ectomorphy: Leanness and linearity
3. Plot somatotype ratings: Plot the three component ratings on a somatotype chart.

Informing Training and Nutrition Planning
Somatotyping can help coaches and athletes:

1. Identify strengths and weaknesses: Understand the athlete's body composition and potential advantages or disadvantages.
2. Design tailored training programs: Develop training programs that focus on the athlete's strengths and address weaknesses.
3. Optimize nutrition planning: Tailor nutrition plans to support the athlete's body composition and performance goals.

By understanding an athlete's somatotype, coaches can create personalized training and nutrition plans to enhance performance and achieve competitive advantages.

Q Case 3: BMI and Health Risks
Rahuls weight is 60kg and height is 1.7meters.

1. Calculate Rahul's BMI and determine his BMI category.
   Answer: BMI= $60/(1.7)^2$ =20
2. what is his BMI Category?
   Answer: Normal Weight
3. Full form of BMI
   Answer: Body Mass Index
4. What is Over weight Category?
   Answer:25.5 -29.9

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Case 4: Skinfold Measurement
A fitness trainer wants to measure the body fat percentage of a client using skinfold measurement. Describe the procedure for skinfold measurement (3-site) and calculate body fat percentage.

Case 5: Evaluation of Fitness Program
A fitness program wants to evaluate its effectiveness in improving fitness levels. Design a plan to evaluate the program, including tests and measurements to assess progress and outcomes.

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q1. Describe in brief about Sit and Reach Test?

The "Sit and Reach" test is a widely used assessment of flexibility, particularly in the hamstrings, hip flexors, and lower back. Here's how it works:

Procedure
1. Sit on the floor with your legs straight out in front of you.
2. Place your feet flat against a box or bench.
3. Lean forward, reaching as far as possible, and hold for a few seconds.
4. Measure the distance from the edge of the box to your fingertips.

Scoring
The score is typically measured in inches or centimeters, with higher scores indicating greater flexibility.

Purpose
The Sit and Reach test assesses:

1. Hamstring flexibility
2. Hip flexor flexibility
3. Lower back flexibility

Q2. Explain Importance of Test, Measurement and Evaluation.
Placement: Every student cannot be given the same training programme. Placement refers to the grouping of the students into categories like high fitness and low fitness, swimmers and non-swimmers, skilled and unskilled because students must be put into categories for being imparted the most suitable training. In other words, test and measurement is important to provide a means of classifying students for instructions and participation.

Diagnosis: Diagnosis is important to determine the strengths, weakness and limitations of individuals in physical education activity so that appropriate training can be provided.

Prediction: Test scores can be viewed as predictors of one's future success in school. Physical Education teachers may use the physical activity patterns, cardiovascular endurance, blood pressure, body fat, or other factors to predict the student's fitness level.

Motivation: Test is frequently administered for motivational purposes. Successful achievement of importance standards can encourage one to achieve higher levels of performance. The skill tests may encourage the students to improve their skills further. Skin fold measure motivates overweight pupils to lose weight. It can motivate the students to practice skill with greater intensity. The comparison of current score with a previous score may be a motivational factor to the students.

Achievement: Test is used to assess the achievement. It is the final ability level at a designated time and is sometimes relative to a standard norm criterion.

Programme Evaluation: The result of participants can be used as evidence to evaluate programme

Q3. Explain the waist-hip ratio in detail.

The waist to hip ratio determines the possibility of health risks and is an individual of whether you have an apple or pear- shaped figure. The waist to hip ratio measurement of your waist by your hip measurement.

How to Calculate WHR

Measure Your Waist: Use a tape measure to find the circumference of your waist at its narrowest point, typically just above the belly button.

1. **Measure Your Hips**: Measure the circumference of your hips at the widest point, around the buttocks.
2. **Calculate WHR**: Divide your waist measurement by your hip measurement
3. **Calculate WHR**: Divide your waist measurement by your hip measurement. For example, if your waist is 80 cm and your hips are 100 cm, your WHR would be 80÷100=0.0÷100=0.7.

$$\text{WHR} = \frac{\text{Waist Circumference}}{\text{Hip Circumference.}}$$

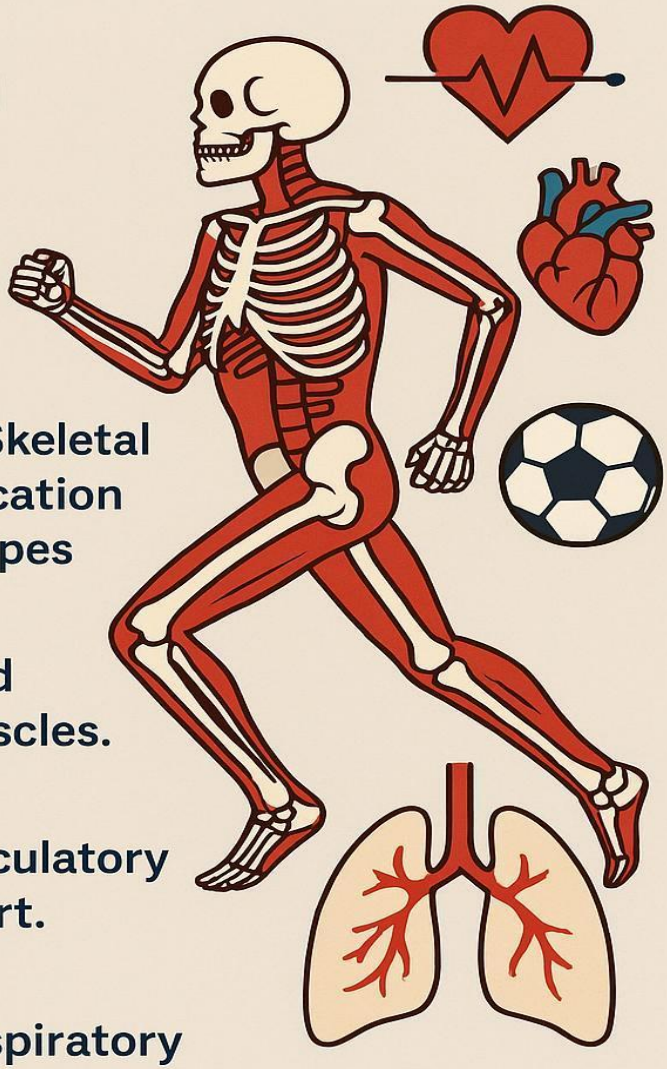
LONG QUESTIONS ANSWER FOR PRACTICE (5 MARKS)

Q4. List and explain the tests related to Cardiovascular Endurance

Q5. Explain the three somato types in detail?

FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY IN SPORTS UNIT – 7

1. Definition and importance of Anatomy and Physiology in Exercise and Sports.
2. Functions of Skeletal System, Classification of Bones, and Types of Joints.
3. Properties and Functions of Muscles.
4. Structure and Functions of Circulatory System and Heart.
5. Structure and Functions of Respiratory System.



Learning Objectives

1. Understand basic human body structure relevant to sports (muscles, bones, joints).
2. Explain how the muscular and skeletal systems work together to produce movement.
3. Identify major muscle groups used in common sports activities.
4. Describe the role of the cardiovascular and respiratory systems during physical exercise.
5. Understand the effects of regular exercise on the body's anatomy and physiology.
6. Learn basic injury prevention principles related to anatomy.

Learning Outcome (Daily Life Application)

1. Recognize key muscles and bones involved when playing sports or doing physical activities like running, jumping, or lifting objects at home.
2. Explain why warming up muscles before exercise helps prevent injuries.
3. Apply knowledge of breathing techniques to improve stamina during activities such as cycling or swimming.
4. Monitor heart rate during physical exertion and comprehend its significance for overall health.
5. Identify signs of muscle fatigue or strain and take appropriate rest or care.
6. Make informed decisions about safe movement and posture in everyday tasks like lifting heavy groceries or climbing stairs.

UNIT - 7

MIND MAP

WEIGHTAGE MARKS (08)

LEARNING OUTCOMES

- **Understand Systems**
- **Effects of Exercise**
- **Body Movements**
- **Injury Prevention**

DEFINITIO AND IMPORTANCE OF ANATOMY AND PHYSIOLOGY IN SPORTS

Anatomy: Body Structure
Physiology: Body Functions

Definition Anatomy is the study of the structure of the human body its bones, organs, and systems. Physiology is the study of how those body parts function and work together.

Performance Enhancement

- Injury Prevention
- Rehabilitation, Selection of Sports person
- Training Design, Research in sports

FUNDAMENTALS ANATOMY AND PHYSIOLOGY IN SPORTS

- **Respiratory System**
- **Mouth & Nose, Nasal Cavity Pharynx**
- **Larynx, Trachea Bronchi**
- **Lungs (Alveoli)** – Site of gas exchange, Diaphragm.
- **Functions:**
- **Protect Airways -hair In nose**
- **Oxygen Supply** – Delivers oxygen to the blood
- **Carbon Dioxide Removal**
- **Gas Exchange** – Occurs in alveoli between lungs and
- blood
- **Breathing (Ventilation)** – Inhalation and exhalation
- Helps In temperature regulations

Functions of Skeletal System

Axial Skeleton- Skull - 28,Sternum-1,Ribs-24,Hyoid -1, Vertebral column -26

Appendicular skeleton – Upper Limbs -64, lower Limbs -62

FUNCTIONS-Support, Protection,

Movement, blood Cell Production, Storage Minerals

Classification of Bones

Long bones, Short bones, flat Bones, Irregular Bones, Sessamoid bones.

Fibrous (Immovable) – e.g., skull joint

Cartilaginous (Slightly movable) – e.g., vertebrae

Synovial (Freely movable) – Most important in sports,Gliding Joint

Hinge joint, Ball and socket

Functions of Muscular System

Properties and Functions of Muscles

Contractility – Ability to shorten and generate force

Extensibility – Ability to stretch

Elasticity – Ability to return to original shape

Excitability – Ability to respond to stimuli

Functions of muscles-

Movement – Via muscle contractions

Posture Maintenance Joint Stability

Mobility, protect organs

Give supports to Body.

Temperature Regulation & Heat Production –

Circulatory System

Heart – A four-chambered pump (2 atria, 2 ventricles)

Blood Vessels – Arteries, veins, capillaries

Blood – Carries oxygen, nutrients, and waste

Function

Transport – Of oxygen, nutrients, and hormones

Regulation – Body temperature and pH

Protection – Against disease (white blood cells)

Gist / Study Material
Important Points

Anatomy:

- Skeletal system: Provides structure and support; 206 bones in adults.
- Muscular system: 600+ muscles; types: voluntary (skeletal), involuntary (smooth, cardiac).
- Joints: Points where bones meet; types include hinge (knee), ball-and-socket (shoulder).

Physiology:

• Muscle contraction: How our body system works.

• Cardiovascular system: Heart pumps blood; delivers oxygen & nutrients to muscles.

• Respiratory system: Oxygen intake and carbon dioxide removal via lungs; increased breathing rate during exercise.

7.1 Definition and Importance of Anatomy and Physiology in Exercise and Sports.

Definition

Anatomy is the branch of biology that deals with the structure of the human body. It studies the bones, muscles, joints, organs, and how they are arranged and connected.

Physiology is the branch of science that explains the functions of the body parts — how organs, systems, and cells work, especially during movement or exercise.

In short:

Anatomy = What the body is made of
Physiology = How the body works

Importance of Anatomy and Physiology in Exercise and Sports

- Understanding Body Structure: Helps athletes, coaches, and trainers understand which body parts are involved in specific movements.
- Injury Prevention: Knowledge of body structure helps prevent sports injuries through proper training and posture.
- Improved Performance: Understanding how the heart, lungs, and muscles respond to exercise helps in improving athletic performance.
- Designing Effective Training Programs: Knowledge of muscle types and energy systems helps in planning workouts for specific needs.
- Monitoring Physical Fitness: Helps track heart rate, oxygen intake, and fatigue during training.
- Better Posture and Movement: Aids in correcting posture and technique in various sports.

• Application in Sports Science: Essential for physiotherapists, trainers, and sports scientists to analyze and improve human movement.

Examples in Daily Life & Sports

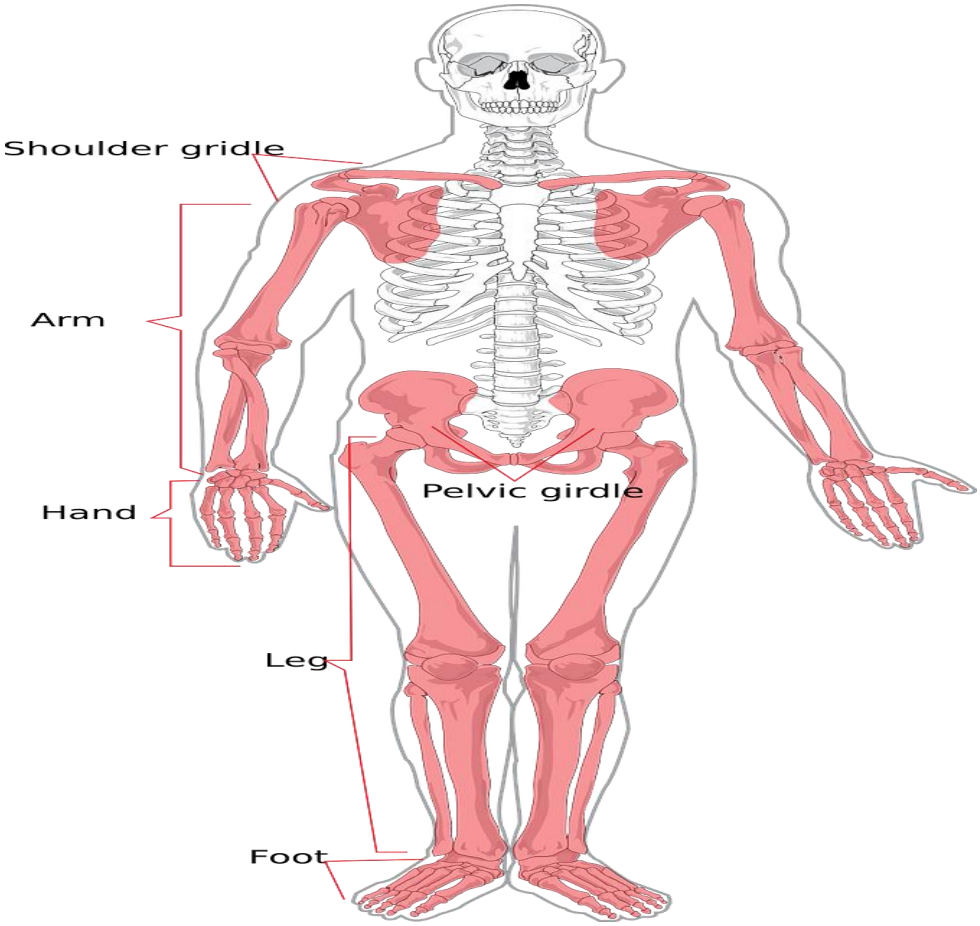
Activity	Related Anatomy & Physiology Knowledge
Running	Involves leg muscles (quads, hamstrings), heart and lungs for endurance.
Swimming	Uses upper and lower body muscles, breathing control (respiratory system).
Weightlifting	Requires knowledge of muscle strength and joint safety.
Football/Basketball	Involves cardiovascular fitness, muscular coordination, injury prevention.

7.2 Functions of the Skeletal System

Definition:

The **skeletal system** is the framework of bones and cartilage that supports and protects the body, allows movement, produces blood cells, and stores minerals like calcium and phosphorus. It gives the body its shape and structure.

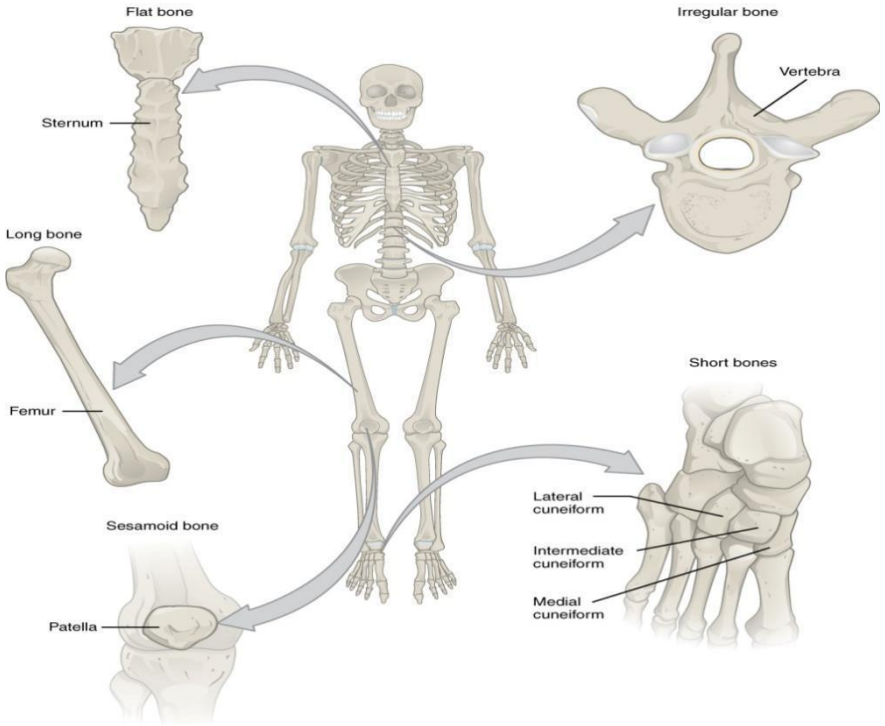
The skeletal system is a vital part of the human body, composed of 206 bones in adults. It serves multiple essential functions that support movement, protection, and overall body structure.



Major Functions of the Skeletal System

1. Support: Provides a structural framework for the body and supports soft tissues and organs.
2. Protection: Protects vital internal organs (e.g., the skull protects the brain, the rib cage protects the heart and lungs).
3. Movement: Works with the muscular system to enable body movements through joints and muscle attachments.
4. Mineral Storage: Stores essential minerals such as calcium and phosphorus, which can be released into the bloodstream as needed.
5. Blood Cell Production: Occurs in the red bone marrow of certain bones.
6. Fat Storage: Yellow bone marrow stores fats that serve as an energy reserve.
7. Shape and Posture: Gives shape to the body and helps maintain an upright posture.

Classification of Bones and Types of Joints



Bones are classified based on their shape and structure. Each type of bone serves a different purpose in the body.

1. Long Bones: These are longer than they are wide and mostly found in the limbs. Example: Femur, Humerus.
2. Short Bones: These are cube-shaped and provide stability and support. Example: Carpals (wrist bones), Tarsal (ankle bones).
3. Flat Bones: These bones are thin and flat, providing protection to internal organs. Example: Skull, Ribs, Scapula.
4. Irregular Bones: These have complex shapes that do not fit into the other categories. Example: Vertebrae, Pelvis.
5. Sesamoid Bones: These are small, round bones embedded within tendons. Example: Patella (kneecap).

Types of Joints

I. Structural Classification of Joints

This classification is based on the material connecting the bones and the presence or absence of a joint cavity.

1. Fibrous Joints

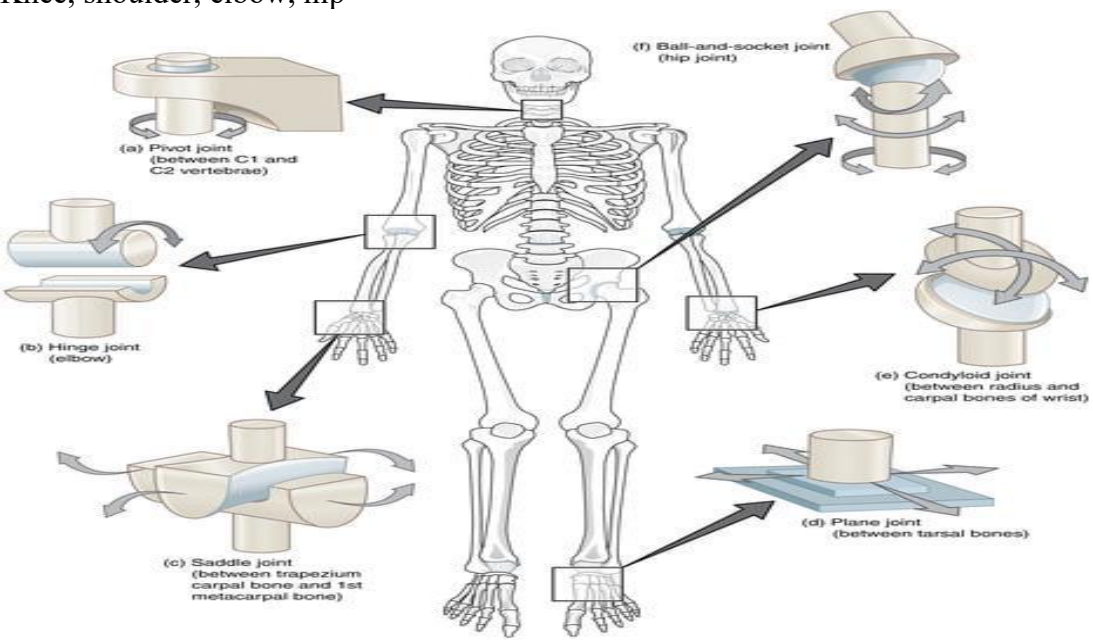
- **Description:** Bones are connected by dense connective tissue.
- **Movement:** Mostly **immovable** (synarthrosis).
- **Examples:** Sutures of the skull, Syndesmoses (e.g., between tibia and fibula).

2. Cartilaginous Joints

- **Description:** Bones are connected by cartilage.
- **Movement:** Slightly **movable** (amphiarthrosis).
- **Examples:**
    - Intervertebral discs
    - Pubic symphysis

3. Synovial Joints

- **Description:** Bones are separated by a fluid-filled joint cavity.
- **Movement: Freely movable** (diarthrosis).
- **Examples:**
    - Knee, shoulder, elbow, hip



Joints are locations in the body where two or more bones meet. They are classified based on structure and movement.

1. Ball and Socket Joint: Allows movement in all directions. Example: Shoulder and Hip joints.
2. Hinge Joint: Allows movement in one direction (like a door hinge). Example: Elbow, Knee.
3. Pivot Joint: Allows rotational movement. Example: Neck (between atlas and axis vertebrae).
4. Saddle Joint: Allows movement in two directions. Example: Thumb joint.
5. Gliding Joint: Allows bones to glide past each other. Example: Joints between wrist bones.

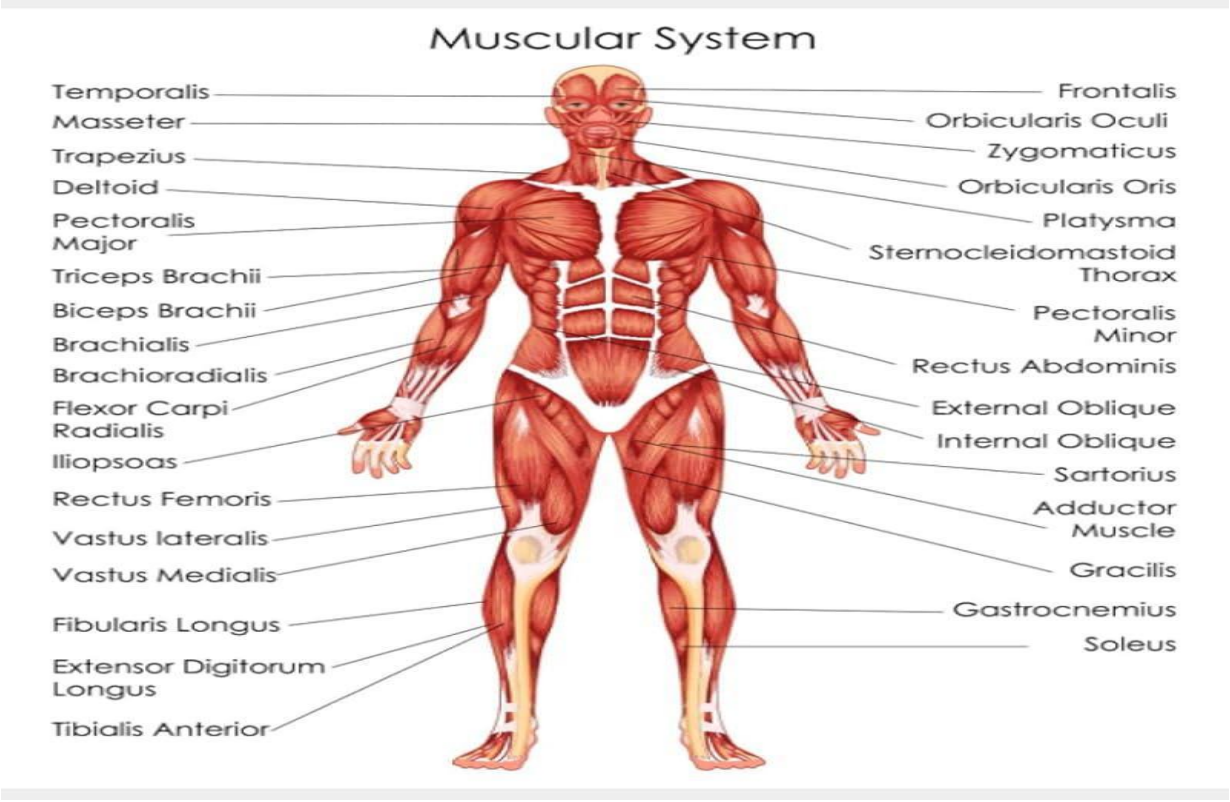
6. Condyloid Joint: Allows movement but no rotation. Example: Wrist joint (between radius and carpal bones).

7.3 Properties and Functions of Muscles

Muscle - The human body has over 600 muscles that make up about 40-50% of the body weight. Muscles consist of parallel bundles of muscle fibers, each containing myofibrils with sarcomeres responsible for contraction. There are three main types of muscles; smooth muscles which are present in internal organs and control involuntary processes; and cardiac muscles which form the heart ensure rhythmic contraction for circulation.

Muscle Types Classified by Control and Structure

Muscle Type	Control	Striated?	Location	Function
Skeletal Muscle	**Voluntary**	Yes	Attached to bones	Movement, posture, heat production
Cardiac Muscle	**Involuntary**	Yes	Heart only	Pumps blood throughout the body
Smooth Muscle	**Involuntary**	No	Walls of internal organs (e.g., stomach, blood vessels, intestines)	Moves substances like food, blood, urine



Properties of Muscles

1. **Contractility**

Contractility means the **ability of a muscle to tighten or squeeze**.In the **heart**, it means how strongly the heart muscle can **pump blood**.

2. **Excitability** (Irritability)

It is the ability of a muscle to activate. If the excitability of a muscle is greater, its force, velocity , and eendurance will also be greater.

When a sprinter hears "Go!", their nerves send a quick signal to the leg muscles. The muscles **respond instantly** — that's excitability in action!

3. **Extensibility**

It is the ability to be stretched or extended without damage.

When a gymnast does the splits, their muscles stretch a lot — this shows **high extensibility**

4. **Elasticity**

Ability to return to its original shape and length after contraction or extension.

A basketball player's calf muscles stretch and recoil when jumping.

A tennis player's arm muscles stretch when hitting and return fast for the next shot.

Functions of Muscles

1. **Movement**

- Muscles contract to produce movement of body parts (e.g., walking, running).

2. **Posture Maintenance**

- Continuous partial contraction of muscles helps maintain posture and body position.

3. **Heat Production**

- Muscle contractions produce heat, which helps maintain body temperature.

4. **Stabilization of Joints**

- Muscles help stabilize and strengthen joints during movement.

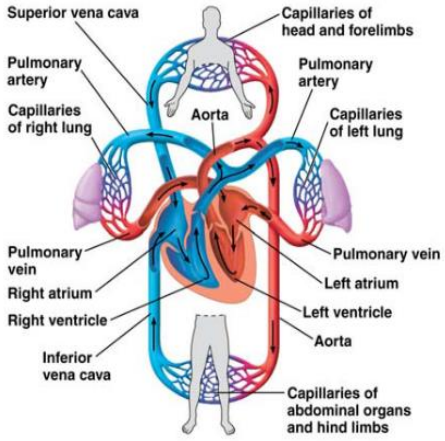
5. **Protection of Internal Organs**

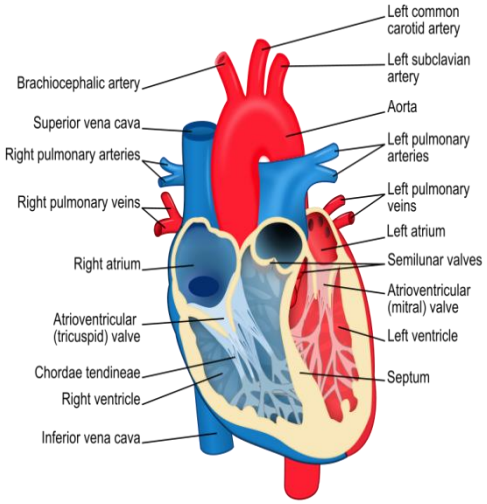
- Muscles form protective layers over internal organs (like abdominal muscles protect the intestines).

6. **Circulation Assistance-** Skeletal muscles help pump blood and lymph by compressing veins during contraction.

7.4Structure and Functions of Circulatory System and Heart

Structure of Circulatory System	Structure of Heart
Structure of circulatory system comprises. Number of arteries and veins. The circulatory system has three circuits namely 1- Pulmonary Circulation 2- Systematic Circulation 3- Coronary Circulation.	□ Located in the **chest**, slightly to the **left** side. □ Part of the **circulatory system**. □ Has **four chambers**: two atria (upper) and two ventricles (lower). □ **Pumps blood**: • **To the lungs** to pick up oxygen (right side of the heart) • **To the body** to deliver oxygen and nutrients (left side of the heart) □ Controlled by an **electrical system** that keeps it beating regularly. To **supply the body with oxygen-rich blood** and remove waste like carbon dioxide by constantly circulating blood.





Structure:

- Heart: A muscular organ with four chambers (2 atria and 2 ventricles)
- Blood Vessels: Arteries (carry blood away from heart), veins (carry blood to heart), and capillaries (tiny vessels for exchange of gases, nutrients, and wastes).
- Blood: Carries oxygen, nutrients, hormones, and waste products.

Functions:

- Transport of oxygen and nutrients to body cells.
- Removal of carbon dioxide and waste products from cells.
- Regulation of body temperature through blood flow.
- Protection via white blood cells and antibodies.
- Transport of hormones and other signaling molecules.

Heart

Structure:

- Right Atrium: Receives deoxygenated blood from the body via veins.
- Right Ventricle: Pumps deoxygenated blood to lungs through pulmonary artery.
- Left Atrium: Receives oxygenated blood from lungs via pulmonary veins.
- Left Ventricle: Pumps oxygenated blood to the body through the aorta.
- Valves: Prevent back-flow of blood (tricuspid, pulmonary, mitral, and aortic valves).

  Walls: Thick muscular walls, especially the left ventricle, to pump blood efficiently.

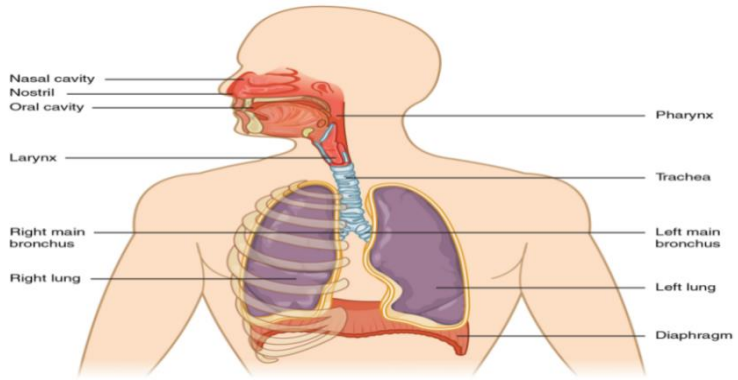
Functions:

- Pumping blood throughout the body.
- Maintaining unidirectional flow of blood using valves.

  Separating oxygenated and deoxygenated blood to ensure efficient oxygen delivery.

7.5 Structure and Functions of Respiratory System

Respiratory System



Structure:

Structure of Respiratory System: Respiratory system structure comprises different organs and body parts as shown below with their involvement in the respiratory system:

Mouth and Nose: It is the beginning or opening of the respiratory system that pulls air inside the body from outside.

Sinuses: It is the hollow areas of bony nose and it helps in regulate the temperature and humidity of the air we inhale.

Pharynx (throat): Pharynx works as a connecting bridge between the nose, mouth and trachea (windpipe).

Trachea: It is also known as windpipe, with a length of 10–13 cm. It is connected with pharynx and bronchial tubes.

Bronchial tubes: It is connecting with trachea at bottom and further is divided into two parts that connect into each lungs.

Lungs: Lungs are major organs of the respiratory system and they are two in number.Lungs are responsible for removing oxygen from the air and pass it into blood.

Bronchioles: These are the extended branches of bronchial tubes in the lungs which lead to the alveoli.

Alveoli: These are tiny air sacs in the lungs attached to bronchioles where the exchange of oxygen and carbon dioxide in blood capillaries network takes place.
Diaphragm: During inhalation diaphragm contracts and flatten resulting in enlargement of the chest cavity. This contraction creates a vacuum which helps in pulling air into the lungs.

Functions:

Gas Exchange (Oxygen and Carbon Dioxide):

- **Primary function**: Supplies the blood with **oxygen** and removes **carbon dioxide**.
- Takes place in the **alveoli** of the lungs.

Breathing (Pulmonary Ventilation):

- **Inhalation** (taking in air) and **exhalation** (expelling air).
- Moves air in and out of the lungs.

Sound Production (Phonation):

- Air passes through the **larynx (voice box)** and vibrates the vocal cords to produce sound.

Olfaction (Sense of Smell):

- Nasal passages contain **olfactory receptors** that detect smells.

Protection:

- The respiratory tract filters out **dust, microbes, and harmful substances** using mucus and cilia.
- Prevents pathogens from entering the body.

Acid-Base Balance Regulation:

- Helps maintain the body's **pH balance** by controlling levels of carbon dioxide (which affects blood acidity).

Thermoregulation:

- Assists in regulating body temperature through **heat exchange** during breathing.

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1 MARK EACH)

1. Anatomy is the study of?
a) Function of body parts b) Structure of body parts
c) Disease in body parts d) Nutrition
Answer: b) Structure of body parts

2. Physiology focuses on:
a) Body structure b) Body function
c) Body diseases d) Body movements
Answer: b) Body function

3. Why is knowledge of anatomy important in sports?
a) To improve nutrition b) To understand body structure and prevent injuries
c) To learn sports rules d) To enhance athletic performance
Answer: b) To understand body structure and prevent injuries

4. Which of the following is NOT a function of the skeletal system?
a) Protection
b) Support
c) Hormone production
d) Movement
Answer: c) Hormone production

5. Which bone classification does the femur belong to?
a) Long bone b) Short bone
c) Flat bone d) Irregular bone
Answer: a) Long bone

6.The joint that allows movement in all directions is called:
a) Hinge joint b) Ball and socket joint
c) Pivot joint d) Gliding joint
Answer: b) Ball and socket joint

7. Which joint type allows only bending and straightening motions?
a) Ball and socket b) Hinge
c) Pivot d) Saddle
Answer: b) Hinge

8.The skull bones are an example of which classification?
a) Long bones b) Short bones
c) Flat bones d) Sesamoid bones
Answer: c) Flat bones

9.Which property allows muscles to shorten and produce movement?
a) Excitability b) Contractility
c) Elasticity d) Extensibility
Answer: b) Contractility

10. Which muscle type is voluntary?
a) Skeletal muscle b) Cardiac muscle
c) Smooth muscle d) Involuntary muscle
Answer: a) Skeletal muscle

11. The main function of muscle is to:
a) Protect organs b) Produce movement
c) Store minerals d) Produce hormones
Answer: b) Produce movement

12. The heart is made up of:
a) Smooth muscle b) Cardiac muscle
c) Skeletal muscle d) Connective tissue
Answer: b) Cardiac muscle

13. Which chamber of the heart receives oxygenated blood from the lungs?
a) Right atrium b) Left atrium
c) Right ventricle d) Left ventricle
Answer: b) Left atrium

14. The function of red blood cells is to:
a) Fight infection b) Carry oxygen
c) Clot blood d) Transport hormones
Answer: b) Carry oxygen

15.Where does gas exchange occur in the lungs?
a) Bronchi b) Alveoli
c) Trachea d) Larynx
Answer: b) Alveoli

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

1. The skeletal system stores which important mineral?
a) Calcium b) Potassium c) Sodium d) Iron

2. Which muscle property allows it to return to its original length after stretching?
a) Contractility b) Extensibility c) Elasticity d) Excitability

3. Which valve prevents backflow of blood into the left atrium?
a) Tricuspid valve b) Mitral valve c) Pulmonary valve d) Aortic valve

4. The respiratory system includes all EXCEPT:
a) Nose b) Lungs c) Kidneys d) Trachea

5. The pivot joint is found in:
a) Neck b) Elbow c) Shoulder d) Wrist

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

1. Define anatomy.
Answer: Anatomy is the study of the structure and organization of living organisms and their parts.

2.Why is physiology important in sports?
Answer: Physiology helps us understand how the body functions during exercise, improving performance and preventing injuries.

3.Name the three types of bones based on their shape.
Answer: Long bones, short bones, and flat bones.

4. What are ligaments?
Answer: Ligaments are tough, fibrous tissues that connect bones to other bones at joints.

5. List two functions of the skeletal system.
Answer: Protection of internal organs and support for the body.

6.What is a muscle twitch?
Answer: A muscle twitch is a single, brief contraction and relaxation cycle of a muscle fiber.

7.Name the main chambers of the heart.
Answer: Two atria (left and right) and two ventricles (left and right).

8. What is the function of alveoli?
Answer: Alveoli facilitate the exchange of oxygen and carbon dioxide between the lungs and blood.

9.Define tendon.
Answer: Tendons are strong connective tissues that attach muscles to bones.

10.What is the role of red blood cells in the circulatory system?
Answer: They carry oxygen from the lungs to body tissues and bring back carbon dioxide to the lungs.

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

1.What is the function of cartilage in the skeletal system?
2.Explain the term ‘contractility’ related to muscles.
3.Name the valve that prevents backflow of blood from the left ventricle to the left atrium.
4.What is the function of the diaphragm in respiration?
5.List two types of joints based on their movement.

3.SHORT QUESTION SOLVED (3 MARKS)

1.Explain the importance of the skeletal system in sports performance.

Answer: The skeletal system provides structure and support to the body, protects vital organs, enables movement by serving as attachment points for muscles, and stores minerals like calcium, which is important for muscle function.

2.Describe the role of tendons and ligaments in joint movement.

Answer: Tendons connect muscles to bones and transmit the force needed for movement. Ligaments connect bones at joints, providing joint stability and preventing excessive movement.

3.What are the properties of skeletal muscles?

Answer: Skeletal muscles have contractility (ability to shorten), extensibility (ability to stretch), elasticity (ability to return to original shape), and excitability (ability to respond to stimuli).

4.Outline the flow of blood through the heart starting from the right atrium.

Answer: Blood enters the right atrium from the body → right ventricle → pulmonary artery → lungs (oxygenation) → pulmonary vein → left atrium → left ventricle → aorta → body.

5.How does the respiratory system support athletic performance?

Answer: It supplies oxygen to the blood and removes carbon dioxide, ensuring muscles receive adequate oxygen for energy production during exercise.

6.Differentiate between a hinge joint and a ball and socket joint with examples.

Answer: A hinge joint allows movement in one plane (e.g., elbow), while a ball and socket joint allows multi-directional movement (e.g., shoulder).

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

1.Explain the significance of calcium in muscle contraction.

2.Describe the function of white blood cells in the circulatory system.

3.What adaptations occur in the respiratory system with regular endurance training?

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

1-Amit is a school level athlete who participates in middle-distance running (800 meters). During training, he follows a routine that includes stretching, jogging, resistance exercises, and breathing drills. His coach regularly checks his heart rate and advises proper hydration and nutrition. After a race, Amit sometimes experiences muscle cramps and fatigue.

Q1. Which body systems are primarily responsible for Amit's performance in middle-distance running?

a) Skeletal and Digestive systems b) Respiratory and Muscular systems
c) Circulatory systems d) Nervous and Reproductive systems

Answer: b) Respiratory and Muscular systems

Q2. What is the reason for Amit experiencing muscle fatigue after running?

a) Low blood sugar b) Dehydration
c) Accumulation of lactic acid d) Excess oxygen

Answer: c) Accumulation of lactic acid

Q3. During running, which type of muscle contraction occurs when Amit pushes off the ground?

a) Isometric b) Concentric
c) Eccentric d) Involuntary

Answer: b) Concentric

Q4. Which joint type is mainly involved in the flexion and extension of the knee during running?

a) Pivot joint b) Hinge joint
c) Ball and socket joint d) Saddle joint

Answer: b) Hinge joint

2-Rai is a state-level shot-put player. His daily training includes weightlifting and explosive throwing techniques. His coach emphasizes building muscle strength and improving reaction time. During training, Rohit uses his shoulders, arms, and legs intensely and experiences delayed muscle soreness the next day.

Q1. What type of muscle is primarily used during shot-put action?

a) Smooth muscle b) Cardiac muscle
c) Skeletal muscle d) Involuntary muscle

Answer: c) Skeletal muscle

Q2. Which type of joint is involved in shoulder movement during throwing?

a) Hinge joint b) Gliding joint
c) Ball and socket joint d) Pivot joint

Answer: c) Ball and socket joint

Q3. What type of muscle contraction occurs when Rohit lifts the shot put?

a) Isometric b) Concentric
c) Eccentric d) Reflexive

Answer: b) Concentric

Q4. What could be the cause of delayed muscle soreness in Rohit?

a) Dehydration b) Eccentric contractions
c) Excess fat intake d) Poor posture

Answer: b) Eccentric contractions

3-Priya is a high school basketball player. During a match, she notices her heart rate and breathing rate increase. Her coach explains that these are natural physiological responses to supply enough oxygen to working muscles. After intense games, Priya often uses deep breathing exercises and light jogging as a cool-down method.

Q1. What is the term for increased heart rate during exercise?

a) Bradycardia b) Tachycardia
c) Hypoxia d) Hyperglycaemia

Answer: b) Tachycardia

Q2. Which two systems work together to supply oxygen to muscles?

a) Nervous and Digestive systems b) Respiratory and Circulatory systems
c) Muscular and Endocrine systems d) Skeletal systems

Answer: b) Respiratory and Circulatory systems

Q3. What is the benefit of Priya doing cool-down exercises?

a) Increases body temperature b) Prevents injuries
c) Builds muscles d) Improves digestion

Answer: b) Prevents injuries

Q4. What is the main function of the respiratory system during exercise?

a) Produce energy b) Carry hormones
c) Exchange gases (O_2 and CO_2) d) Store minerals

Answer: c) Exchange gases (O_2 and CO_2)

4-Anaya is preparing for a 10 km cross-country race. Her training includes long-distance runs, breathing exercises, and regular hydration. During runs, her heart rate increases, she perspires heavily, and her legs feel tired after long stretches. Her coach advises her to consume carbohydrate-rich food and rest properly to improve recovery and endurance.

Q1. What is the physiological reason for Anaya sweating during the run?

a) To balance blood pressure b) To cool down the body temperature

c) To remove lactic acid d) To increase metabolism

Answer: b) To cool down the body temperature

Q2. Which energy system is primarily used during a long-distance race?

a) ATP-PC system b) Anaerobic system

c) Lactic acid system d) Aerobic system

Answer: d) Aerobic system

Q3. What causes muscle tiredness in long-duration running?

a) Vitamin deficiency b) Muscle cramps

c) Glycogen depletion d) Joint dislocation

Answer: c) Glycogen depletion

Q4. What is the function of carbohydrates in an athlete's diet?

a) Build muscle tissue b) Repair broken bones

c) Provide energy d) Increase reflexes

Answer: c) Provide energy

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

1-Karan, a gymnast, practices stretching and balance exercises daily to improve flexibility. He often uses his shoulder and hip joints for wide and fast movements. His coach teaches him the importance of joint mobility and controlled movements to avoid sprains or dislocations.

Q1. What type of joints are found in the shoulder and hip?

a) Hinge joint b) Gliding joint

c) Pivot joint d) Ball and socket joint

Q2. What kind of movement occurs when Karan lifts his leg sideways during a split?

a) Flexion b) Extension

c) Abduction d) Rotation

Q3. Which system is directly involved in joint movement and flexibility?

a) Nervous system b) Skeletal system

c) Respiratory system d) Digestive system

Q4. What is one benefit of improving joint flexibility?

a) Slower heart rate b) Increased body fat

c) Reduced risk of injury d) Decreased muscle strength

2- Vijay is a sprinter who competes in 100m races. During his sprints, he uses explosive leg movements and quick arm swings. His coach has explained that muscle contraction, joint movement,

and energy release are key to his performance. After a race, Varun feels tightness in his calves and practices cool-down stretches.

Q1. Which muscles are mainly responsible for Varun's leg movement during sprinting?

a) Biceps and triceps b) Hamstrings and quadriceps
c) Deltoid and pectorals d) Abdominals and trapezius

Q2. What type of contraction occurs in his leg muscles when he pushes off the ground?

a) Eccentric b) Concentric
c) Isometric d) Reflexive

Q3. What type of joint is found in the knee that enables sprinting motion?

a) Pivot joint b) Saddle joint
c) Hinge joint d) Gliding joint

Q4. Why does Varun perform stretching after a race?

a) To increase body temperature b) To reduce lactic acid build-up and prevent cramps
c) To improve digestion d) To increase heart rate

5. LONG QUESTIONS ANSWER (SOLVED - 5 MARKS)

1.Describe the structure and functions of the human heart and explain how it supports physical activity.

Answer- The human heart is a **muscular, hollow organ** located in the chest between the lungs. It is about the size of a closed fist and is divided into **four chambers**:

1. **Right Atrium** – receives deoxygenated blood from the body through the **vena cava**.
2. **Right Ventricle** – pumps deoxygenated blood to the **lungs** through the **pulmonary artery** for oxygenation.
3. **Left Atrium** – receives oxygenated blood from the lungs through the **pulmonary veins**.
4. **Left Ventricle** – pumps oxygenated blood to the **rest of the body** through the **aorta**.

- **Valves** (such as tricuspid, pulmonary, mitral, aortic) ensure **one-way blood flow** and prevent backflow.
- **Septum** – separates the left and right sides of the heart.
- **Coronary arteries** – supply the heart muscle with oxygenated blood.

Functions of the Heart:

1. **Pumps blood continuously** throughout the body.
2. **Delivers oxygen and nutrients** to organs and muscles.
3. **Removes waste products** such as carbon dioxide.
4. **Maintains blood pressure** and supports blood flow regulation.

How the Heart Supports Physical Activity:

During physical activity or exercise:

- The **heart rate increases** to pump more blood quickly.
- This delivers **more oxygen and glucose** to working muscles for energy.
- The heart also helps **remove carbon dioxide and lactic acid** from the muscles.
- With regular exercise, the heart becomes **stronger and more efficient**, improving **endurance and performance**.
- A healthy heart allows an athlete to perform at a **higher intensity** for longer periods.

2. Explain the classification of bones with examples, and discuss the role of the skeletal system in movement and protection.

Answer:

1. Long Bones

- **Shape:** Longer than they are wide, with a shaft and two ends.
- **Function:** Provide strength, support, and mobility.
- **Examples:**
  - Femur (thigh bone)
  - Humerus (upper arm)
  - Tibia (shin bone)
  - Radius and Ulna (forearm bones)

2. Short Bones

- **Shape:** Approximately equal in length, width, and thickness (cube-like).
- **Function:** Provide stability and support with limited movement.
- **Examples:**
  - Carpals (wrist bones)
  - Tarsals (ankle bones)

3. Flat Bones

- **Shape:** Thin, flattened, and usually curved.
- **Function:** Protect internal organs and provide large areas for muscle attachment.
- **Examples:**
  - Skull bones (like the frontal bone)
  - Ribs
  - Sternum (breastbone)
  - Scapula (shoulder blade)

4. Irregular Bones

- **Shape:** Complex shapes that don’t fit other categories.
- **Function:** Provide protection and support various functions.

- **Examples:**
    - Vertebrae (spinal bones)
    - Facial bones (like the mandible)
    - Pelvic bones

Role of the Skeletal System in Movement

- **Attachment for Muscles:** Bones serve as points of attachment for skeletal muscles via tendons.
- **Levers for Movement:** Bones act as levers that muscles pull on to create movement at joints.
- **Joints Enable Movement:** The points where bones meet (joints) allow different types of motion such as bending, rotating, or sliding.
- During muscle contraction, muscles pull on bones, causing movement of limbs or the body.

Example:

- When you bend your arm, the biceps muscle contracts, pulling on the radius bone to flex the elbow.

Role of the Skeletal System in Protection

- **Protects Vital Organs:**
    - Skull protects the brain.
    - Rib cage protects the heart and lungs.
    - Vertebrae protect the spinal cord.
- **Supports Soft Tissues:** Provides a rigid framework that supports and maintains the shape of the body and its organs.
- **Absorbs Impact:** Bones can absorb some force from impacts, helping to protect organs from injury.

3.Discuss the structure and functions of the respiratory system and its importance in sports performance.

Answer: The respiratory system is made up of organs that work together to help us **breathe** and **exchange gases** (oxygen and carbon dioxide).

Main Parts:

1. **Nose and Nasal Cavity**
    - Air enters through the nose where it is warmed, filtered, and humidified.
2. **Pharynx (Throat)**
    - A passageway for air and food.
3. **Larynx (Voice Box)**
    - Contains vocal cords; also routes air into the windpipe.
4. **Trachea (Windpipe)**
    - A tube that carries air from the larynx to the lungs.
5. **Bronchi**

    - Two main branches from the trachea leading into each lung, further dividing into smaller bronchioles.
6. **Lungs**
    - Main organs of breathing; contain millions of tiny air sacs called **alveoli** where gas exchange happens.
7. **Alveoli**
    - Tiny sacs surrounded by blood capillaries where oxygen moves into the blood and carbon dioxide is removed.
8. **Diaphragm and Intercostal Muscles**
    - Muscles that control breathing by expanding and contracting the chest cavity

Functions of the Respiratory System

- **Gas Exchange:** Oxygen is taken into the body, and carbon dioxide (a waste product) is removed.
- **Oxygen Supply:** Provides oxygen to the blood, which transports it to cells for energy production.
- **Removal of Carbon Dioxide:** Helps maintain the body's acid-base balance by removing CO_2.
- **Speech Production:** The larynx produces sound.
- **Protection:** Filters out dust and microbes from the air.

Importance of the Respiratory System in Sports Performance

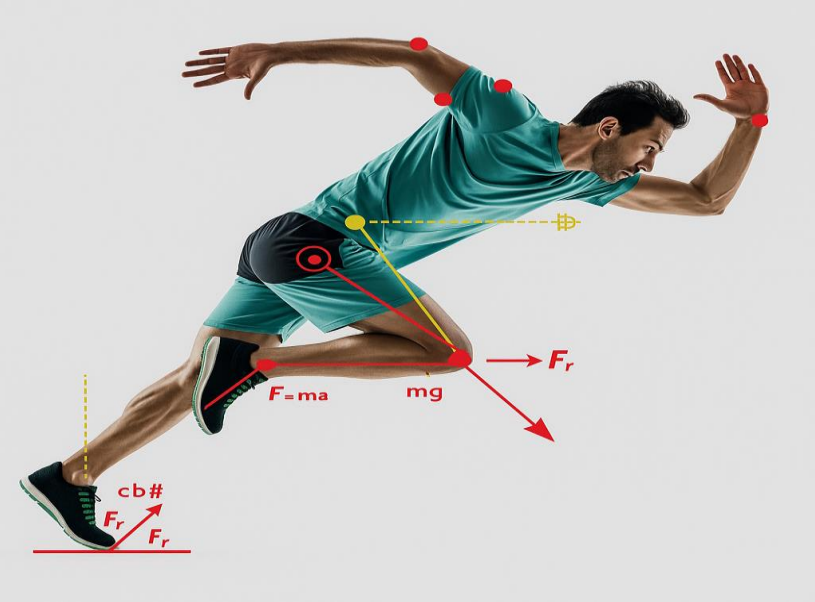
- **Oxygen Delivery:** During exercise, muscles need more oxygen to produce energy (ATP) for movement.
- **Increased Breathing Rate:** Physical activity increases breathing rate and depth, allowing more oxygen intake.
- **Efficient Gas Exchange:** Healthy lungs quickly absorb oxygen and remove carbon dioxide to keep muscles working effectively.
- **Endurance:** Better lung capacity and function improve stamina and delay fatigue.
- **Recovery:** Efficient respiratory function helps clear carbon dioxide and lactic acid faster after intense activity, aiding recovery.

LONG QUESTIONS FOR PRACTICE (5 MARKS)

1.Explain the properties and types of muscles and how muscle function contributes to athletic performance.
2.Describe the circulatory system's components and functions, and explain how it adapts during exercise to meet increased physiological demands

UNIT- VIII

FUNDAMENTALS OF KINESIOLOGY AND BIOMECHANICS IN SPORTS



CONTENT

- Definition and significance of kinesiology and biomechanics in the context of sports.
- Fundamental principles of biomechanics.
- Concepts of kinetics and kinematics as applied in sports performance.
- Different types of human body movements: flexion, extension, abduction, adduction, rotation, circumduction, supination, and pronation.
- Understanding axis and planes of movement and their relevance in bodily motions.

OBJECTIVES

- ❖ Gain a clear understanding of the principles behind human body movement.
- ❖ Enhance physical performance by refining movement techniques.
- ❖ Support injury prevention and assist in the rehabilitation process through biomechanical awareness.

OUTCOMES

- Practical Applications in Everyday Life.
- Promote better posture and improve walking patterns (gait).
- Learn and apply safe and effective lifting methods.
- Make informed choices when selecting suitable footwear

Mind Map

Weightage 4 marks

1. Kinesiology & Biomechanics

·Kinesiology: Study of movement (Aristotle)

·Biomechanics: Effect of internal & external forces on living things (Giovanni alfonso borelli)

Importance of Biomechanics in Sports :-

1. Performance Enhancement 2. Injury prevention 3. Rehabilitation process
4. Ground & Equipment Design
5. Selection of player 6. For Diagnostic coaching 7. For self Evolution of athletes 8. Evaluate new techniques
9. Research & Innovation

3. Kinetics & Kinematics

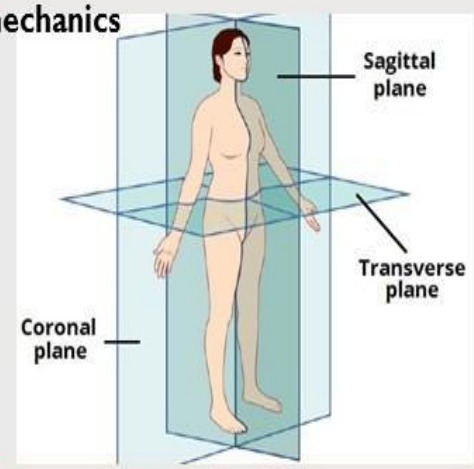
·Kinetics: Causes of motion (e.g., Angular momentum, Torque force, Drag force, Reaction force)

·Kinematics: Nature of motion (Distance, Displacement, Acceleration, Velocity, Speed, etc.)

Fundamentals of Kinesiology & Biomechanics in Sports

2. Principles of Biomechanics

1. Force
2. Stability
3. Maximum Efforts
4. Maximum Velocity
5. Impulse
6. Reaction
7. Torque
8. Angular Momentum
9. Aerodynamic
10. Optimal Projection



4. Body Movement

·Flexion: ↓ Angle between two bones
·Extension: ↑ Angle between two bones
·Adduction: Toward body midline
·Abduction: Away from body midline
·Rotation: Movement around an axis
·Circumduction: Circular motion (combination of flexion, extension, abduction, adduction)
·Pronation: Turning palm down
·Supination: Turning palm up

5. Axis & Plane

Plane	Axis	Surface	Movement	Example
Sagittal	Frontal	Anterior/Posterior	Flexion, Extension	Walking, Squatting
Frontal	Sagittal	Lateral/Side	Abduction, Adduction	Side jump, Lateral bending
Horizontal	Vertical	Superior/Inferior	Rotation, Circumduction	Twisting body, Golf swing

Conclusion:
Every movement has one axis and one plane
Axis is always perpendicular to the corresponding plane

8.1 DEFINATION AND IMPORTANCE OF KINESIOLOGY AND BIOMECHANICS IN SPORTS

Meaning of Kinesiology

The term kinesiology originates from two Greek words: **kinesis**, meaning **"movement"** and logos, meaning **"study"** or **"discourse"**.

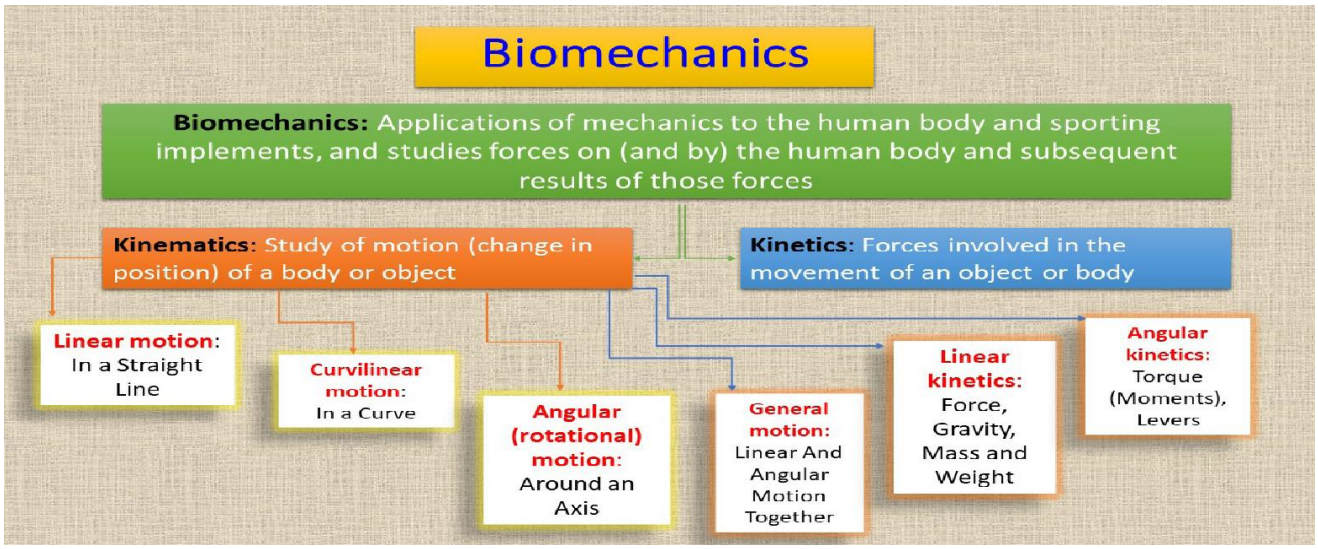
Definition of Kinesiology

Kinesiology is the scientific study of movement in living beings. As defined by Burke R.K. (1977), it involves analysing how organisms move and behave physically.

Aristotle is recognized as the father of kinesiology for his early contributions to the study of motion and the human body.

Meaning of Biomechanics

The word biomechanics comes from the Greek term's bios, meaning of**"life"** and mechanics, referring to the branch of physics that deals with forces and motion.



Definition of Biomechanics

According to (Hatze, 1974), biomechanics is the study of the movements of living organisms by applying principles from mechanics.

Giovanni Alfonso Borelli is known as the father of biomechanics for his pioneering work in linking mechanical laws with biological motion.

Importance of Kinesiology and Biomechanics in Sports

1. Enhancing Athletic Performance

Kinesiology and biomechanics play a crucial role in helping athletes understand their bodily movements. By analysing these movements, coaches can teach proper techniques to boost speed, strength, and overall skill level.

2. Injury Prevention

By identifying harmful or incorrect movement patterns, these fields help in minimizing injury risks. They also support the development of scientific training approaches and posture correction.

3. Support in Rehabilitation

Biomechanical analysis helps in designing specific exercise routines that assist in the recovery process, ensuring a safe and effective return to sports.

4. Improving Sports Equipment Design

Scientific insights from kinesiology and biomechanics contribute to better equipment design. This includes enhancing the efficiency and suitability of items such as sportswear, cleats, bicycles, swimsuits, hockey sticks, and lightweight protective helmets.

5. Player Selection

An understanding of the human body's biomechanics allows coaches to choose athletes whose physical characteristics best suit specific sports. For instance, shorter athletes may excel in gymnastics, while taller ones may be better suited for volleyball.

6. Diagnostic Coaching and Teaching

These disciplines help in identifying technical flaws, analysing athletic performance, providing individualized feedback, and guiding effective skill development. They also support ongoing monitoring of athlete progress.

7. Athlete Self-Evaluation

Kinesiology and biomechanics empower athletes to evaluate their own movements and performance. This self-awareness leads to consistent improvements over time.

8. Assessment of New Techniques

When introducing new sports techniques, these sciences help determine their safety, efficiency, and effectiveness using a systematic, scientific approach.

9. Essential for the effective organisation of the development of motor abilities:

Sports and game focus on reaching maximum efficiency in motor abilities connected to particular sports discipline. Motor abilities can be described as relatively stable sets of inner genetic Presuppositions needed to carry out locomotive activities. They include force,speed, endurance, coordination, and flexibility. Knowledge of biomechanics helps a coach and teacher understand and apply systematic training for development.

10.Evaluate and change the rules and regulations:

By mechanics is the study of structure and function of biological systems using the method of "mechanics"which is the branch of Physics and mechanics involved analysis of the action of forces. Thus the laws of mechanics are applied to human bioMechanics to have a better understanding of athletics performance through mathematical, modelling, computational simulation, and experiment of measurement. During the analysis rules and regulations can be modified for the athlete's safety and performance enhancement.

11. Select techniques about their suitability to the athletes :

likewise, biomechanics help in developing new techniques in different game and sports;it also help in selecting techniques for an athlete based on the one most suitable for them which will help them to improve their technical efficiency and bring performance in competition. Example: for a sprinter who is short,a bullet start is preferable in short- distance is sprinting events as it helps them to have an efficient start with effective block clearance time and force impulse on the front and rear starting block as well as take-off velocity and acceleration.

12.Driving Research and Innovation in Sports Science

Kinesiology and biomechanics are key to advancing modern sports science.

* They contribute to the development of innovative training methods like High-Intensity Interval Training (HIIT).

* Biomechanical studies help refine techniques in running, jumping, and throwing—evident in innovations like the “Fosbury Flop” in high jump.

* They assist in designing advanced sports equipment—shoes, rackets, helmets, and performance apparel—that enhance outcomes and reduce injury risks.

* These disciplines also support real-time athlete monitoring using tools like wearable sensors and GPS vests, which track movement patterns, speed, and workload.

* They enable more personalized coaching by providing data-driven insights tailored to each athlete.

8.2 PRINCIPLES OF BIOMECHANICS IN SPORTS

Biomechanics in sports involves applying mechanical principles to human movement to enhance performance and reduce injury. Here are some core principles:

1. Principle of Force:

Force refers to any push or pull that can cause a change in an object's motion—be it acceleration, deceleration, or a change in direction.

Example: Kicking a football involves applying

force to move it forward.

2. Principle of Stability:

Stability is the body's ability to maintain balance and resist external disturbances. Factors that improve stability include a wider base of support, a lower center of gravity, increased body mass, and greater surface friction.

Example: A wrestler adopts a wide stance to remain

stable during a bout.

3. Principle of Maximum Effort:

To generate the highest possible force, all relevant joints should work together in a coordinated and sequential manner.

Example: Activities like bench pressing or throwing require synchronized joint action to maximize power output.

4. Principle of Maximum Velocity:

Achieving top speed in movement involves activating larger muscle groups and joints first, followed by smaller ones to fine-tune speed and precision.

Example: In a tennis serve, the movement

starts from the legs, continues through the torso,

then the arm, and finally ends with the racket.

5. Principle of Impulse:

Impulse is the product of force and the time over which it is applied **(Impulse = Force × Time)**. Extending the time during which a force is applied can significantly impact momentum.

Example: A cricketer softens their hands while catching a fast-moving ball to reduce its impact.

6. Principle of Reaction:

Based on Newton's third law, every action generates an equal and opposite reaction.

Example:

1. A swimmer pushes against the

Waterto propel forward; the water pushes

back with equal force in the opposite direction.

2. Block start in sprint running.

7. Principle of Torque:

Torque is a force that causes rotation around an axis. It's essenti
turns.

Example: When a cyclist pushes on the pedals, torque is generated at the wheel, allowing the bike to move forward.

8. Angular Momentum

Angular momentum refers to the rotational motion of an object or body around an axis. It is influenced by how mass is distributed and how quickly the object is spinning.

Application: In sports, athletes can adjust their body position to influence their rotational speed. By changing their body shape—such as pulling limbs closer to the centre—they can spin faster or slower, depending on the situation.

Gymnastics Example

In gymnastics, athletes perform flips and rotations by skilfully managing their angular momentum. When executing a backflip or somersault, a gymnast pulls their knees in toward the body to increase spin speed. As they near the end of the rotation, they straighten their body to reduce the spin and gain

better control for a smooth landing. This adjustment in body shape allows them to maintain rotational momentum while managing the speed and timing of their movement.

9.Principal of inertia: Inertia can be defined as the property of all objects to resist change in their state of motion. The linear and angular inertia measures are mass (m) and moment of inertia (I). We will see that inertia can be viewed as a resistance to motion in the traditional sense, but this property can also be used to an advantage when modifying movement or transferring energy from one body segment to another. Example: to stop a shot put or a net ball travelling through the air force must be applied to it. The force is much higher to stop a shot put because it is heavier than a netball. Therefore, the shotput has more inertia.

10. Principle of Aerodynamics:

To reduce air resistance and move efficiently, athletes aim to maintain a streamlined body position.

Example: Cyclists adopt a tucked posture to minimize drag and enhance speed.

11. Principle of Optimal Projection:

This principle involves choosing the ideal angle, speed, and l object to maximize performance in throwing and jumping events.

Example: A javelin thrower adjusts the release angle to achieve the greatest distance.

8.3 KINETICS AND KINEMATICS IN SPORTS

Kinetics

Kinetics focuses on the forces and muscles responsible for movement. This includes factors such as gravity, friction, torque, and reaction forces.

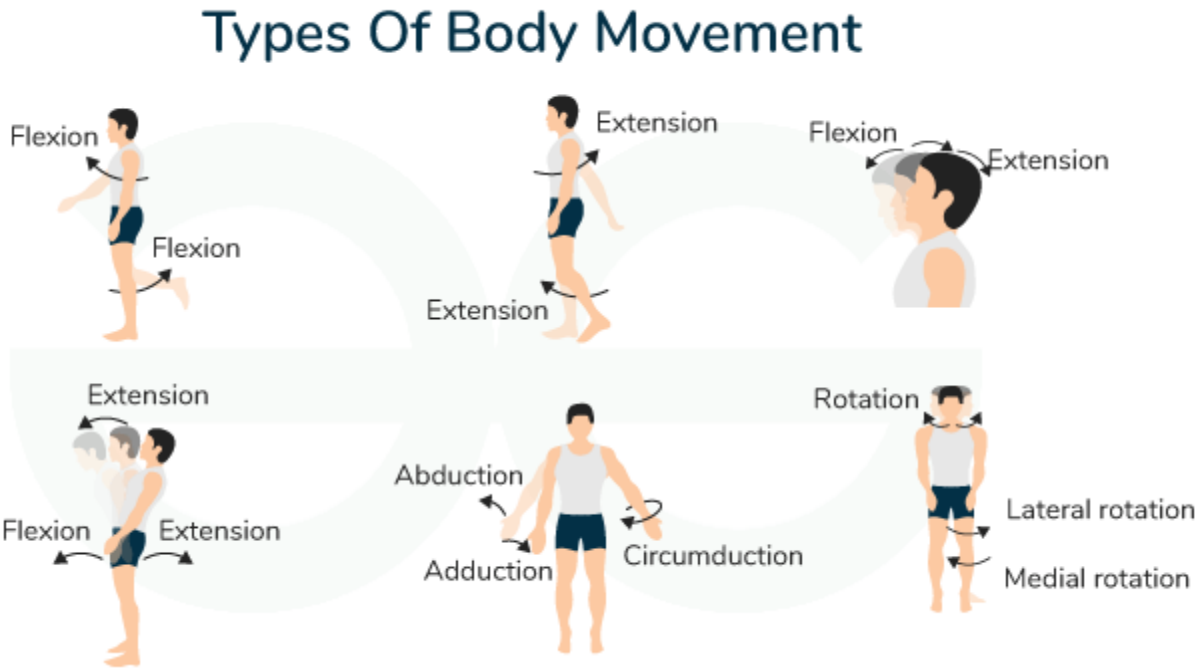
Kinematics

Kinematics deals with the description of motion without considering the forces that cause it. It involves aspects like displacement, velocity, and acceleration.

The Fundamental Differences Between Kinetics and Kinematics

S.No.	Attributes	Kinetics	Kinematics
1.	Definition	Kinetics is the study of motion considering the mass and external forces as well.	Kinematics is not dependent upon the mass of the object.
2.	Relation	It attempts to determine the relationship between the motion of bodies caused by inertial force and the mass of a body.	Kinematics is about simply describing motion. Such as velocity, displacement, time, and acceleration.
3.	Study	Study of the motion caused by forces, gravity, friction, torque	To determine the "how" of motion.
4.	Nature	It attempts to get at the cause.	It is descriptive and based on observation
5.	Treated	Treated in terms of energy transformations	Treated geometrically
6.	Example	A person sitting inside the train. A child running around in the house, running fan	A Moving Train Parabolic locus traced by a football. A stone hitting the ground.
7.	Uses	Concept of gas laws, fluid dynamics, physical chemistry	Classical mechanics in terms of engineering.

8.4 TYPES OF BODY MOVEMENTS FLEXION, EXTENSION, ABDUCTION, ADDUCTION, ROTATION,CIRCUMDUCTION, SUPINATION & PRONATION



1. Flexion: This movement involves decreasing the angle between two bones at a joint, typically seen when bending a limb.

2. Extension: Extension is the opposite of flexion—it increases the angle at a joint, such as when straightening a bent limb.

3. Abduction: This refers to moving a limb away from the midline of the body.

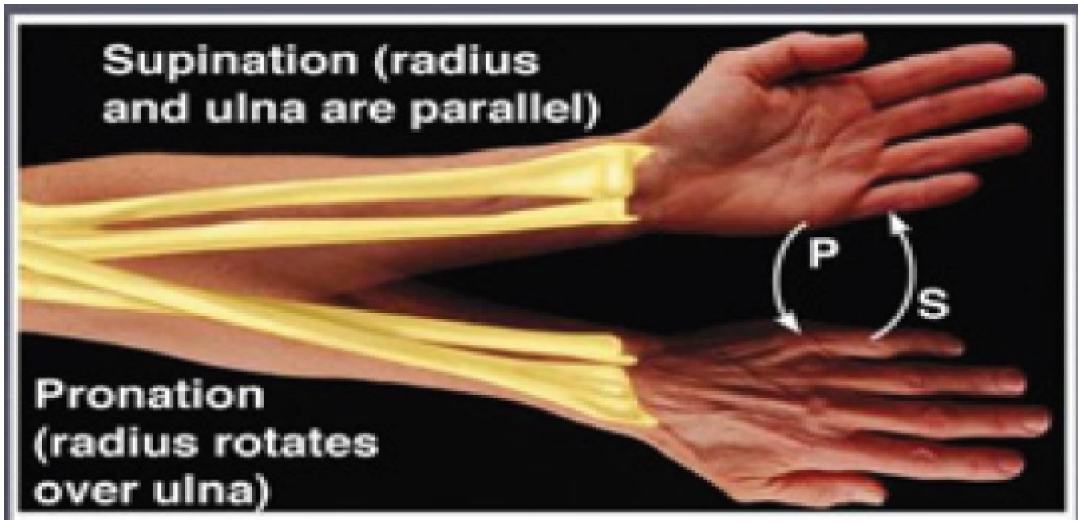
4. Adduction: Adduction involves bringing a limb closer to the body's central line.

5. Rotation: Rotation is the movement of a body part around its own long axis, such as turning the head side to side.

6. Circumduction: This complex movement is a combination of flexion, extension, abduction, and adduction. It typically occurs at ball-and-socket joints, such as the shoulder and hip.

7. Pronation: Pronation means rotating the forearm or hand so that the palm faces downward.

8. Supination: Supination is the action of turning the forearm or hand so that the palm faces upward.

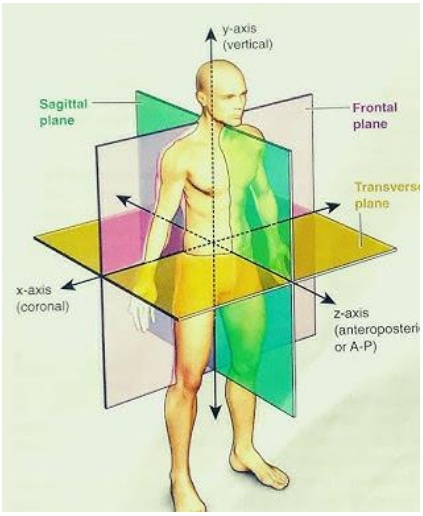


8.5 AXIS AND PLANES CONCEPT AND ITS APPLICATION IN BODY MOVEMENTS

Planes

A plane refers to an imaginary surface along which the body moves during different physical activities. There are three primary planes in which human movement occurs:

1. Sagittal Plane



The sagittal plane is a vertical imaginary line that

divides the body into left and right halves.

Fundamental Movements: Flexion

and Extension

Examples in Sports:

- Kicking a football
- Performing a chest pass in basketball
- Jumping
- Squatting

2. Frontal Plane (also known as Coronal Plane)

The frontal plane is a vertical plane that separates the body into fr
sections.

Fundamental Movements: **Abduction and Adduction**

Examples in Sports:

- Jumping jacks
- Side (lateral) bending

3. Horizontal Plane (also called Transverse Plane)

The horizontal or transverse plane is an imaginary flat surface that divides the body into upper (superior) and lower (inferior) portions.

Fundamental Movements: **Rotation and Circumduction**

Examples in Sports:

- Twisting the torso
- Golf swing
- Twisting motion in discus throw
- Pivoting in basketball

Axis

An axis refers to an imaginary straight line around which a body part rotates or moves. There are three main axes of movement in the human body:

1. Sagittal Axis

The sagittal axis runs horizontally from the back (posterior) to the front (anterior) of the body, passing through its centre. It is also called the antero-posterior axis.

Examples of Movement:

- Cartwheel
- Abduction and adduction of limbs

2. Frontal Axis

The frontal axis extends horizontally from the left side of the body to the right, passing through the body's centre. It is also referred to as the horizontal axis.

Examples of Movement:

- Somersault
- Flexion and extension movements

3. Vertical Axis

The vertical axis runs from the bottom (inferior) to the top (superior) of the body, vertically through the centre. This axis is also known as the longitudinal axis.

Examples of Movement:

- Rotation of the head or body
- Circumduction of limbs
- Twisting of body in discuss throw
- Hip rotation in a golf swing

Plane	Motion	Axis	Example
Sagittal	Flexion/extension	Frontal	Walking Squatting Overhead press
Frontal	Abduction/abduction Side flexion Inversion/eversion	Sagittal	Star jump Lateral arm raises Side bending
Transverse	Int-rotation/ ext-rotation Horizontal flexion/extension Supination/pronation	Vertical	Throwing Baseball swing Golf swing

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

1. Who is widely recognized as the pioneer of Kinesiology?

a) Newton **b) Aristotle** c) Borelli d) Hatze

2. What term describes the study of forces influencing the human body?

a) Kinematics **b) Kinetics** c) Mechanics d) Ergonomics

3. Biomechanics utilizes principles from which scientific discipline to analyze human movement?

a) Chemistry b) Mathematics **c) Physics** d) Anatomy

4. The term "kinesiology" originates from which language?

a) Latin **b) Greek** c) Sanskrit d) French

5. Who is known as the founder of Biomechanics?

a) Galileo **b) Borelli** c) Hooke d) Avicenna

6. Newton's Third Law corresponds to which biomechanical concept?

a) Principle of Stability **b) Principle of Reaction**

c) Principle of Force d) Principle of Impulse

7. Which principle is concerned with maximizing height or distance in jumping and throwing activities?

a) Principle of Torque b) Principle of Stability

c) Principle of Optimal Projection d) Principle of Aerodynamics

8. What is the term for the product of force multiplied by the time during which it is applied?

a) Momentum b) Torque **c) Impulse** d) Velocity

9. In order to achieve the highest velocity, how should body segments move?

a) From smaller joints to larger joints b) In no specific order

c) Simultaneously **d) From larger joints to smaller joints**

10. What term defines the capacity to maintain balance or resist displacement?

a) Flexibility **b) Stability** c) Endurance d) Agility

11. Moving your arms sideways away from the body is called:

a) Flexion **b) Abduction** c) Adduction d) Extension

12. Rotating the palm so it faces upward is known as:

a) Pronation **b) Supination** c) Rotation d) Circumduction

13. Decreasing the angle between the forearm and upper arm by bending the elbow is:

a) Extension b) Rotation **c) Flexion** d) Supination

14. A movement combining flexion, extension, abduction, and adduction is referred to as:

a) Circumduction b) Rotation c) Supination d) Pronation

15. When the spine twists during a golf swing, this movement is classified as:

a) Flexion b) Adduction **c) Rotation** d) Abduction

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

1. Which movements typically occur in the frontal plane?

a) Flexion and extension b) Rotation c) Abduction and adduction d) Circumduction

2. The sagittal plane divides the body into which parts?

a) Upper and lower halves b) Left and right halves c) Front and back halves d) None of the above

3. Which axis facilitates rotational movement of the body?

a) Sagittal axis b) Frontal axis c) Vertical axis d) Lateral axis

4. A cartwheel is an example of rotation about which axis?

a) Vertical axis b) Frontal axis c) Sagittal axis d) Oblique axis

5. Performing a forward roll (somersault) occurs within which plane?

a) Sagittal plane b) Frontal plane c) Transverse plane d) Oblique plane

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

1. Q: What distinguishes kinematics from kinetics?

Answer : Kinematics focuses on describing the movement of objects without analyzing the causes behind it. In contrast, kinetics explores the forces, such as gravity and muscle action, that drive or alter movement.

2. Q: In what ways does biomechanics aid in preventing injuries?

Answer : Biomechanics helps detect and correct faulty movement patterns, reducing the likelihood of injury. It also supports better posture and designs effective training regimens.

3. Q: Give two examples of movements occurring in the sagittal plane.

Answer : Performing a squat and executing a chest pass in basketball are examples of actions within the sagittal plane.

4. Q: Briefly explain the concept of torque in biomechanics.

Answer : Torque refers to the rotational force applied around an axis, which is essential for movements like cycling or throwing where turning motion is required.

5. Q: How does the stability principle benefit athletes?

Answer : This principle enhances balance and control by encouraging a wider base of support and lowering the center of gravity, which is vital in sports such as wrestling and gymnastics.

6. Q: Why is the vertical axis important in sports movements?

Answer : The vertical axis enables rotational actions like turning the torso or head, which play a key role in activities like golf swings or discus throwing.

7. Q: What is circumduction? Provide one example.

Answer : Circumduction is a circular movement that integrates flexion, extension, abduction, and adduction. An example is the arm's circular motion during a swimming stroke.

8. Q: How does biomechanics influence the design of sports equipment?

Answer : It contributes to developing scientifically optimized equipment—like shoes, helmets, or rackets—that boosts performance and reduces the risk of injury.

9. Q: Define two human body movements.

Answer : Abduction: Moving a limb away from the body’s midline.

Adduction: Moving a limb toward the body’s midline.

10. Q: How does biomechanics support innovation in sports science?

Answer : It drives advancements in training methods, wearable performance-monitoring devices, and ergonomic sports gear.

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

1. Q: What role does the principle of maximum effort play in athletic performance?

2. Q: Why is the frontal plane crucial for human movement?

3. Q: How is kinesiology applied in the rehabilitation process?

4. Q: Illustrate the use of the reaction principle in swimming.

5. Q: What is the value of understanding movement axes in sports?

3.SHORT QUESTION SOLVED (3 MARKS)

1. Q: What is kinesiology and how does it contribute to sports activities?

Answer : Kinesiology refers to the study of human motion. In sports, it plays a vital role by helping athletes refine their movements, enhance performance, and avoid injuries through proper analysis.

2. Q: Define biomechanics and explain two ways it is applied in sports.

Answer : Biomechanics is the scientific analysis of how living organisms move, using mechanical principles. In sports, it's used to optimize techniques and design specialized gear to boost performance and safety.

3. Q: Explain the difference among sagittal, frontal, and transverse planes with one sports example for each.

Answer : Sagittal Plane: Splits the body into left and right halves (e.g., forward lunges).

Frontal Plane: Divides the body into front and back (e.g., side-step drills).

Transverse Plane: Cuts across the body into upper and lower parts (e.g., rotating while hitting a baseball).

4. Q: What does the principle of maximum velocity state? Give an example from sports.

Answer : It suggests that speed is maximized when larger muscles initiate the movement, followed by smaller muscles. For instance, a tennis player starts a serve from the legs, progressing through the trunk and ending with the wrist.

5. Q: Define flexion, extension, and rotation. Provide one example for each.

Answer : Flexion: Bending a joint to decrease the angle (e.g., elbow curl).

Extension: Straightening a joint to increase the angle (e.g., kicking a football).

Rotation: Movement around an axis (e.g., torso twist in tennis).

6. Q: How is biomechanics useful in identifying suitable athletes for different sports?

Answer : It analyzes body mechanics and movement patterns to match athletes to sports that align with their physical traits, such as selecting taller individuals for basketball or shorter ones for gymnastics.

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

1. Q: Describe the impulse principle with an example from any sport.

2. Q: What is the function of the vertical axis in bodily movement? Provide two sports-related examples.

3. Q: Name and describe three types of daily physical movements.

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

Q1. Rahul is a sprinter who often struggles with his race starts. His coach notices that Rahul's posture is misaligned and he isn't applying force effectively during take-off. To address this, the coach decides to evaluate his technique using biomechanics.

Answer the following:

a) What kind of motion occurs at the start of a sprint?

b) Which biomechanical principle can assist in enhancing his start?

c) How can Rahul enhance his force application during take-off?

d) Mention one-way biomechanics supports athletic training.

Answer:

a) Linear motion.

b) Principles related to force, motion, and body alignment.

c) By refining his posture and boosting explosive power.

d) It aids in optimizing technique and minimizing injury risk.

Q2. Priya is practicing gymnastics and faces difficulty staying balanced on the balance beam. Her coach explains concepts like centre of gravity and base of support to help her improve.

Answer the following:

a) Define centre of gravity and explain its importance in gymnastics.

b) How does base of support influence balance?

c) What kind of balance is necessary for beam routines?

d) Suggest how Priya can work on her stability.

Answer:

a) The centre of gravity is the point where the body's mass is evenly distributed; it’s essential

for maintaining balance.

b) A broader base enhances balance and stability.

c) Static balance.

d) By strengthening her core and maintaining proper posture.

Q3. During a basketball jump shot, the player uses coordinated movements involving multiple joints, along with precise timing and balance.

Answer the following:

a) Identify the motions involved in a jump shot.

b) What type of lever is at work during elbow extension?

c) What function does angular motion serve in this skill?

d) State one biomechanical aspect that boosts shooting accuracy.

Answer:

a) Both angular and linear motion.

b) Third-class lever.

c) It contributes to the arm swing and smooth follow-through.

d) Correct alignment and well-timed movement.

Q4. A sprinter uses blocks to launch into a 100-meter race.

Answer the following:

a) Which principle explains the force exerted back by the starting blocks?

b) What term describes the measurement of speed and acceleration during the sprint?

c) How does torque contribute to the push-off?

d) How can biomechanics help reduce the occurrence of false starts?

Answers:

a. Principle of Reaction (Newton's Third Law)

b. Kinematics

c. Torque creates rotational force that propels the athlete forward

d. By evaluating muscle engagement and the timing of movements

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Q1.A coach examines a golfer's swing using motion capture technology.

Answer the following:

a) Around which axis does the golfer's body rotate during the swing?

b) Which biomechanical principle explains the smooth transfer of motion from the legs to the arms?

c) What type of movement happens at the wrist during the swing?

d) How does proper body alignment impact the efficiency of the golf swing?

Q2. An athlete trains using the Fosbury Flop technique.

Answer the following:

a) Which principle guides the selection of the best take-off angle?

b) Which joint movement occurs at the knee during take-off?

c) Which plane and axis are involved in the vertical jump?

d) How does biomechanics contribute to a safer landing?

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q1. Describe the importance of biomechanics in enhancing the performance of athletes.

Answer: Biomechanics involves applying mechanical principles to understand how the human body moves. This knowledge enables athletes and coaches to identify inefficient movements and improve them for better performance. By analysing forces acting on the body and how muscles and joints work together, athletes can increase their speed, strength, and accuracy. For example, sprinters can use biomechanics to perfect their push-off technique and muscle activation sequence, leading to faster starts. Additionally, biomechanics helps in creating sports equipment tailored to support natural body movements, thereby boosting performance and minimizing wasted effort.

Q2. Outline the main types of body movements and provide a sports example for each.

Answer: Flexion: This movement decreases the angle between two bones, such as bending the elbow when shooting in basketball.

Extension: The angle between bones increases, like straightening the leg while jumping.

Abduction: Moving a limb away from the body's centerline, as seen when raising the arms sideways during jumping jacks.

Adduction: Bringing a limb closer to the body's midline, such as lowering the arms after jumping jacks.

Rotation: Turning a body part around its own axis, like rotating the torso in a golf swing.

Circumduction: A circular movement combining flexion, extension, abduction, and adduction, like the arm movement in swimming freestyle.

Pronation: Rotating the forearm so the palm faces downward, for example, turning the wrist while dribbling in basketball.

Supination: Rotating the forearm so the palm faces upward, such as catching a ball with the palm facing up.

Q3. What are the primary planes of movement in the body? Explain each and give sports examples.

Answer: Sagittal Plane: This vertical plane divides the body into left and right halves, allowing forward and backward motions such as flexion and extension. Activities like running or kicking a ball occur in this plane.

Frontal Plane: Divides the body into front and back sections. Movements occur side-to-side, including abduction and adduction. Examples include side lunges and jumping jacks.

Horizontal (Transverse) Plane: This plane separates the body into upper and lower parts. Movements here involve rotation, such as twisting during a discus throw or a golf swing.

LONG QUESTIONS FOR PRACTICE (5 MARKS)

Q1. Explain the Principle of Impulse and its application in sports with an example.

Q2. How does biomechanics contribute to preventing injuries and aiding rehabilitation?

UNIT -IX

PSYCHOLOGY & SPORTS

Definition & Importance of Psychology in Physical Education & Sports.

Developmental Characteristics at Different Stages of Development.

Adolescent Problems & their Management.

Team Cohesion and Sports.

Introduction to Psychological Attributes: Attention, Resilience & Mental Toughness

LEARNING OUTCOMES

At the end of the unit, students will be able to:

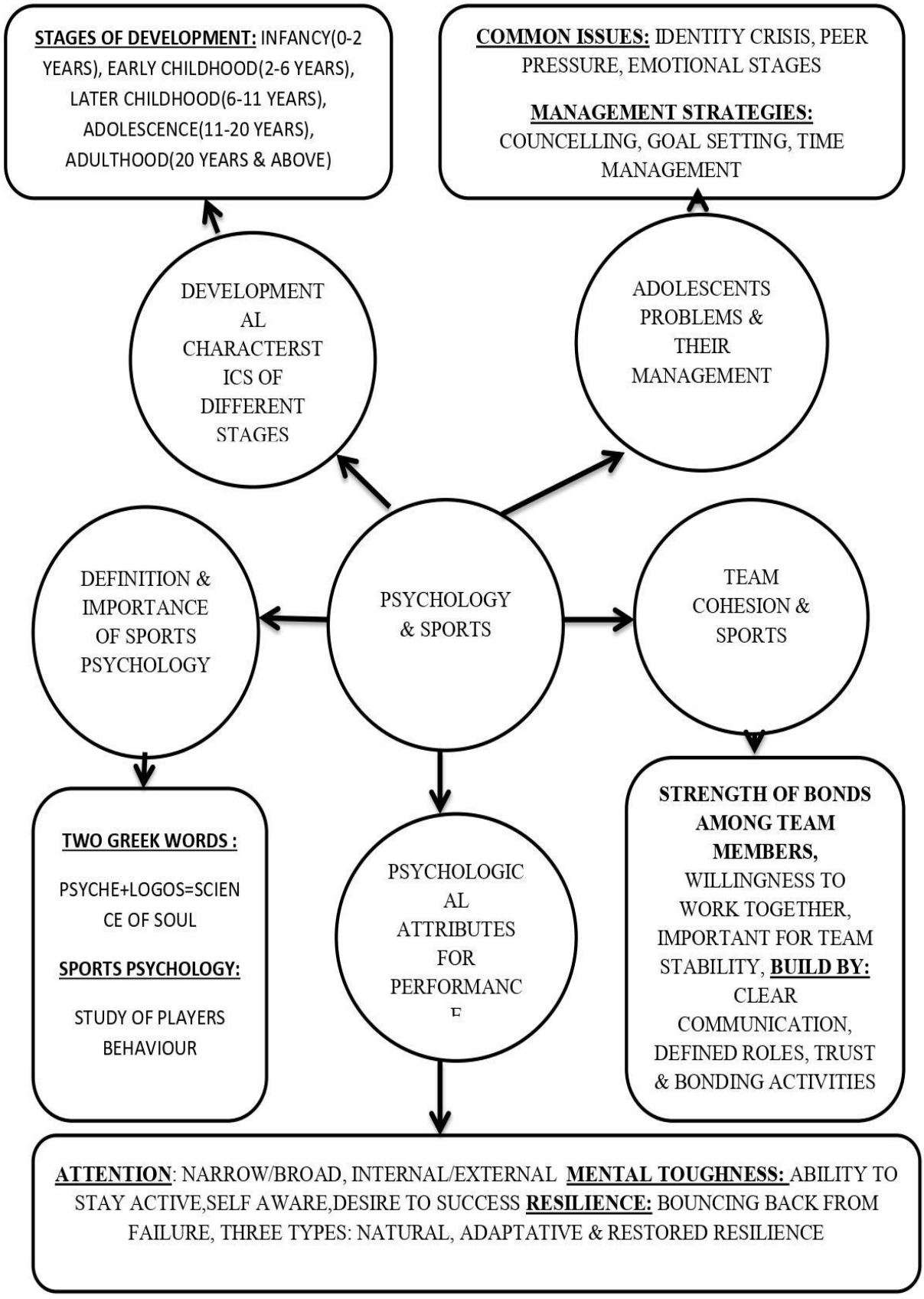
Identify the role of Psychology in Physical Education and Sports.

Differentiate characteristics of growth and development at different stages.

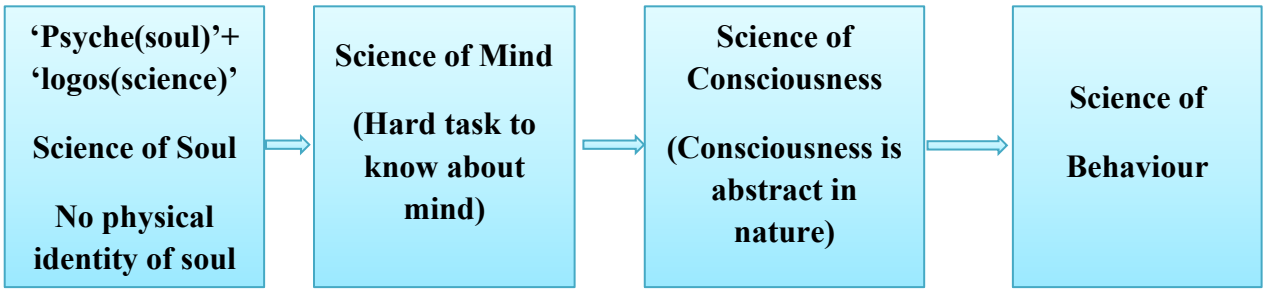
Explain the issues related to adolescent behaviour and Team Cohesion in Sports.

Correlate the psychological concepts with the sports and athlete specific situations.

UNIT 09 | **MIND MAP** | **07 MARKS**



9.1.1 DEFINITION OF PSYCHOLOGY IN PHYSICAL EDUCATION



Introduction of Psychology

First of all, Aristotle said that the word psychology is made up of two separate words, the first word is "psyche" which means soul and the second word is **logos** which means **to study** or **science**. Thus psychology literally means the science or study of the soul.

Rudolf Goeckel then defined psychology as the science of the mind.

William Wund then defined psychology as the science of consciousness and eventually.

John B Watson defined psychology as the science of behaviour and at the present time the science of behaviour is called psychology.

Definitions of Psychology

According to crow and crow, "Psychology is the science of human behaviour and its relationship."

According to **J. B. Watson**, "Psychology is the science of behaviour.

9.1.2 DEFINIITON OF SPORTS PSYCHOLOGY

Definition of Sports psychology

According to **Robert N. Singer.** "Sports psychology explores one's behaviour in athletics."

In simple terms, sports psychology is the branch of psychology that deals with a player's behaviour before competition, during competition and post competition.

9.1.3 ROLE OF PSYCHOLOGY IN PHYSICAL EDUCATION AND SPORTS

The European Federation of Sport Psychology (1996) recognises three interrelated tasks for sport psychologists.

Research – investigation into all aspects of the psychology of sport, both theoretical and applied.

Education – teaching students, officials and athletes about sport psychology.

Application – assessment of and intervention in psychological problems connected to sport. Sport psychology involves consulting to whole teams or counselling of individuals.

9.1.4. APPLICATION OF PSYCHOLOGY IN PHYSICAL EDUCATION & SPORTS

Many strategies and procedures are used to address problems faced by athletes and other sports participants. Some of the applications of psychological concepts and theories in physical education and sports are:

Cognitive and behavioural skills training for performance enhancement

Counselling and clinical interventions

Consultation and training

1. Cognitive and behavioural skills training for performance enhancement include

- Concentration and attention control strategies
- Goal setting
- Imagery Training
- Cognitive-behavioural self-regulation techniques

2. Counselling and clinical interventions include support for managing:

- Athletic motivation
- Over-training and burnout
- Eating disorders and weight management
- Substance abuse
- Grief, depression, loss and suicide
- Sexual identity issues
- Aggression and violence
- Athletic injury and rehabilitation
- Career transitions and identity crises.

3. Consultation and training include

- Team building Programmes for sports teams and organisations.
- Sports organization consultations for behaviour economics
- Systems interventions with parents and families involved in youth sports participation
- Education of Physical Educators, Coaches and Trainers regarding role of interpersonal and leadership skills for talent development
- Education of Physical Education and sports professionals towards early identification and prevention of psychological difficulties.

9.1.5 IMPORTANCE OF PSYCHOLOGY IN SPORTS & EXERCISE

(A) Benefits of Exercise and Physical Activity

1. **Physical Benefits**: Exercise improves the body's physiological functions, strengthens the cardiovascular and muscular systems, reduces disease risk, and promotes anatomical development such as strong bones and lean muscle. This leads to better motor performance like increased strength, speed, and endurance.

2. **Cognitive Benefits**: Physical activity enhances brain function, improving mood, attention, problem-solving, strategic thinking, and academic performance.

3. **Emotional Benefits**: Regular physical activity boosts positive emotions, reduces anxiety and depression, and enhances motivation, which supports physical capacity. Both short and long-term exercises contribute to these benefits, though consistent activity is essential for lasting effects.

4. **Social Interaction :** Exercise promotes social interaction through both group and individual activities. Group exercise enhances enjoyment and supports mental and social wellbeing. However, individual exercise may better suit those with low self-esteem or body image concerns. Additionally, sports events help spectators and fans bond socially.

5. **Distraction Ability**: Exercise provides opportunity for distraction from the current mood state. Acute dose or short duration of exercise is helpful in reducing anxiety through the distraction ability of exercise; regular exercise has long term benefits.

(B) Psychological Advantages of Sports Participation

Sports participation offers several psychological benefits. It builds life skills, fostering positive approaches to challenges. It supports social development and healthy competition. Participation boosts self-confidence and intrinsic motivation. Additionally, it enhances cognitive and motor skills, aiding attention, memory, reasoning, and decision-making.

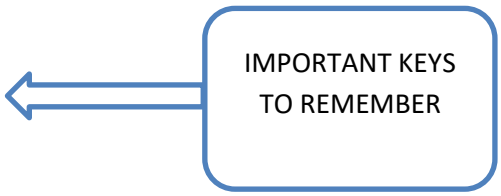
(C) Performance enhancement of athletes

Long-term athletic performance can be enhanced through cognitive and behavioral interventions, psychological skills training, and goal setting. These methods help develop key psychological factors such as self-confidence, motivation, stress and anxiety control, injury response, team cohesion, leadership, and communication.

(D) Exercise adherence through psychological interventions

While regular exercise is widely valued for a healthy lifestyle, many people struggle to maintain it long-term. Psychological theories help identify factors influencing exercise adherence and dropout, aiming to support lifelong commitment to physical activity.

- It helps to promote physical activities.
- Build confidence.
- Develop healthy habits.
- It helps to understand goal.
- It helps to manage stress.
- It helps to overcome obstacles.
- Develop concentration.
- It promotes better team work/ cooperation.
- It promotes coordination.
- It promotes fair play.
- It promotes leadership quality.
- It helps to control aggression



9.2.1 Growth and Development

Growth and development of human beings is a natural process which brings changes in mental, emotional, social, physical and moral aspects of life. Growth and development are complimentary to each other for human wellbeing. However, growth is structural and absolute in measure with limitations in progression, while development is functional and coordinate with various systems of the body through life. Growth and development are processes common to all, intimately linked with each other in time and space but practically independent of each other.

Both are, however, interrelated with genetic and environmental factors and modifications. In Psychology, growth refers to the changes in physical aspects in terms of size and shape, whereas development is multi-dimensional in approach which refers to all types of changes.

Changes in height, weight, size of body, organs are referred to as growth, on the other hand, development refers to changes in behaviour, intellect, emotional or social aspects of life.

9.2.2 DIFFERENCE BETWEEN GROWTH AND DEVELOPMENT

ELEMENTS	GROWTH	DEVELOPMENT
Meaning	Growth refers to change in size	Development refers to change in ability
Process	Growth is non-continuous and limited	Development is lifelong
Measure	Growth is quantifiable and measurable with objectivity	Development is qualitative in nature and subjective in assessment
Variables	Growth refers to increase in physical variables like height, weight etc.	Development refers to increase in skill and functions
Nature and Aspects	Growth is related to physical aspects	Development is related to mental, social, emotional aspects
Direction	Direction of growth can have positive or negative values	Direction of development is always positive
Progression	Growth is structural and absolute, can have spurts	Development is progressive and sequential
Learning influence	Growth is not affected by past or new learning	Development is affected by past and new learning and experiences

9.2.3 CONCEPTS OF GROWTH AND DEVELOPMENT IN SPORTS AND PHYSICAL EDUCATION

Children develop at different physical, emotional, and mental rates, affecting their readiness for sports. Coaches must recognize these differences, as pushing children beyond their developmental stage can lead to injuries, frustration, loss of interest, and poor technique development.

9.2.4 APPLICATION OF PSYCHOLOGY IN AN ATHLETE'S GROWTH AND DEVELOPMENT

To ensure long-term sports participation and healthy development, sports should be introduced to children with age-appropriate equipment, reduced emphasis on competition, and focus on fun. Coaches and educators need scientific understanding of developmental stages and should foster a supportive environment that promotes emotional, social, and cognitive growth. Key practices include addressing social pressures, tailoring instruction, offering realistic goals, managing emotional challenges, and encouraging leadership and responsibility as athletes mature.

9.2.5. DEVELOPMENTAL CHARACTERSTICS AT DIFFERENT STAGES OF DEVELOPMENT

S.NO.	AREAS OF GROWTH & DEVELOPMENT	CHARACTERSTICS
1.	Physical	height and weight
2.	Mental	thinking and understanding
3.	Social	interacting with others
4.	Emotional	feelings and attitudes

STAGES	DEVELOPMENTAL MILESTONES
INFANCY **(0 – 2 YEARS)**	**Physical**: The child's body weight increases to almost triple the birth weight, and increase in height is about one-third during the first year alone. Growth of brain size is also rapid during first 18 months. **Linguistics**: Children start developing language ability and learn through their sense organs. They explore the world in their own ways and express their intellect by making various sounds like gurgling, cooing, etc. **Social & Emotional**: Expressing joy, anger, sadness is achieved by 6 months.
EARLY CHILDHOOD (2 – 6 YEARS)	**Physical**: The child develops athletic appearance and loses baby chubbiness. Brain and head grows rapidly during this period. **Cognitive**: The child develops ability to classify objects, people or events. They are imaginative, animated and create their own hypothetical world. **Psycho Social**: He/ She is able to express his/her feelings and emotions and communicate needs and feelings with others. **Linguistic**: The child develops the ability to speak in complete sentences. **Motor skills**: The child has better control of his/her physical movement and can have better coordination of body parts.
LATE CHILDHOOD/PRE-ADOLESCENCE **(6-11 YEARS)**	**Physical**: There is an increase in strength as body parts become stronger. **Cognitive**: By this age children develop concrete thinking abilities, in which they develop ability to think logically and use mental operations to solve problems. However, they still lack abstract thinking ability. **Psycho Social**: The child develops gender identification and social comparison to identify themselves from others. **Motor skills**: They have developed the ability to use body parts with appropriate speed.
EARLY ADULTHOOD **(20-40 YEARS)**	By the time they reach adulthood, individuals are responsible, mature, self-supporting and well-integrated into society.

MIDDLE ADULTHOOD **(40-65 YEARS)**	This period is characterised by strong social networking, relatively stable personality, and life is dominated by work and family.
ADOLESCENCE **(11-20 YEARS)**	**Physical**: Boys and girls develop height, weight, muscles and achieve maturity. The onset of this stage is marked by the onset of puberty. Secondary sex organs stats developing. E.g. Moustache in boys and breasts in girls. **Psycho Social**: At this stage boys and girls are argumentative and they have a tendency to find fault with the authority figures. They are self- conscious and influenced by their peer group. **Cognitive**: Boys and girls become innovative and take great interest in learning various skills. They also develop the ability of abstract thinking. **Motor skills**: They develop strength, speed, endurance, flexibility, coordination at a rapid rate.
LATER ADULTHOOD/OLD AGE **(65 YEARS & ABOVE)**	This period is marked by decline of health and faculties, and individuals often plan to retire. It is marked by inactiveness and people are prone to various physical limitations.

9.3 ADOLESCENTS PROBLEMS AND THEIR MANAGEMENT

"Adolescence is a period through which a growing person makes a transition from childhood to maturity".

Adolescence as defined by WHO includes individuals between the age group of 10-19 years, a period of transition from childhood to adulthood. It is marked by the onset of puberty, which now occurs earlier, on an average, than in the past. This age group is considered critical because it marks the developmental transition of an individual from childhood to adulthood, which involves physical, psychological, social and neuro developmental changes.

Adolescents often face a mix of behavioral, emotional, moral, social, and career-related challenges, which can lead to issues like substance abuse, eating disorders, aggression, and withdrawal from physical activity. These problems impact home, school, and sports environments. Support from family, teachers, and coaches is essential, with understanding tailored to each adolescent's needs to effectively manage these concerns.

The problems associated with adolescence due to behaviour deviations can be many, but a few major issues along with their management are discussed below.

1. **Substance Abuse in Adolescence**

- **Major Concern:**
  - Substance abuse (alcohol, drugs, smoking) is common among adolescents.
  - It is unethical, socially unacceptable, and harmful to health.
  - Peer pressure and other factors often trigger its onset.
- **Management Strategies:**
  - *Cognitive Techniques:*
    - Coaches and parents should express concern for individuals.
    - Set clear limits on unacceptable behavior.
    - Develop and enforce behavior policies for teams, classes, or groups.
  - *Behavioral Techniques:*
    - Use peer influence to encourage positive behavior.
    - Keep adolescents engaged in structured activities like sports, exercise, or recreation to redirect behavior constructively.

2. **Eating Disorders in Adolescents**

Causes:

a. Triggered by psychological factors like anxiety, depression, and body image concerns.

b. Common types:

   i. *Anorexia Nervosa:* Starvation and abnormal eating due to weight or social anxiety.

   ii. *Bulimia Nervosa:* Binge eating due to emotional distress or depression.

c. Often seen in:

   i. Addicted exercisers who stop exercising.

   ii. Females conscious of physical and sexual appearance.

Management Strategies:

d. *Diet Awareness:*

   i. Educate adolescents on healthy dietary habits.

   ii. Involve schools, families, and communities in promoting diet awareness.

e. Promotion of Fitness:

   i. Encourage regular physical activity and sports participation.

ii. Promote healthy body image through fitness over appearance-focused ideals.

3. **Anti-Social Behaviour in Adolescents**

Causes:

a. Results from psychological and emotional turbulence during adolescence.

b. Sudden physical and cognitive changes contribute to aggression.

c. Lack of community and peer support worsens behavioral issues.

Management Strategies:

Catharsis (Emotional Release):

i. Allow adolescents to express and share emotions freely.

ii. Create opportunities for open discussions with peers and trusted adults.

Circular Effect:

iii. Aggression can trigger more aggression—this cycle must be broken.

iv. Use positive reinforcement to interrupt the pattern.

Practical Actions:

v. Address aggressive behavior early, especially when directed at others (e.g., juniors or teammates).

vi. Coaches/managers should create a supportive environment and actively listen to players' concerns.

4. **Exercise Adherence in Adolescents**

- **Importance:**
  - Adolescents need physical activity to support their physical, mental, social, and cognitive development.
  - Regular participation in sports and exercise promotes lifelong wellness.
  - High dropout rates in adolescence are common and concerning.
- **Common Reasons for Dropout:**
  - *Intrapersonal Constraints:*
    - Lack of fun or boredom
    - Low self-confidence in physical ability
    - Low motivation, high stress
    - Negative experiences with team or coach
    - Anxiety from excessive criticism

- *Interpersonal Constraints:*
  - Pressure from family or peers
  - Conflicting social commitments
  - Competing interests and opportunities
- *Structural Constraints:*
  - Limited time for training
  - Sports injuries
  - Financial difficulties
  - Poor facilities or lack of access
  - Overuse injuries or burnout

- **Management Strategy:**
  - Encourage consistent support from family, teachers, coaches, and trainers to promote long-term engagement in physical activity.

9.4 TEAM COHESION IN SPORTS

Meaning of Team Cohesion

Albert Carron defined as "A dynamic process which is reflected in a tendency for the group to 'stick together' and 'remain united' in the pursuit of goals and objectives."

Group cohesion can be defined as unity in which a group of individuals work together to achieve and certain goal.

From '**ME**' to '**WE**'

A dynamic process that is reflected in the tendency of a team to stick together and remain united in pursuit of its goals and objectives despite difficulties and set-backs.

Types of Team cohesion

• Task cohesion
• Social cohesion

Benefits of Team cohesion

1) Group outcomes

- Team stability
- Team Efficacy

2) Individual outcomes

- Improved Athletic Performance
- Perceived Psychological Momentum
- Enhanced mood, emotion, and satisfaction

Factors of affecting group cohesiveness

- **Degree of dependency on the group:** greater the dependency of the people in the group, greater the cohesion.
- **Size of group:** if the size of the group is small, then the cohesiveness will be more smaller groups have high cohesiveness)
- **Homogeneity of members:** group cohesiveness will be higher if people in the group have similar background an interests.
- **Stable memberships:** for more cohesiveness stability must be maintained in the group.
- **Location of the group:** location of the group must be feasible and reachable.
- **Group status:** success stories always lead to high cohesiveness.
- **Leadership:** If the leader of the group is dynamic then cohesion will automatically be good.
- **Competition: Inter-** If there is competition between two groups, then there will be high cohesion.
- **Intra-** If there is competition between the individuals of a group, then there will be low cohesion.

9.5 INTRODUCTION TO PSYCHOLOGICAL ATTRIBUTES: ATTENTION, MENTAL TOUGHNESS & RESILIENCE

Attention- The process through which certain stimuli are selected from a group of others is generally referred to as attention. (NCERT)

According to Dumville- "Attention is the concentration of consciousness upon one object rather than upon another."

Attention is a state of consciousness in which a person can respond to a stimulus or stimuli. In psychology, a stimulus can be a required task, an object, or an event that requires a response.

In other words, attention is the process of focusing your consciousness onone stimulus out of all present stimuli in your external environment.

There are two dimensions of attention: **width (broad and narrow)** and **direction (internal and external)**, resulting in four types of attention control:

a) External broad
b) Internal broad
c) External narrow
d) Internal narrow

Mental toughness is a multifaceted construct made up of multiple key components including values, attitudes, cognitions, emotions, and behaviours that refer to an individual's ability to thrive through both positively and negatively construed challenges, pressures, and adversities.

Attributes of Mental Toughness

- Self-confident and self- assured
- Able to focus and concentrate
- Intrinsically motivated
- Strong work ethic
- Committed to excellence
- Persistent and determined
- Positive attitude, no negativism
- Resilient in the face of failure or injury
- Thrive on pressure and challenge

- Consistent personal values
- Emotional intelligence
- Physically tough
- Gracious in face of success

Resilience is the ability to bounce back from adversity, trauma, tragedy, danger or other sources of stress in life.

In other words: "The flexibility in response to changing situational demands and the ability to bounce back from negative emotional experiences".

Types of Resilience:

- Natural Resilience: It is a natural ability that is bestowed upon a person at conception. It is characterized by openness to new experiences, an eagerness to learn, and a want to have fun.
- Adaptive Resilience: Adaptive resilience is when, as a result of adverse circumstances, one has to learn, adjust and adapt.
- Restored Resilience: Restorative or ''learned' 'resilience is the type of resilience, restored by learning skills that aid in coping with life's challenges. This can also aid in dealing with the past, present, and future traumas in a more effective manner.

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

Q1. Psyche refers to

a) Mind or Soul b) Heart c) Brain d) None of these

Q2. _____ are highly emotional and Sensitive.

a) Infants **b) Adolescents** c) Adults d) Old people

Q3. "Adolescence is the period of great stress and strain, storm and strife" whose statement is it?

a) Watson b) Crow and Crow c) Clarke and Clarke **d) None of the above**

Q4. "Psychology is the science of human behaviour." whose statement is it?

a) Pillsbury b) Watson c) Woodworth d) Singer

Q5. Which of the following in the age group for Adolescence?

a) 8-16 years b) 9-18 years **c) 10-19 years** d) 12-19 years

Q6. Children in adolescent age demand.

a) Money b) Self-worth **c) Freedom** d) Reward

Q7. Infancy stage & for the age group

a) 0-2 year b) 1-2 year c) 1-3 year d) 0-1 year

Q8. Changes in memory and perception are indicators of

a) Physical development b) Social development

c) Mental development d) Emotional development.

Q9. Which one of the following is not a problem related to adolescence?

a) Eating Disorder b) Substance abuse

c) Anti-Social behaviour **d) Lack of language development.**

Q10. Which factor increases group Cohesiveness?

a) Trust b) Diversity c) Arrogance d) Negative put group experiences.

Q11. An individual's ability to bounce back emotionally in the face of adversity is referred as:

a) Anxiety b) Motivation **c) Resilience** d) Mental toughness

Q12. Which of the following factors help in improving team cohesion?

a) Set individual goals b) Set team goals

c) Provide feedback to individuals **d) All of these**

Q.13. In the childhood, Individual's behaviour in most influenced by—

(a) Community (b) School (c) Peer group **(d) family**

Q.14. The causes of frustration among sports person is—

(a) Result of own performance **(b) Normally due to mismatched level of aspiration and ability** (c) Result of good performance (d) Natural outcome of competitive sports

Q.15. In modern scenario meaning of psychology is –

(a) Soul (b)Mind **(c) Behaviour** (d) Consciousness

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

Q.1 Which of these terms describes the degree to which group members come together as one unit to reach a common goals?

(a) Group Cohesion (b) Group synergy (c) Group respect (d) Group collaboration

Q. 2. It is combination of resilience, determination and optimism that motivate people to face adversity-

(a) Task cohesion (b) Alertness (c) Mental toughness (d) Team

Q.3. The ability of to bounce back from adversity is called-

(a) Mental toughness (b) Resilience (c) Alertness (d) Cohesion

Q.4. Match the following:

List-I	**List-II**
(I) Late Childhood	1. 0 to 5 years

(II) Adulthood 2. 6 to 9 years

(III) Infancy 3. 9 to 12 years

(IV) Early childhood 4. 18 years onward

(a) 3 4 1 2 (b) 1 2 3 4 (c) 4 3 1 2 (d) 3 1 4 2

Q.5. Given below are two statements, one labelled as Assertion (A) and the oilier labelled as Reason (R).

Assertion (A): An Infant can run and walk In better way than holding a pen or pencil to write.

Reason (R): An Infant first gains control over large muscle groups than the fine ones.

Which of the following statements 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 and (R) is false.

(d) (A) Is false and (R) is true.

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

Q1. Difference between psychology and Sports Psychology?

Answer: According to Crow and Crow, "Psychology is the study of the human behaviour and human relationship."According to Clark and Clark, "Sports psychology is an applied psychology. It is more concerned with the personalities, emotional or motivational aspects of sports and physical activities. It employs many of the techniques used in psychology."

Q2. Define the term Growth and development?

Answer: Growth means the growth of physical organs whether it is in shape, size, height or weight, Development is not limited to growing larger, instead it consists of a progressive series of changes of an orderly, coherent type towards the goal of maturity.

Q3. What do you mean by adolescence?

Answer: The word 'adolescence is derived from the Latin word ‘adolesceker’ which means "to grow to maturity. According to Jersield "Adolescence is the period through which growing person makes transition from childhood to maturity".

Q.4 Define Sports Psychology.

Answer: According to M.L. Kamlesh. “sport psychology is the application of psychological principles to sport and physical activities at all levels of skill development.”

Q.5 Mention the importance of Sports Psychology.

Answer: 1. Improve performances :- The Knowledge of sports psychology helps to improve performance and personality of players by scientific ways of modifying behavior.

2. **Motivation and feedback :-** Proper motivation and proper feedback enhances the performance of players. It gives counselling to players. This can be guided by sports psychology.

3. **Better selection :-** The knowledge of sports psychology guides the coaches for better selection of players.

Q.6. Define team cohesion and its types.

Answer: Group cohesion can be defined as unity in which a group of individuals work together to achieve a certain goal.

• **Task cohesion-** Degree to which members of a team work "together to achieve a specific and identifiable goal. Example: Colleagues of a department

• **Social cohesion-**Degree to which the member of a team like each other and enjoy personal satisfaction from being member of the team. Example: Friendship, Caring, Liking etc

Q.7. Define attention and its types.

Answer: Attention is the concentration of consciousness upon one object rather than upon another. – **Dumville**

Types of attention

• **Voluntary attention-** it demands a conscious effort. Eg Hit a ball in cricket by a batter.

• **Involuntary attention-** attention aroused without will. Without making a conscious effort. Eg Loud sound, bright lights/color.

Q.8. Give any two definitions of development.

Answer: 1. An increase, as in size, number, value, or strength; extension or expension.

2. Someone's growth is the development and progress of their character. The child's emotional and intellectual growth.

Q.9. List some of the problems of Adolescence.

Answer: The problems of Adolescence are following:

1. Mental Problems
2. Physical Problems
3. Feeling of Importance
4. Problems related to Sex
5. Emotional Problems
6. Behaviour Problems
7. Lacks of Stability and Adjustments
8. Addiction Problems

Q.10. Enlist different stages of Development.

Answer: Different stages of Development are as follows:

- Infancy (0 – 2 years)
- Early Childhood (2 – 6 years)
- Later Childhool/Pre-Adolescence (6 – 11 years)
- Adolescence/Pre-Adulthood (12 – 20 years)
- Early Adulthood (20 – 40 years)
- Late Adulthood (40 – 65 years)
- Old Age (65 & above)

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

Q.1. Write down the benefits of exercise and physical activity.

Q.2. What are the psychological advantages of sports participation.

Q.3. What do you understand by exercise adherence through psychological interventions.

Q.4. Write down physical characterstics of Infancy.

Q.5. What do you understand by Old Age stage of development.

3.SHORT QUESTION SOLVED (3 MARKS)

Q.1. Define Resilience? What are various types of Resilience? What are the way to develop Resilience in Sports?

Answer: Resilience in the process of adapting well in the face of adversity, trauma, tragedy , threats or even significant sources of stress.

Type of Resilience

- Natural Resilience
- Adaptive Resilience
- Restored Resilience

Way be develop Resilience in Sports

- Boost or nurture self-esteem
- Cultivate a positive and optimistic mind set.
- Be self-motivated to succeed.
- Set goals with realistic expectations
- Make strong social support System.

Q.2. Explain any four problems of adolescent.

Answer:

1. Aggresive and violent behaviour: Adolescent has aggresive behavior and often becomes violent very fast. They easily become, irritated and repulsive when work is not of their interest.

2. Problems related to physiological growth: The physiological changes assoiciated with abolescence present conditions and problems that the adolescence has not met upto this time and in many cases is ill prepared to meet them when they appear.

3. Confusion between adolescent's role and status: Unfortunate neither the adolescent's role nor his status is clear cut in the society. A boy may be treated like a man in many situations outside but like a child in his own home.

4. Problems related with future: The adolescence is a period when the individual is not a child, he has emerged from the safe and protected life of childhood. He has now to decide to what course of like he has to follow.

Q.3. Explain different develomental characteristics of early childhood stage.

Answer:

Early Childhood (6-9 years)

1. **Physical Characteristics:** Period of slow but steady growth in height. Bones are soft weight increase in steady. Pulse rate is higher than adults. The heart size is smaller in comparison to the body. Strength is not well developed.
1. **Mental Characteristics:** Child loves to take part in exercises and activities. Initiations is a strong characteristic. Children love to play with kids of their own age. The play activities in the age group should not be strenuous because physical capacities develop slowly.
3. **Emotional Development:** Children tend to become demanding and bossy.They are often enthusiastic about like and tend to be outgoing. They may start questioning parents authority. They might show jealously toward siblings. They are able to understand their own feeling and understand the consquences of their actions. They show empathy and offer to help when they see another in distress.
4. **Social Development:** Friends and special friendship become more important at this time and it is very important to his self-esteem that he feel as thought he fits in and is accepted by his friends.

Q.4. Write down any six importance of Psychology in physical education and sports.

Answer: importance of Psychology in physical education and sports are as follows:

- It helps to promote physical activities-
- Build confidence
- Develop healthy habits

• It helps to understand goal

• It helps to manage stress

• It helps to overcome obstacles

Q.5. Write down the developmental characterstics of late childhood.

Answer: **Late childhood period (6 - 11 years)**

1. Physical Development: Period of slow, steady and uniform growth.

2. Intellectual Development: New experiences are acquired and applied and mental horizon is broadened.

3. Emotional Development: Emotional behaviour becomes stable and remains under control.

4. Social Development: Child plays team games and likes to form bigger social circle.

Q.6. Write down the developmental characterstics of early adulthood period.

Answer**: Early Adulthood Period (20 – 40 years)**

1. Physical Development: Muscles become mature and their strength improves.

2. Intellectual Development: Brain reaches its full maturity.

3. Emotional Development: Emotions are very much controlled.

4. Social Development: Become functioning members of the society.

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

Q.1. Explain the physical activities for development of adolescents.

Q.2. Explain the social characterstics of adolescents.

Q.3. What do you understand by 'Team Cohesion'? Enlist it's types.

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

Q.1. Krishna, a student in 11th grade, is a very active and athletic boy. He wakes up early in "the morning and also goes for archery training. In the training, he starts focusing on various psychological attributes such as attention, mental toughness and resilience.

Based on the above information, answer the following questions:-

(a) _____ is the concentration of mental effort on sensory or mental events.

(b) Attention focus allowing athletes to perceive several occurrences simultaneously is referred as_____

(c) _____resilience is a type of resilience that occurs when one has to learn, and adapt, as a result of adverse circumstances.

(d) _____ is defined as a collection of values, attitudes, emotions, cognitions, and behaviours that influence the way in which an athlete approaches, responds to, and appraises demanding events to consistently achieve his or her goals.

OR

_____ resilience is a type of resilience that is characterised by an openness to experiences, an eagerness to learn, and a want to have fun.

Answer :-a) Attention b) Broad Attention focus c) Adaptive d) Mental toughness OR Natural

Q.2. An athlete, Ramesh, was always anxious before his races and often performed below his potential. After sessions with a sports psychologist, he learned techniques like goal setting, self-talk, and visualization, and his performance improved.

Based on the above case, explain any four psychological benefits of mental training in sports.

Answer: 1. Reduces anxiety – Helps the athlete stay calm under pressure.

2. Enhances focus – Improves concentration during performance.

3. Builds confidence – Positive self-talk and visualization create a success mindset.

4. Improves motivation – Goal setting gives athletes direction and drive.

Q.3. Priya, a sprinter, performed very well in training but couldn't replicate the same during competitions. Her coach suspected this was due to lack of confidence and high competitive anxiety.

Q. Identify and explain the two types of anxiety Priya might be experiencing.

Answer: 1. Cognitive Anxiety – Worry and negative thoughts about her performance.

2. Somatic Anxiety – Physical symptoms like increased heartbeat or sweating before competition.

Q.4. A volleyball team lacked coordination and motivation. A new coach focused on developing group dynamics, team bonding activities, and clear communication. Soon, the team began performing better.

Q. Explain the psychological importance of group dynamics in team sports.

Answer: 1. Encourages team cohesion – Enhances trust and unity.

2. Improves communication – Reduces misunderstandings and conflict.

3. Motivates individuals – Peer support boosts morale.

4. Enhances performance – Better teamwork leads to better results.

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Q.1. Ritu, a table tennis player, used relaxation techniques like deep breathing before matches. She reported feeling more in control and playing better under pressure.How do relaxation techniques help in managing competition stress?

Q.2. During a psychology workshop, players were asked to set SMART goals. Later, they felt more committed and showed improved performance.What are SMART goals and how do they help athletes?

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q.1. Explain the problems of adolescence? How the problems can be managed?

Answer:

Physical problem Mental problem Problem of Aggressive Behaviour Lack of Stability and Adjustment Emotional problem Problem Related to Sex Problem of Self-Support Feeling of importance Social problem

Management of Adolescence problem

- Education for Motor Development
- Education of Psychology
- Sex Education
- Vocational Education
- Moral and Religious Education
- To provide suitable Environment
- Adequate Independence
- Social Education

Q.2. Explain the importance of sports psychology in physical education and sports.

Answer: Sports psychology plays a crucial role in enhancing athletic performance and overall well-being. Its importance includes:

1. Performance Enhancement: Understanding mental strategies like attention control, motivation, and goal setting helps athletes perform better.
2. Confidence Building: Psychological training boosts self-esteem and confidence, which are essential for competition.
3. Stress and Emotion Management: Helps players deal with competitive anxiety, frustration, and emotional fluctuations.
4. Team Cohesion: Promotes better understanding, communication, and unity among team members.
5. Behavioral Modifications: Encourages positive thinking, discipline, and intrinsic motivation among players.

Q.3. Define team cohesion. Explain its types and importance in sports. Answer: Team cohesion refers to the degree of unity among team members in pursuing common goals.

Types:

1. Task Cohesion: Unity in achieving specific objectives (e.g., winning a match).

2. Social Cohesion: Mutual liking and personal satisfaction among team members.

Importance: Enhances cooperation and team spirit.

Boosts morale and collective confidence.

Reduces internal conflicts.

Increases chances of consistent success.

LONG QUESTIONS FOR PRACTICE (5 MARKS)

Q.1. Discuss the developmental characteristics during adolescence and how they impact sports performance.

Q.2. Describe attention and its types. Why is it important in sports

UNIT- X

TRAINING AND DOPING IN SPORTS

CONTENT

- Concept and Principles of Sports Training
- Training Load: Over Load, Adaptation and Recovery
- Warming-up & Limbering Down-Types, Method & Importance
- Concept of Skill, Technique, Tactics & Strategies
- Concept of Doping and its Disadvantage

LEARNING OBJECTIVES/LEARNING OUT COMES

⟹ UNDERSTAND THE CONCEPT OF SPORTS TRAINING AND ITS PRINCIPLES

⟹SUMMERISE TRAINING LOAD, OVERLOAD, ADAPTATION AND RECOVERY CONCEPTS.

⟹ UNDERSTAND THE CONCEPT OF WARMING UP AND LIMBERING DOWN IN SPORTS TRAINING, AND THEIR TYPES, METHOD AND IMPORTANCE.

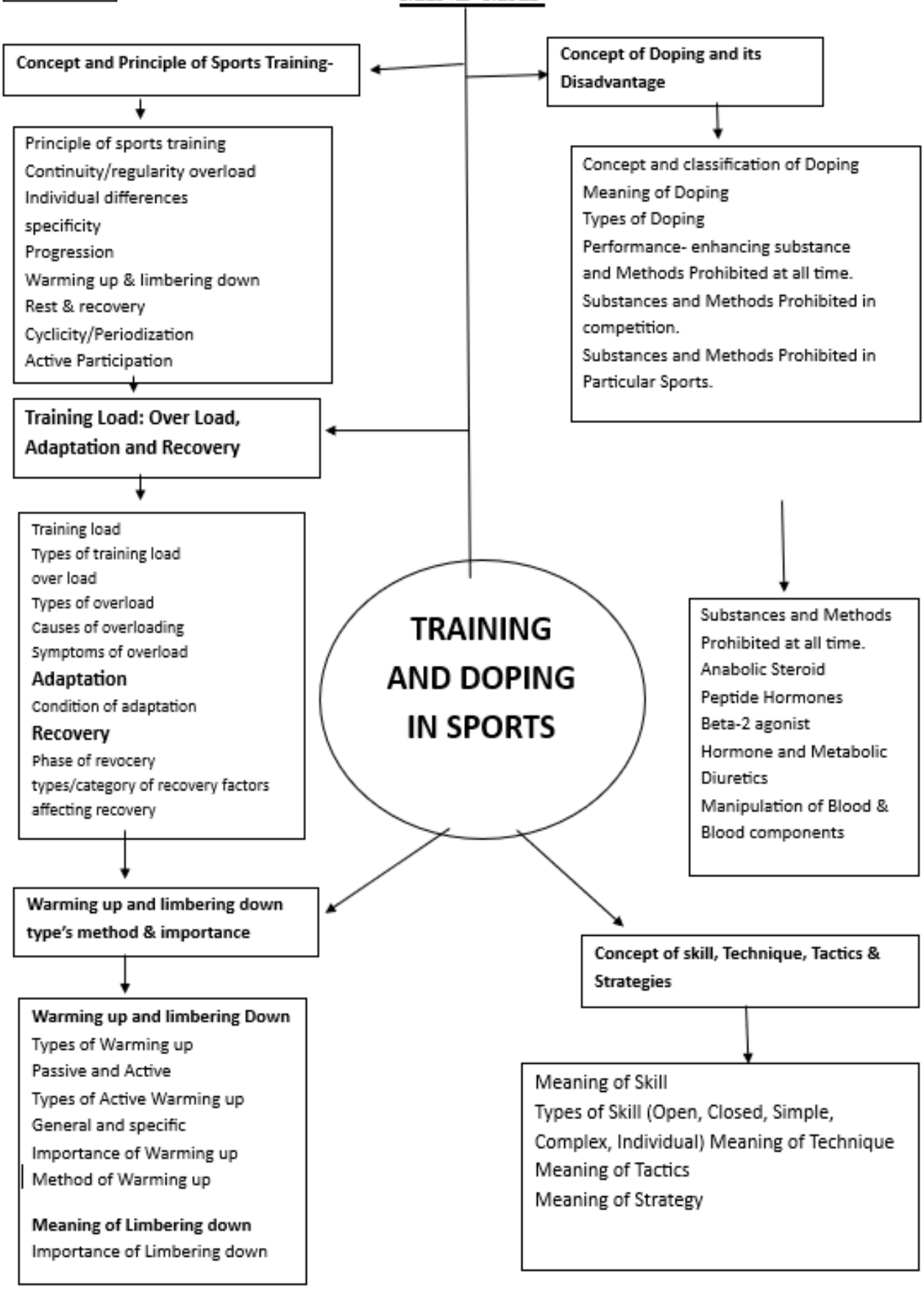
⟹ ACQUIRE THE ABILITY TO DIFFERENCIATE BETWEEN THE SKILL, TECHNIQUE, TACTICS AND STRATEGIES IN SPORTS TRAINING.

⟹ INTERPRETE CONCEPT OF DOPING IN SPORTS.

Unit-10

WEIGHTAGE - 09 MARKS

MIND MAP



10.1 CONCEPT AND PRINCIPLES OF SPORTS

MEANING OF SPORTS TRAINING: - Sports Training is an organised and systematic process for preparing sportsmen for the highest level or peak performance in sports and games.

DEFINITIONS OF SPORTS TRAINING

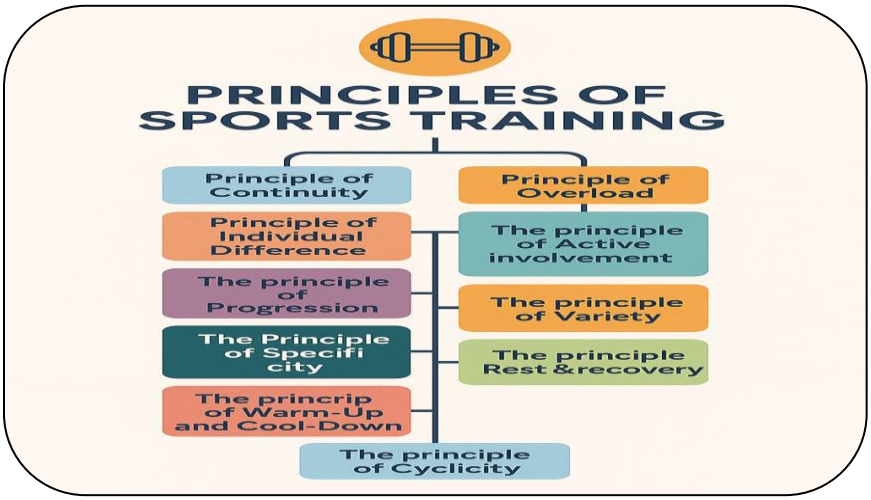
According to Matwejew "Sports Training is the basic form of preparation of sportsmen**"**

According to Hardial Singh "sports Training is a pedagogical process, based on scientific principles, aiming at preparing sportsmen for higher performances in sports competitions"

According to Todd Townes "Sports Training is a targeted approach to training focused on your sports of choice"

According to D. Harre " Sports Training is based on scientific knowledge and a pedagogical process of sports perfection which, through systematic effect on psycho-physical performance ability and performance readiness, aims at leading the sportsman to top level of performance**"**

10.2 PRINCIPLES OF SPORTS TRAINING



PRINCIPLES OF CONTINUITY/REGULARITY:- Continuity is the key to ensure the best outcome in a sports, The Training of Sports person has to be continuous and regular for best output.

PRINCIPLE OF OVERLOAD:- There should be greater than normal load on the body as required for Training Adaptation , Training load should be increase for improving the performance.

PRINCIPLES OF INDIVIDUAL DIFFERENCES:- Every sports person is different Hence response to exercise or Load Varies, The Training programme should be organised According to the ability,Endurance,response against Load etc.

PRINCIPLE OF SPECIFICITY:- In this Principle Specificity of Training should be focused e.g., Runner should get trained by running, Swimmer should get trained by swimming and cyclist should trained by cycling.

PRINCIPLE OF PROGRESSION: - According to this principle training Load has to be increased in progressive as per the adaptation ability of trainee**.**

PRINCIPLE OF WARMING UP AND LIMBERING DOWN:- As per this principle before any activity, body temperature has to be managed by warming up and meanwhile, it is also necessary to manage our body after an activity or training to make it normal by performing Limbering down exercises.

PRINCIPLE OF CYCLICITY/PERIODISATION:- Periodisation is the blueprint of a training plan. It comprises the following three three phases.

Period	Preparatory	Competition	Transitional
Month	1, 2, 3,4,5,6	7, 8,9,10	11, 12

(A) **PREPARATORY PERIOD**:-It is the longest period where sportspersons work on their motor fitness components, Sports techniques and tactics for competitions.

(B) **COMPETITION PERIOD**:-In this period sports person participate in various minor competitions and pre-competitions before participating in main competitions.

(C) **TRANSITIONAL PERIOD:-** It is called active rest and recovery period, starts just after the end of the main competition.

PRINCIPLE OF REST AND RECOVERY:- Provision of rest and recovery during the training should be followed for better result and maintain the level of efficiency and energy in the muscles.

PRINCIPLE OF ACTIVE PARTICIPATION- Participation in Training programme by following the Law of readiness, which provides good results. The player and teacher should participate in Training programmes actively

10.3 TRAINING LOAD: OVER LOAD, ADAPTATION AND

10.3.1 MEANING OF TRAINING LOAD:-

Load, In sports Training, is known as the Training Load or demand, that can be Physical, physiological or Psychological, put on the body to enhance the performance of the athlete.

Training Load is the work, exercise or efforts done by an athlete during a training programme in order to improve his performance.

10.3.2 TYPES OF TRAINING LOAD

INNER LOAD:- It is the reactions and effects of the organism.
Eg. Sweating, change in colour, increase in heart rate

OUTER LOAD:- It is the work done by the sports person. It can be physically and mentally

10.3.3 FEATURES OF LOAD

PHYSICAL EXERCISE-Exercise is considered as the most important means of training

QUALITY OF MOVEMENT:-The quality of movement performed by sportsmen has direct influence of training Load

INTENSITY OF LOAD:-It represents the degree o effort made by the sportsperson while performing an exercise

VOLUME OF LOAD:- Volume of Load can be classified into duration of movement and frequency of movement.

OVER LOAD

MEANING OF OVERLOAD: - During Training of sports persons, Load is given to the players according to their capacity. **Whenever this Load goes beyond the capacity of an individual, the physiological and Psychological functions get disturbed, this disturbance known as Over Load.**

CAUSES OF OVER LOAD

Faulty Training Method
Recovery process neglected
Training Load and adaptation not properly
Excess of Competition with high demand

Social Factors
Excess engagements.
Friction in the family
overloading in work

Health factors
Fever
Bad stomach
injuries

Life Factors
Insufficient Rest
Luxurious daily routine
Bad living Conditions

SYMPTOMS OF OVER LOAD

- **Depression**
- **Loss of Confidence**
- **Loss of Motivation**
- **Increased error in Technique**
- **Disturbance in Digestion**
- **Poor Fitness**
- **Susceptibility to Injuries**

Overload depends upon the particular physical characteristics that need to be developed-:

Strength:-Over Load is increasing in the term of kilogram**,**
Strength endurance:- overload is increasing repetitions of the activity
Aerobic/heart endurance:-Overload is increasing the amount of time that the person can continue work. **Speed endurance**:-Overload is increasing the number of high-quality repetitions of an exercise per unit of time.
Speed:-over load is performing a given task faster
Mobility:-overload is taking effective joint action beyond its present limit.

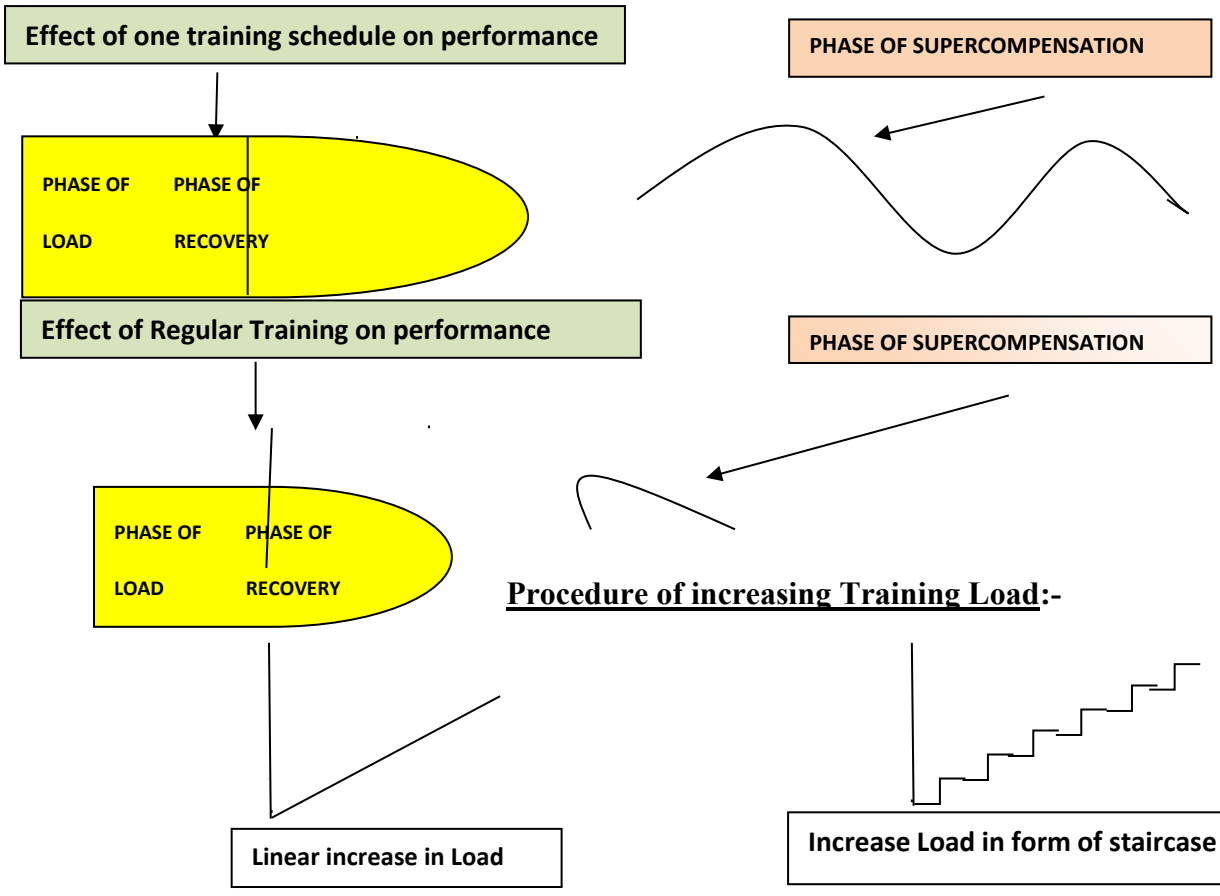
ADAPTATIONS

MEANING OF ADAPTATION:-

Adaptation is defined as the adjustment of Physical and Psychological functional systems to the training Load. Adaptation process demands that a sports person maintains regularity in Training. If a sports person is exposed to new and unfamiliar load in a systematic planned way the adaptation process will be faster.

For adaptation to Training Load the following three conditions are to be

- Training Load has to be as per the loading capacity of Sportsperson.
- Recovery period should be in proportion to the Training Load
- Loading and Recovery process is to be repeated for a certain period of time



CONDITION OF ADAPTATION

- ⇨ Adaptation process is set in motion only when the Load is Optimum.
- ⇨ The Adaptation is result of proper cycle of Load and Recovery
- ⇨ The Adaptation takes place faster in case of beginner, but it takes long time in case of advance player.
- ⇨ There should be a correct proportion between intensity and volume of Training Load

RECOVERY

Recovery is the time when the body rests and repairs itself after training or exercise. When recovery is done properly, it helps athletes get stronger, perform better, and avoid getting sick or injured. But if the body doesn't get enough rest, it can lead to poor performance, injuries, and health problems.

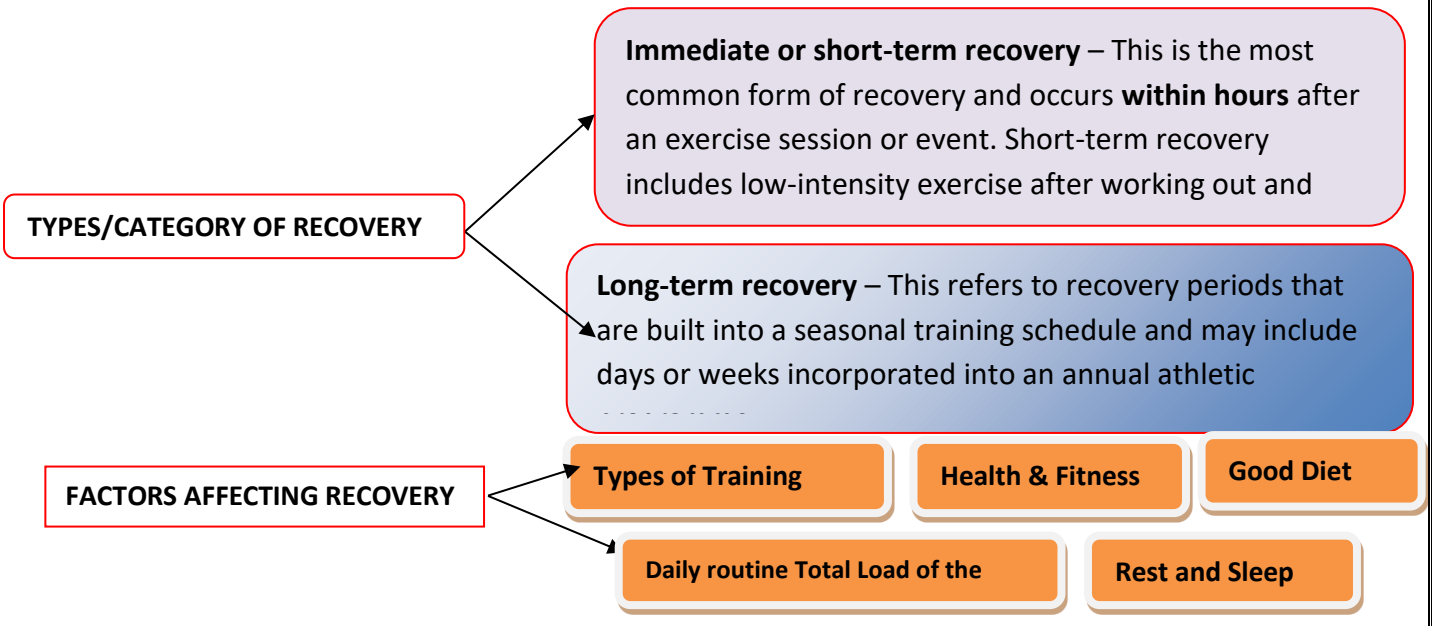
Recovery happens in **three stages**, and each stage is important for helping the body heal and get stronger.

PHASES OF RECOVERY

First Phase :- In this phase ,Recovery takes place along with the beginning of fatigue during the activities., resynthesis of ATP and glycogen, and neutralisation of lactic acid.

Second Phase :- In this phase Recovery starts after the end of physical activity(few minutes to3-4hrs) and ends with the restoration of homeostasis (i.e., equilibrium) Active means of recovery include deep breathing and the ingestion of carbohydrate rich drinks containing recommended vitamins, salt and minerals.

Third Phase:-In this phase Recovery can last from several hours to several days. The Recovery process in this phase is anabolic in nature The substances (enzymes, vitamins, proteins,etc) which were broken down during activity are resynthesised or rebuilt in this phase.

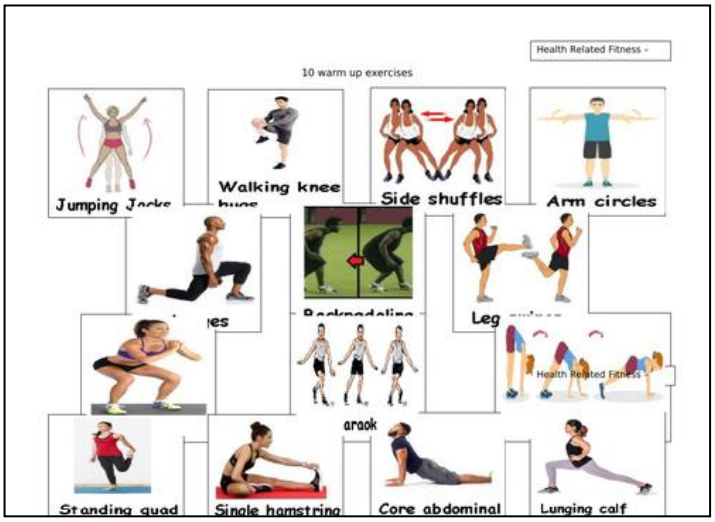


WARMING UP AND LIMBERING DOWN (COOLING DOWN)

MEANING OF WARMING UP

Warming up is a Series of light exercises that are performed prior to any Training or Competition.

Through a series of exercises, Players are physically and mentally prepared for Training or Competition.



TYPES OF WARMING -UP

ACTIVE WARM-UP:- Active warming up increases the body temperature by performing any physical activity.
Example:-Stretching, jogging, sprint, stride, running

PASSIVE WARM-UP:- A passive warm-up increases the bodys temperature by using external means/sources, without performing any Physical activity.
Example:- Massage, Sun Bath, Steam Bath, etc

GENERAL WARMING-UP:- In General warming up basically, you do some general exercises **like jogging, running, jumping, stretching, calisthenics and other general exercises**.

SPECIFIC WARMING-UP:- Specific warming-up is done just after general warming up. Various tools/instruments are used for this. It varies from activity to activity like **practice of passing and kicking in football before actual play, practice of catching before cricket** etc.

Specific Warming-Up for Some Games • Volley Ball: Dig pass, spike, shuttle run, blocking, service • **Cricket**: Dummy bowling and batting, catching, fielding, etc. • **Badminton**: Tossing, high clear, low clear, smashing, making with jumps, dropping practice and court crafting, etc. • **Tennis**: Knocking, wall practice, volley, clear service practice, clear slice, lob, return, etc. • **Shot Put**: Shifting the shot from left hand to right hand and vice versa, standing throws, putting the shot with both hands, gliding practice with or without the shot, etc

IMPORTANCE OF WARMING-UP

1. Increases Body Temperature: Warming up helps to increase body temperature to enhance muscular strength and speed.

2. Increases the Nerve Impulse Speed: Warming up increases the nerve impulse speed. Increase in nerve impulse speed is useful for reducing reaction time. Reduced reaction time is useful for doing rapid activities.

3. Increases Oxygen Supply: Warming up helps to widen blood vessels for the supply of oxygen.

4. Safety from Injury: Warming up reduces possibilities of injury as it enhances muscle tone.

5. Increases Flexibility: Warming up helps to increase flexibility of the body joints, cartilages, etc.

6. Improves Metabolism Rate: Warming up increases body temperature which improves metabolism rate.

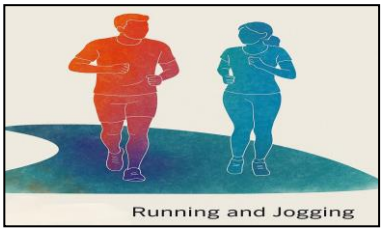
7. Improves Strength and Endurance: Warming up improves strength and endurance, as it widens the **blood vessels for proper supply of oxygen**.

8. Improves performance: Warming up improves the body's performance by improving flexibility, strength, tolerance, etc.

9. Decreases Reaction Time: Warming up helps to decrease reaction-time as it improves nerve impulses.

10. Second Wind Stage Crosses Readily: It is natural for the second wind stage to occur during the games. The second stage is crossed only during warming up. Therefore, condition does not occur during the performance of the player in the competition and the player is successful in giving good performance.

1. Running and Jogging:
Players have to run slowly according to their capabilities. It involves primarily 5–10 minutes. In this, running and jogging both are included. Players can decide the duration of warming up accordingly.



METHODS OF WARMING-UP

2. Simple Exercises:

After running and jogging, players should do exercises from ankle to the neck. It includes walking, rolling, bending, jumping, etc.

3. Striding: In this, a player runs 50–60 m through long strides. Also, he/she has to come back to the...

4. Wind Sprint: In this, players run rapidly for 20–30 m. They can repeat this as much as they can. Normally, it should be repeated for 4–5 times.

5. Stretching Exercises: In this, the player does stretching of several parts of his/her body like stretching any part of the body after bending in a certain direction.

6. Hot Water Bath: This method is generally accepted in those countries where the climate is colder. Here, hot water bath should be provided to increase

7.Through Massage: Massage helps to improve muscle tone and also activates and energizes muscles.

LIMBERING DOWN (COOLING DOWN)

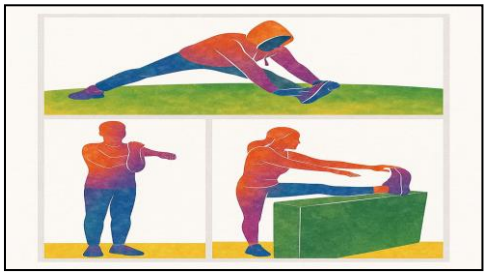
After a competition or Training, to bring the body to normal condition is called Limbering down or Cooling Down.

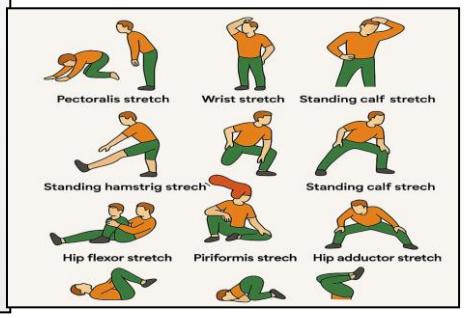
.Some major static stretching exercises which are very important for cooling down are described here.

Ham Strings: Lying on your back, raise one leg straight directly, above hips. Holding the calf or thigh, press the heel towards the ceiling as you pull the leg back towards the chest. Repeat the same for the other leg.

Chest: Standing straight, interlace fingers behind your back. As you straighten out your arms, lift your chin towards the ceiling.

Gluteus: Lying on your back, cross your right leg over the bent left knee. Then bring the left knee to the chest, holding onto the back of your thigh, gently pressing the right knee wide





IMPORTANCE OF LIMBERING DOWN

Limbering down is as important as warming up .Importance of Limbering down are as follows:

1. Normal Temperature of the Body: Limbering down helps to get the body to its normal temperature.

2. Decrease Stress: Limbering down helps to decrease mental and muscular stress.

3. Oxygen Supply: During training, it is obvious to have lack of oxygen in the body. Limbering down helps to improve oxygen supply in the blood vessels.

4. Removal of Waste Substances: During training, waste substances in the body might be increased like lactic acid, uric acid, CO_2, etc. Limbering down helps to remove these waste substances.

5. Decreases Level of Adrenaline: During vigorous activity, level of adrenaline hormone might increase by which blood flows rapidly. Limbering down helps to manage this.

6. Normal Heart-rate: Limbering down helps to gradually moderate the heart rate.

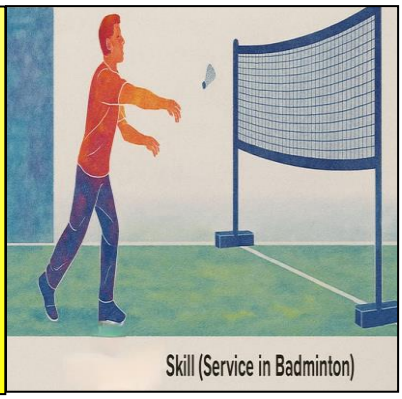
CONCEPT OF SKILL, TECHNIQUE, TACTICS AND STRATEGIES

SKILL

Skill, Technique, Tactics and Strategies are essential attributes for an athlete to perform at an optimum level on the sports field. Some people are born with a natural ability for a particular game or sport such as speed, agility, coordination, flexibility, balance, and reaction time.

Meaning:-Skill is the ability gained through systematic and sustained effort to perform complex actions smoothly and favourably. Skill is the ability to do any task efficiently. Skill is a combination of speed and co-ordination and is done for a particular purpose.

Examples of skills are — kick in football, service in Badminton, Set shot in basketball, etc.



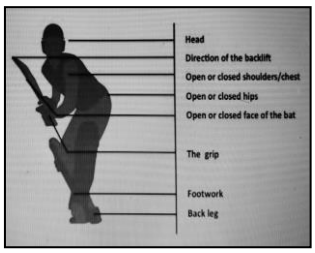
Skill (Service in Badminton)

TYPES OF SKILL

- **Open Skill**: Open skill is that skill which is not controlled by the player but is adopted under the circumstances. Open skill are adopted as per requirement or circumstances during games like hockey, football, basketball, etc
- **Closed Skill:** Closed skills are those skills which are already known or the action the performer is aware of and demonstrates such as 'service' in volleyball and badminton, and free kick in football.
- **Simple Skill**: Skills that do not require speed and co-ordination are called simple skills. These can be easily displayed like single-hand pass in basketball, simple service in volleyball, etc.
- **Complex Skill: Skills**:-in which muscle, nervous system, speed and co-ordination predominate, are called complex skills; such as dribbling in hockey, lay-up shot in basketball, etc.
- **Individual Skill**: Individual skills are those skills that are done individually: like long jump, shot-put, etc.

TECHNIQUE

Meaning:-Technique is the specific way of performing an activity, usually a method that involves practical skills. That is, technique is the practical skill of doing a task. In other words, the systematic skill/way of performing task through which a task is completed is called technique.
Example: instep kick in football, lay-up-shot in basketball, and crouch start techniques in running, back kick in Kabaddi, etc. Let us understand the technique by discussing the above examples. **Serving in badminton is a skill but Short service is a technique**. Shooting in basketball is a skill but lay-up-shot, set shot, jump shot are techniques. Jump is a skill but scissor is a technique. Start in running is a skill but crunch start (bunch, medium, elongated) is a technique.



TACTICS

Tactics are smart ways to play during a game to try to win. They help players or teams use their skills in the best way. Tactics are small plans or actions used during the game.
Examples: Hitting the ball to the weak side of your opponent, or faking a pass in basketball.

FACTORS AFFECTING TACTICS

- **Players available for selection.**
- **The importance of the game/match.**
- **Possibly even the weather**

STRATEGIES

Meaning- Strategy explains how the means (resources) will be used to accomplish the end (goals), by establishing priorities and goals, deciding on actions to accomplish the goals, and allocating resources to carry out the actions. The path of action needed to carry out a team goal is referred to as a strategy.

SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis is a method for identifying and analysing internal strengths and weaknesses, and external opportunities and threats that shape current and future operations and help develop strategic goals. Therefore, strategy often requires a SWOT analysis. The coach might analyse the team and plan to utilise strengths and develop weaknesses. SWOT may also analyse the opposition to identify the best approach to be used in the game to win. For example, the team has a weak tackler to target.

Differentiate between Skill, Technique, Tactics, Strategy

Aspect	Skill	Technique	Tactics	Strategy
Definition	Ability to perform an action efficiently.	Executing a skill correctly	Planned action used in specific situation	Long- term plan to achieve goal
Nature	Inborn or developed through practice	Leaned and refine through instruction	Situation based and adaptable	Comprehensive and consistent over time
Focus	What is done	How it is done	When and where something is done	Why something is done
Improvement	Through Repetition	Improved by learning and correcting form	Improved by game experience& understanding opponents.	Improved through planning and analysis
Role in performance	Quality performance	Enhances efficiency of skill.	Helps in gaining temporary advantages in dynamic situation	Guides all decisions for long term success
Example in sports	Accurately shooting a basketball	Correct foot placement while spring	Switching to defensive play when leading in the last minute	Planning to focus on fitness and defence throughout the season

CONCEPT OF DOPING AND ITS DISADVANTAGES

Doping means consumption or Intake of drugs or Prohibited substances by the players in Sports. Doping involves using a chemical substance of, which is useful for improving the performance of the players.

Doping in sports dates back to the ancient Olympic Games in 776 BC. Historical records show athletes used performance-enhancing substances, such as herbal infusions, mushrooms, and opium, to boost strength and endurance. By 100 AD, Roman gladiators used stimulants and hallucinogens to delay fatigue and prevent injuries.

The first doping case in the Modern Olympics occurred in 1904 when runner Thomas Hicks nearly died after using brandy and strychnine. Until the 1920s, athletes commonly used stimulants like strychnine, heroin, cocaine, and caffeine. In the 1960 Rome Olympics, Danish cyclist Knut Jensen died with amphetamines in his system. In 1967, British cyclist Tommy Simpson also died after taking amphetamines and brandy during a race.

International Olympic Committee defined doping as "the use of any method or substance that might harm the athlete, in a quest to gain an unfair advantage, over his/her fellow competitors."

WADA (World Anti-Doping Agency) is an agency meant to control and mange the misuse of these substances. It was established in 1999.WADA has made several laws/rules for the Players which has to be followed by them.

These codes are as follows:-

2.1 Presence of a prohibited substance or method.

2.2 Use or attempt to use a prohibited substance or method by an athlete.

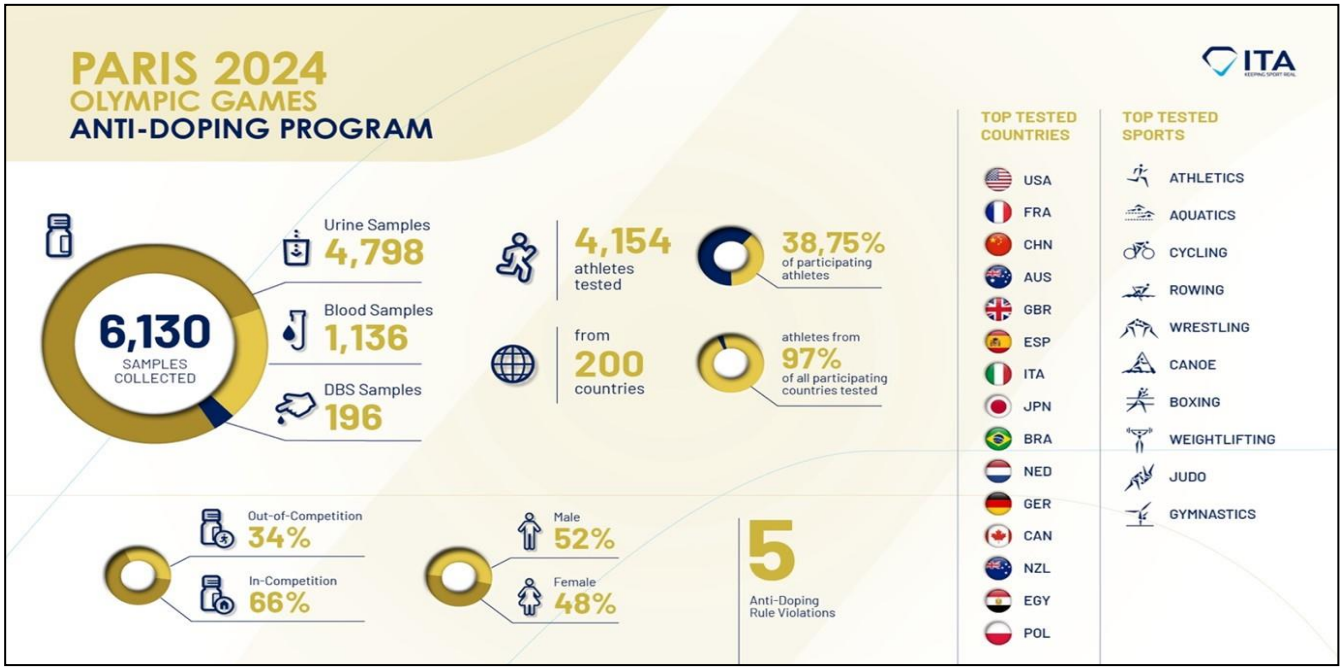
2.3 Evading, refusing or failing to submit sample collection after being notified.

2.4 Failure to file athlete's whereabouts after being notified.

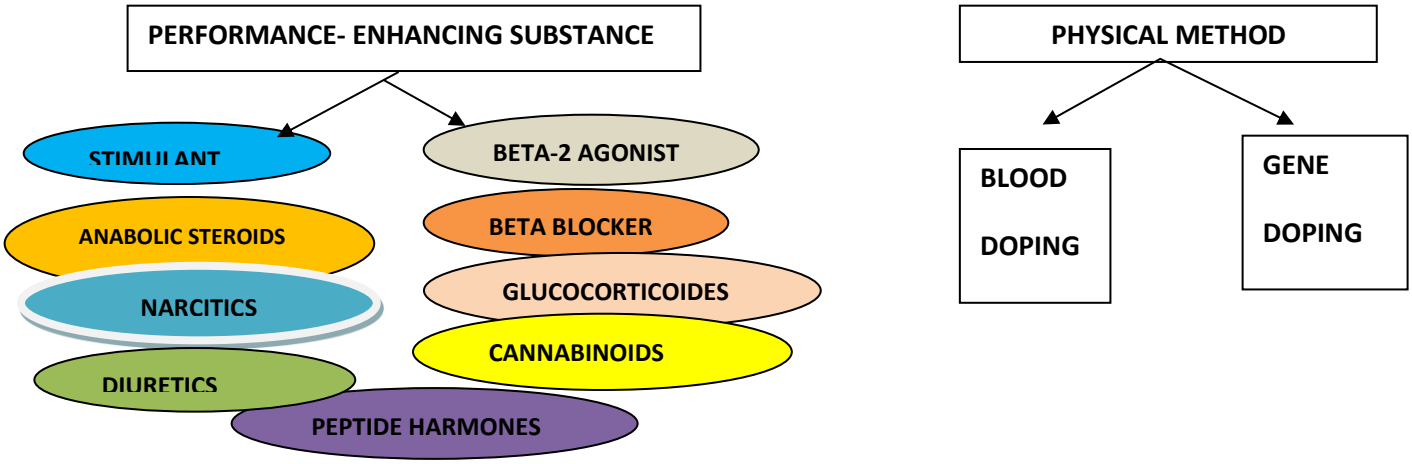
2.5 Tampering or attempting to temper with any part of the doping control process.

2.6 Possession of a prohibited substance or methods.

2.7 Trafficking or attempted trafficking in any prohibited substance or method.



CLASSIFICATION OF DOPING



PERFORMANCE –ENHANCING SUBSTANCES

Those substances which are used by the players to drastically enhance their performance are performance enhances substances

example:- stimulants anabolic steroids diuretics, peptide hormones beta-2 agonist beta blockers etc.

Stimulants: These substances increase the rate of physical activities and stimulate the response mentally. Examples of stimulants are - Cocaine, Adrafinil, Ephedrine, Amphetamines, Caffeine, Camphor, etc.

Anabolic Steroids: These substances stimulate muscles and are helpful or their recovery. Examples are Methenolone, Oxandrolone, Drostanolone, etc.

Narcotics: Narcotics are used during the sports. They reduce tension, pain, etc. e.g., Heroin.

Diuretics: Diuretics help to reduce body fat drastically. They are used to decrease the amount of water in our body. e.g., Dextron, Diuretics, etc.

Peptide Hormones: These increase RBCs to enhance oxidation in the blood. e.g., Erythropoietin, Insulin, etc.

Beta-2 Agonists: These are useful to improve breathing, reducing recovery duration to enhance energy.

Beta Blockers: These are useful to reduce vibration of the body. Archery players and shooters use them.

Glucocorticoids: These substances help to get relief from pain and tiredness which helps to work much more.

Cannabinoids: These substances provide relaxation.

They help to prepare the players psychologically.

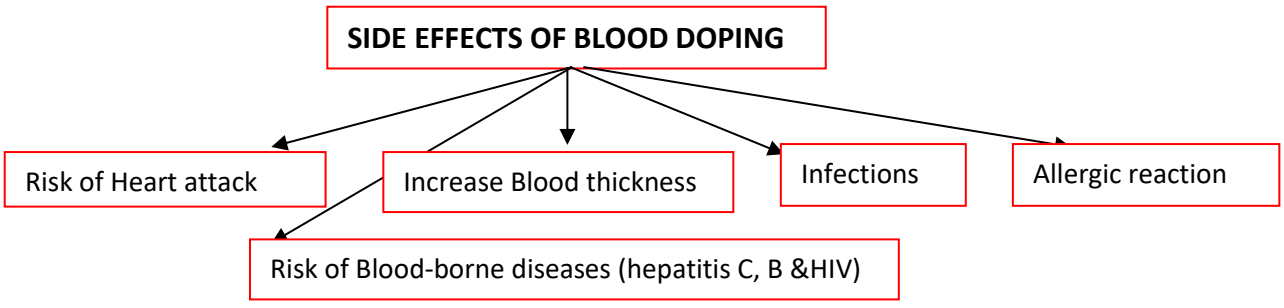
PHYSICAL METHOD: - Following are the Physical method of Doping

BLOOD DOPING: It is done to increase the number of red blood cells in the blood to increase the amount of oxygen that the blood can carry to the muscles, thus, improving muscle endurance and athletic performance.

Blood doping is done either through the **Autologous** transfusion or the **Homologous transfusion of blood**. Autologous transfusion consists of taking blood from an athlete and later transfusing it back to the athlete. Approximately, two units of blood are removed and stored under strictly defined conditions; then one to seven days before the competition, this blood is transfused back to the athlete. Whereas homologous transfusion is the injection of fresh blood taken from a second person straight into the athlete.

Blood Doping through Artificial Oxygen Carriers: A second method of blood doping involves the use of artificial oxygen carriers. Haemoglobin oxygen carriers and Per fluorocarbons are chemicals or purified proteins which have the ability to carry oxygen. They have been developed for therapeutic use, but are now being misused as performance enhancers.

Although WADA introduced tests in 2004 which are capable of detecting the use of homologous transfusions and the use of artificial oxygen carriers, a suitable test has not yet been developed to detect autologous blood doping.

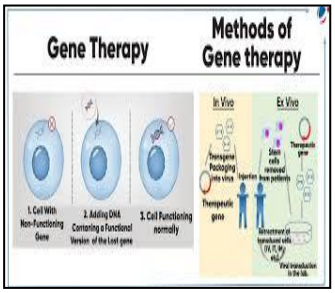


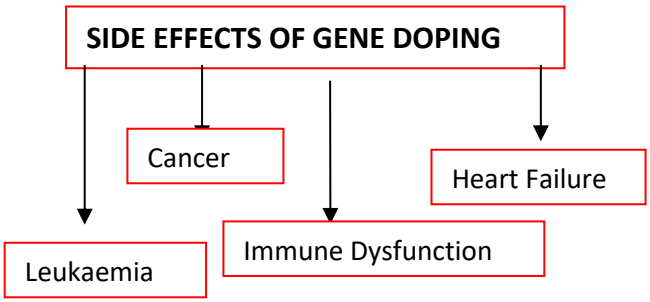
GENE DOPING:- This Method is used to enhance muscle and bone endurance and their structure. By this doping, the work of the cells is increased.

Gene doping is based on gene therapy, where a healthy gene is transplanted into cells or directly into the genome to replace a mutated or absent gene.

It is likely used by athletes to improve endurance, muscle strength, and size,

as well as for faster recovery from injury and fatigue.





DISADVANTAGE OF DOPING

There are varied disadvantages to different doping substances, but the general disadvantages of various doping substances are given below:

1. **Performance-enhancing drugs have a negative effect on health**.. Active use of doping creates a higher risk of liver or heart damage. There may be a risk of blood clotting. There may be impotency in men, issues with balding, and difficulty in controlling emotions.

2. Sportsmanship is reduced in the presence of doping in sports. If doping is used in the field of sports, it will damage sportsmanship. Sports competition should be fun, build character and offer a foundation of honesty.

3. Doping can create an unfair playing field for the sport. Doping can set the stage for unfair play, putting athletes who are not taking drugs/hormones at a disadvantage.

4. **Medical supervision**. It creates a situation where sportspersons are usually operating outside medical supervision.

5. Young athletes may be habitual of taking drugs. Young athletes may become habitual about taking drugs to enhance sports performance because professional sportspersons who take drugs act as role models for new athletes

PROHIBITED SUBSTANCES AND THEIR SIDE EFFECTS		
S.N	**PROHIBITED SUBSTANCES**	**SIDE EFFECTS**
1	Anabolic Steroids	Abnormal muscle growth, increasing energy Hormonal problems in males and females, Cardiac problems, liver problems, etc.
2	Stimulants	Decreasing growth, vigilance and tiredness ,Increased breathing and pulse rate ,High body temperature, Tension
3	Narcotics	Increasing mental tolerance , Decreasing breathing rate Decreasing pain (Injury)
4	Diuretics	Immediate reduction of body fat ,Cardiac arrest, Kidney dysfunction
5	Corticosteroids	Aggressiveness ,Increasing pain tolerance Irregularity in the glands , Numbness
6	Beta Blockers	Decreasing heart-rate, Excessively low pulse-rate ,Mental illness
7	Gene	Cancer ,Autoimmunization ,Heart attack , Increased blood viscosity Difficult laminar blood flow through vessels , Severe immune response Abnormal vision
8	Blood Transfusion	Quick increase in blood pressure ,Convulsions , Cancer , Liver damage Hepatitis ,Increased viscosity of blood , Thickening of blood Heart disease
9	Human Growth Hormone	Diabetes , Worsening of heart disease and muscles , Hypertension Cardiac deficiency ,Accelerated osteoarthritis Enlargement of the extremities

SUBSTANCE ABUSE

Some of the drugs give instant mental and Physical excitement when taken in the quantity more than the prescribed amount but have many ill effects on the body. These drugs and their effects are tabulated below.

S.N	NAME OF DRUGS	EFFECT ON BODY	SYMPTOMS	REMEDIES
1	Nicotine	Lung cancer, chronic bronchitis, leukaemia, trauma, miscarriage, weak immunity, dental problems	Irritation, tension, sorrow, lack of concentration, strong urges for nicotine, etc.	Focusing on positive thoughts, Yoga and exercises Quit smoking

2	Caffeine	Irritation, excessive urine, nausea, vomiti... etc.	Tension, insomnia, ...s, ...s, high B.P., high pulse-rate, tiredness	Quit caffeine Consultation of doctor Drink water Walking/Jogging
3	Heroin	Nausea, vomiting, low pulse rate, mental problems, depression, bipolar disorder, sweating etc	Confusion, dry mouth, loss of appetite, immediate feeling of pleasure, etc	Rehabilitation Medical supervision Yoga Drug education Intaking Naloxone
4	Marijuana	Short-term memory ,chronic tension, hallucinations, trauma, coordination problems inappropriate behaviour	Sleepiness, laziness, red eyes, high pulse-rate, abnormal speech	Cognitive therapy Proper care Self-remedies Parental guidance Psychiatric supervision
5	Smoking and Tobacco	Weak vision, lung cancer, sensory problems, cervical cancer, oral cancer, etc.	Pale fingers, bloody cough, whooping cough, chest pain, difficulty in swallowing	Quit tobacco and cigarettes Counselling Rehabilitation, etc.

PROHIBITED SUBSTANCES AND METHOD

SUBSTANCES PROHIBITED AT ALL TIMES OR IN & OUT COMPETITION

ANABOLIC STEROIDS:- These includes Quinbolone,Stanozolol,Androstenedione

PEPTIDE HARMONES, GROWTH FACTOR RELAETED SUBSTANCES AND MIMETICS:-These include Erythropoietin (EPO),Human Growth hormone(HGH),Insulin-like Growth Factor(IGF-1)

BETA-2 AGONIST:- These includes all optical isomers except Inhaled- salbutamol,

HARMON ANTAGONIST AND MODULATORS:- These includes aminoflutethimide, anastrozome, exemestane,clomiphene, cyclofenil, fulvestrants,etc

DIUTETICS AD MASKING AGENT:- These includes Desmopressin,probenecid, Acetazolamide

SUBSTANCES PROHIBITED IN- COMPETITION

STIMULANTS: These include Adrafinil, amfepramone, amphetamine, amphetamile, etc.

NARCOTICS:- These include Buprenorphine, dextromoramide, etc

CANNNABINOIDS:- These include cannabis, hashish and marijuana.

GLUCOCORTICOSTEROIDS: These include all Glucocorticoids whether administered by oral ,intravenous or rectal routes

SUBSTANCES PROHIBITED IN PARTICULAR SPORTS

ALCOHOL:- It is also called ethanol. It is prohibited In-Competition only, in certain sports such as Motorcycling, Power boating, Air Sports, Archery and Automobile.

BETA –BLOCKERS-Beta-blockers are prohibited In-Competition only in the sports such as Skiing, Billiards, etc., whereas in certain sports like Archery and Shooting, Beta-blockers are prohibited in both In-Competition and Out-of-

DOPING CONTROL PROCEDURE

The World Anti-Doping Programme, including the World Anti-Doping Code and related International Standards, has prescribed doping control procedures to be followed during doping control by the World Anti-Doping Agency (WADA) by any given National Anti-Doping Organisation, by any international sport organization or by the International Olympic Committee.

The following are the steps taken in all doping control procedures:

Selection of Athlete:

An athlete may be selected for doping control at competitions, training camps, at your home or at any other location throughout the year with little or no notice.

Notification of Athlete: The Doping Control Officer (DCO) or Chaperone will inform the athlete about the selection for doping control and ask him/her to provide a urine sample..

Selection of Sample Collection Vessel:When the athlete is asked to provide a urine sample, he/she will select an individually sealed collection vessel. The athlete is responsible for retaining control of his/her urine specimen at all times until the sample is sealed.

Provide Urine Sample: The athlete will provide a urine sample of approximately 90 ml in the presence of a Chaperone of the same gender.

Pre-packaged Kit Selection: The DCO will ask the athlete to select a pre-packaged kit which will be used to contain, identify and secure the urine sample. The athlete will be provided with a selection of pre-packaged kits from which he/she may choose.

Recording of the Sample Code Number: Once the athlete or his representative is satisfied with the pre-packaged kit, the DCO will open it and remove all contents from the Styrofoam box. The athlete or his representative will be asked to verify that the sample code numbers on the secure bottles, their respective lids and on the Styrofoam box are consistent. The DCO will also check the sample code numbers to ensure consistency. The DCO will record the sample code number on the Doping Control Form.

Urine Sample Division and Packaging: The athlete will pour at least the prescribed minimum volume of urine into the 'A' and 'B' bottles, and seal the bottles by tightening the lids as directed by the DCO. The athlete will then invert the bottles to ensure that there is no leakage.

Verification of pH and Specific Gravity: The DCO will measure your sample's PH and specific gravity. If the pH and/or specific gravity measurements are outside the specified ranges required by the laboratory, the athlete will be required to provide an additional sample.

Recording of Substances Taken: This information is recorded on the Doping Control Form and will be used by the laboratory for analytical purposes.

Verification of the Doping Control Form: In completing the Doping Control Form, the athlete or his/her representative must review the form and ensure that the recorded information is accurate and complete. The athlete will then be asked to sign the Doping Control Form, declaring that he/she is satisfied with the manner in which the procedures were carried out. If the athlete is not satisfied with the doping control procedures used for the sample collection, he/she may provide his/her comments on the Doping Control Form.

Completion of the Testing Process: The athlete will receive a copy of the Athlete Selection Order and Doping Control Form for his/her own records. The athlete should retain these copies for a minimum of six weeks in the event of an adverse analytical finding.

Notification of Tests' Results:

The sample will be packed and sealed into a secure transport bag and transported by a secure chain of custody to a WADA accredited laboratory which will verify that the sample has not been tampered with and that the contents match the enclosed documentation. The "A" sample will be analysed and your "B" sample will securely stored. If the sample produces an adverse analytical finding, the athlete will be notified within three to four weeks from the date of sample collection.

1.MULTIPLE CHOICE QUESTIONS SOLVED-(1MARKS)

Q.1 Which training principle emphasizes that extended breaks or lack of practice lead to a decline in an athlete's physical and physiological abilities?

A) Overload (B) Continuity **(**C) Individual Differences **(D) Specificity**

Q.2 Which term describes the changes that occur within the body as it adjusts to the demands imposed by physical training?

(A) Load **(B) Overload** (C) Recovery (D) Adaptation

Q. Which Of The Following Is Not A Principle of Training?

A) General & Specific Preparation (B) Active Involvement

(C) Individuals Differences **(D) Adaptation**

Q.4 Assertion: Jogging And Stretching Are The Examples Of Active Warming Up.

Reason: Active Warming Up Is To Increase The Body Temperature Without Performing Any Physical Activity.

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) R Is True But A Is False

Q.5 Which aspect of training is characterized by measurable elements such as exercise volume, duration, and intensity, regardless of the athlete's individual response?

A) Outer load (B) Intensity

(C) Inner load (D) Recovery

Q.6 Which are the conditions that need to be fulfilled for adaptation to the training load?

(a) Recovery period should be in proportion to the training load.

(b) Rest should be given more focus than training.

(c) Loading process must be repeated for a long period.

(d) Training load should not be compromised even during injury

Q.7 Which of the following is most likely to hinder the body's ability to regain peak condition after intense physical exertion?

(a) optimal health and fitness **(b) adequate rest and sleep**

(c) good diet (d) fatigue and lactic acid accumulation

Q.8 SWOT stands for :

(a) strategy, working, output, and thought. **(b) strengths, weaknesses, opportunities, and threats.**

(c) strengths, working, opportunities, and threats. (d) success, weaknesses, outcome, and target.

Q.9 In football, the precise execution of striking the ball to score requires mastering which of the following?

(a) technique (b) style **(c) skill** (d) strategy

Q.10 WADA stands for.

a) World Anti-Doping Association (b) World Anti-Doping Alliance

(c) World Anti-Doping Agency (d) World Anti-Doping Alumina

Q.11 Which of the following is the symptom of overload?

(a) Depression (b) Loss of weight

(c) Loss of sleep **(d) All of these**

Q.12 At what point in an athlete's routine is limbering down most beneficial to help reduce muscle stiffness and aid recovery?

(a) Before competition **(b) After competition**

(c) During competition (d) Never

Q.13 What term is used to describe the unethical practice where athletes consume prohibited drugs or employ forbidden techniques to gain an unfair advantage?

(a) Ideal diet **(b) Doping**

(c) Synthetic material (d) Performance enhancement

Q.14

	LIST -I		LIST-II
i	Cooling Down	1	Planned educational process based on scientific principles
ii	Sports Training	2	Increase blood circulation in the body
iii	Doping	3	Stabilize the circulation of blood from muscle to different organs
iv	Warming up	4	WADA

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

code

Q.15 When you are dealing with the people of substance abuse, what will be your initial step?

(A) Detoxification (B) Supportive Environment

(C) Rehabilitation (D) Medication

ANSWER KEY:-

1-D	**2-B**	**3-D**	**4-C**	**5-A**	**6-A**	**7-D**	**8-B**	**9-C**	**10-C**
11-D	**12-B**	**13-B**	**14-D**	**15-A**					

MULTIPLE CHOICE QUESTIONS FOR PRACTICE

Q.1 When does the concept of Overload apply in sports training?

(a) Oxygen is adequate to meet the needs of the body

(b) The supply of oxygen is more than required.

(c) The Oxygen-supplying mechanism are not able to increase.

(d) The intake of Oxygen is sufficient to meet the demand

Q.2 Which term best describes the scientifically accurate method of executing a specific movement in sports?

(a) Style (b)Technique (c) Skill (d) Strategy

Q.3 In the context of enhancing athletic output, how do stimulants primarily influence the body?

(a) Increasing heart and respiratory rates and suppressing the symptoms of fatigue.

(b) Having a painkilling and sedating effect

(c) Releasing hormones promoting growth, healing and body repair.

(d) Preventing the release of adrenaline

Q.4 After the culmination of intense training and competitions, which phase focuses on psychological relaxation and physical restoration in an athlete's annual schedule?

(a) Fitness period (b) Training Period

(c)Competition Period (d) Rest and recovery period

Q.5 Following a recovery period after intensive training, which physiological principle explains the body's enhanced ability to perform due to adaptation beyond the initial fitness level?

(a) Fatigue (b) Oxygen debt (c) Adaptation to load (d) Temporary loss of coordination.

2.VERY SHORT QUESTION WITH SOLUTION (2 MARKS)

Q.1 What do you understand by the term sports training?

ANS- Sports training means practicing in a planned way to become better at a sport. It uses science to help athletes stay fit and play well. The training includes exercises that make the body stronger, faster, and better at the game.

Q.2 Write any one specific Definition about sports training.

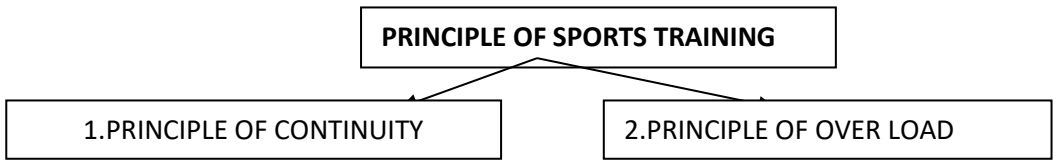
ANS-:**According to D. Harre "** Sports Training is based on scientific knowledge and a pedagogical process of sports perfection which, through systematic effect on psycho-physical performance ability and performance readiness, aims at leading the sportsman to top level of performance**"**

Q.3 What do you mean by progression of load?

ANS-Progression of Load means slowly increasing the weight or challenge in training. As the body works harder, the muscles get stronger and adjust over time**.**

Q.4 Mention any two Principal of Sports Training with the help of flow chart:-

ANS:-



Q.5 What is out-of-competition testing?

ANS:- This is the testing when the athlete is not taking part in a competition.

Q.6. What is the main Objective of International body WADA?

ANS:- The main objective of WADA is to eliminate doping from all kinds of sports competition.

Q.7 Define Overload?

ANS:- Overload in sports means doing more physical activity than the body is used to. This can be lifting heavier weights, running longer distances, or training harder. The goal is to push the body so it becomes stronger, faster, or fitter. But it must be done carefully to avoid injury.

Q.8 Write Two side effects of Diuretics?

ANS:- **Dehydration** – Loss of too much water from the body.

Muscle cramps – Due to loss of important salts like potassium.

Q.9. List the names of any four muscles that relax during cooling down?

ANS:-Hamstring, Quadriceps, Gluteus, Deltoid

Q.10 Elucidate Tactics in brief?
ANS:- Tactics are smart plans or actions used during a game to outplay the opponent. They help players use their skills in the best way to win or perform better

VERY SHORT QUESTIONS FOR PRACTICE (2 MARKS)

Q.1 What is the principle of specificity in sports Training?

Q.2 Differentiate between Gene doping and Blood doping

Q.3 Why? Warming up and cooling down is important for sportsperson ,write two comments.

Q.4 What do you mean by "Strategy" in sports?

Q.5 Define the Term "Recovery"

3.SHORT QUESTION SOLVED (3 MARKS)

Q.1 Write any three importance of Limbering Down?

ANS:- **Helps the body recover** – It allows the heart rate and breathing to return to normal slowly.
Reduces muscle stiffness – It prevents soreness and tightness after exercise.
Removes waste products – It helps clear lactic acid from the muscles, reducing fatigue.

Q.2 Mention any three Side effects of consuming prohibited substances in sports?

ANS:- **Health problems** – Such as heart, liver, or kidney damage.
Hormonal imbalance – Can lead to mood swings, hair loss, or changes in body shape.
Bans and penalties – Athletes can be disqualified, fined, or banned from competitions.

Q.3 Differentiate technique and Tactics in sports?

ANS:-

Technique	Tactics
The way a skill is performed. Focuses on *how* to do something. Example: How to kick a football	The smart plan or strategy used in a game. Focuses on *when* and *why* to do something. Example: When and where to pass the football.

Q.4 Enlist any three anti doping code?

ANS:- 1. Article 2.2 No use of banned substances or methods
2. Article 2.3 No refusal to take a drug test
3. Article 2.5 No tampering with doping control

Q.5 What do you understand by the Term "Specific Warming up"?

ANS:- Specific Warming Up refers to warm-up exercises that are directly related to the sport or activity you are about to do. These exercises prepare the exact muscles and movements used in that sport.

Example: Before a football match, a player might do light jogging, followed by ball-dribbling and passing drills. This helps the body get ready for real game actions.

Q.6 Define skill in sports?

ANS:- **Skill in sports** refers to the ability to perform a specific movement or action effectively and smoothly. In other words **Skill** is the ability to do something well in sports, like kicking a ball, shooting a basket, or swimming fast.

SHORT QUESTIONS FOR PRACTICE (3 MARKS)

Q.1 How does Blood doping enhance the performance in Sports

Q.2 " Warm up is important for optimum performance" justify it?

Q.3 Write any 3 symptoms of Overload?

4.CASE BASED QUESTIONS WITH ANSWER (4 MARKS)

Meena is preparing for an inter-school badminton tournament. Her coach designs a weekly training schedule that includes skill practice, fitness workouts, tactical planning, and rest days. Meena practices footwork drills to improve movement and learns how to play against different types of opponents. During practice matches, she uses tactics like hitting the shuttle to the opponent's weak side. Her coach keeps monitoring her progress and makes changes to the training as needed.

Answer the following question based on above case study?
Q1A. What is the purpose of footwork drills in Meena's training?
Answer: To improve her movement and agility on the court.

Q1B. What part of training is Meena doing when she learns to play against different opponents?
Answer: Tactical training

Q1C. Which principle is shown when the coach changes the training plan based on Meena's progress?
Answer: Principle of Individualization

Q1D. Why are rest days important in Meena's schedule?
Answer: To help the body recover and avoid overtraining.

Arjun is a long-distance runner training for a state-level race. His training plan includes long runs, strength exercises, proper nutrition, and hydration. Every morning, Arjun begins his session with a warm-up routine, followed by endurance runs. After training, he performs stretching and cooling down exercises. His coach advises him to avoid using energy boosters or any performance-enhancing drugs and to focus on natural fitness and discipline.

Q2A. What type of fitness component is Arjun mainly developing through long-distance running?
Answer: Endurance

Q2B. What is the role of cooling down after Arjun's training session?
Answer: It helps relax the muscles and prevent soreness.

Q2C. Why should Arjun avoid performance-enhancing drugs?
Answer: Because they are harmful and banned in sports (anti-doping rule).

Q2D. Name one key factor, apart from training, that supports Arjun's performance.
Answer: Proper nutrition or hydration

Nisha is a state-level swimmer. Her training includes aerobic exercises, skill improvement, and strength training. To avoid injuries, her coach always ensures that she warms up before swimming and performs limbering down exercises after each session. On competition days, Nisha uses tactical

approaches, like adjusting her speed during different laps. She also follows a strict routine of sleep, hydration, and diet.

Q3A. Why is warming up important before Nisha starts swimming?
Answer: To prepare the body and prevent injuries.

Q3B. What is limbering down?
Answer: Light exercises done after training to relax muscles and avoid stiffness.

Q3C. What kind of training is used to improve swimming skills?
Answer: Skill training

Q3D. What is one example of a tactics Nisha uses during her race?
Answer: Adjusting speed in different laps

Aman is a young sprinter aiming to qualify for a national athletics meet. Under pressure to perform better, he is offered a performance-enhancing drug by a fellow athlete. Aman takes the substance without knowing it is banned. During the competition, he is selected for doping control and tests positive. As a result, Aman is disqualified and banned from competitions for two years. His coach and team are also questioned.

Q4A. What rule did Aman violate by taking the banned substance?
Answer: Anti-Doping Rule Violation (Article 2.1 – Presence of a prohibited substance)

Q4B. What is the consequence Aman faced after testing positive?
Answer: Disqualification and a two-year ban

Q4C. Who else can be held responsible in a doping case besides the athlete?
Answer: Coach, support staff, or anyone who encouraged or assisted

Q4D. Why are performance-enhancing drugs banned in sports?
Answer: Because they are unfair, harmful to health, and against the spirit of sport

CASE BASED QUESTIONS FOR PRACTICE (4 MARKS)

Reena is a national-level weightlifter who has been training for years. During her preparation for an international event, she starts using a diuretic to quickly reduce weight. Although the drug is not for strength, it is on the banned list because it can hide other substances. After the event, Reena is tested, and the result comes back positive for the diuretic. She claims she didn't know it was banned, but the anti-doping agency still punishes her.

Q1. Which type of banned substance did Reena use?
Q2. Why are diuretics banned in sports?
Q3. Can claiming "I didn't know" prevent punishment in doping cases?
Q4. What is the role of the anti-doping agency in this case?

5.LONG QUESTIONS ANSWER SOLVED (5 MARKS)

Q.1 Describe the doping control procedure as prescribed by WADA?

Answer :- The **WADA** doping control procedure is a step-by-step process used to ensure that athletes compete fairly and clean, without using banned substances or methods.
Athlete Selection: Athletes are selected for testing **randomly**, **by ranking**, or **based on suspicion**. Selection can happen **in-competition** or **out-of-competition**.
Notification: A **doping control officer (DCO)** or chaperone notifies the athlete that they have been selected for testing.The athlete must **report immediately** to the doping control station. They must

show **ID** and **sign a form** confirming notification.
Sample Collection: The athlete provides a **urine** and/or **blood sample** in front of a trained DCO.The athlete chooses a **sealed sample kit**.For urine: The DCO watches to ensure no tampering.For blood: A qualified professional collects it safely.
Sample Division: The collected sample is split into **two bottles**:**"A" Sample** – for initial testing**"B" Sample** – stored in case re-testing is needed
Sealing and Documentation: The athlete seals the samples.Details like time, volume, and code number are recorded.The athlete checks and signs the form.A copy of the form is given to the athlete.

Laboratory Analysis: The samples are sent to a **WADA-accredited laboratory**.The **"A" sample is tested**.If it tests positive, the athlete is informed and can request the **"B" sample** to be tested.
Results Management: If a banned substance is found:The athlete may face a **hearing**, **suspension**, or **ban**.If both A and B are negative, the process ends.
Confidentiality: All testing is done **privately**, and results are kept **confidential** until officially released.

Q.2 Explain the Principles of sports Training in detail.?

Answer1. Principle of Continuity / Regularity-Training must be regular and continuous for the best results. Gaps or breaks in training can lead to performance decline. 2. Principle of Overload-The body must be challenged with a higher load than usual to improve. If the training load stays the same, progress stops. Once the body adapts, the load must be increased gradually.

3. Principle of Individual Differences-Every athlete is different, so the response to training also differs.Training programs should be based on each athlete's ability, endurance, and fitness level.

4. Principle of Specificity-Training should match the sport being played.

Example: A runner should run to train; a swimmer should swim.

5. Principle of Progression-The training load should increase step-by-step.Sudden heavy loads may cause injury; gradual progress brings better adaptation.

6. Principle of Warming Up and Limbering Down-Warming up prepares the body for activity and prevents injury.**Limbering down** (cooling down) helps the body return to normal and prevents muscle stiffness.

7. Principle of Cyclicity / Periodisation-Training should be divided into phases to improve performance over time.

(A) Preparatory Period -Longest phase. Focuses on fitness, technique, and tactics.

(B) Competition Period-Athletes take part in minor and major competitions.

(C) Transitional Period-Time for active rest and recovery after competitions.

8. Principle of Rest and Recovery-Rest is essential to help muscles recover and grow stronger.Proper recovery maintains energy and prevents overtraining.

Q.3 Describe the skills and its type in sports?

ANS:- A **skill** in sports is the ability to perform a task with **accuracy, speed, and control**. It is learned and practiced over time and allows an athlete to perform efficiently in a game or competition.

Defination of Skill- A skill is the learned ability to bring about pre-determined results with minimum effort and maximum certainty.

skills in sports are generally classified into the following main types:

1. Open Skill-Performed in a **changing environment** (opponents, weather, crowd).Requires quick decisions and adaptability.**Example**: Dribbling a football during a match, passing in hockey.

2. Closed Skill-Performed in a **stable, predictable environment**.Movements are repeated and follow a fixed pattern.**Example:** Gymnastics routine, free-throw in basketball.

3. Gross Motor Skill-Involves **large muscle groups**.Used in actions like jumping, running, throwing.**Example**: Sprinting, shot put, swimming.

4. Fine Motor Skill-Involves **small, precise movements** using small muscles.Often requires good hand-eye coordination.**Example**: Shooting in archery, snooker, table tennis serve.

5. Simple Skill-Has **few movements** and is easy to learn.Requires little decision-making.
Example: Underarm throw, jogging, catching a ball.

6. Complex Skill-Involves **multiple movements and decisions**.Takes more time and practice to master.**Example**: Performing a gymnastics vault, dribbling past defenders.

7. Cognitive Skill (Mental Skill) Involves thinking, planning, decision-making..
Example: Planning a chess move, choosing when to pass in football.

LONG QUESTIONS FOR PRACTICE (5 MARKS)

Q.1 Explain the Importance of Warming Up and Limbering Down in Sports.

Q.2 "Performance enhancing drugs in sports are very dangerous for our Health" justify this statement on your words?

BEST PRACTICES (GOOGLE QUIZ TOPIC WISE)

GENERAL INSTRUNCTIONS:-

1. **Scene the QR codes to access exciting Google Quizzes tailored to Specific Topic.**
2. **You're encouraged to take these Quizzes to reinforce your understanding and test your knowledge.**
3. **Once you submit your answers, you'll instantly see your score and learn from any mistakes by reviewing the correct answers.**

TOPICS	Q R
CONCEPT AND PRINCIPLES OF SPORTS TRAINING	
2. TRAINING LOAD: OVERLOAD, ADAPTATION AND RECOVERY	
3. WARMING UP AND LIMBERING DOWN (COOLING DOWN)	
4. CONCEPT OF SKILL, TECHNIQUE, TACTICS & STRATEGIES	
5. CONCEPT OF DOPING AND ITS DISADVANTAGES	

SAMPLE PAPER 01

PHYSICAL EDUCATION(048)

CLASS XI

TIME ALLOWED: 3 HRS MM. 70 MARKS

General Instructions: -

1. The question paper consist of 5 sections and 37 questions
2. Sections A consist of question 1-18 carrying 01 mark each and are Multiple Choice Questions.
3. Sections B consist of question no. 19-24 carrying 02 marks each are very short answer type questions and should not exceed 60-90 words. Attempt any five
4. Section C consist of question no.25-30 carrying 03 marks each are short answer type questions and should not exceed 100-150 words. . Attempt any five
5. Sections D consist of question no. 31-33 carrying 04 marks each and are case studies there is internal choice available
6. Section E consist of question no. 34-37 carrying 05 marks each are long answer type questions and should not exceed200-300 words. . Attempt any three-

SECTION-A

(All question are compulsory)

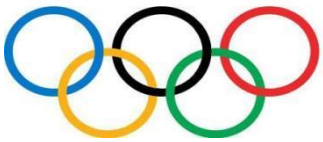
1. What is the primary aim of the Khelo India program launched in 2018?

To provide free gym memberships to citizens
(b) To promote traditional Indian games
(c) To revive the sports culture at the grassroots level
(d) To train athletes for the Olympics exclusively

2.**What is the meaning of the Olympic motto "Citius, Altius, Fortius, Communiter"?**

a) Stronger, Taller, Louder, Together b) Faster, Higher, Stronger, Together
c) Win, Compete, Unite, Together d) Run, Jump, Throw, Together

3. **Observe the image below and answer the question that follows:**



What do the five interlocking rings in the Olympic symbol represent?

a) The five rings reflect the union of the five continents namely North and South America, Africa, Asia, Australia, and Europe
b) Five Olympic values: Respect, Excellence, Friendship, Equality, and Fairness
c) Five types of Olympic medals
d) Five ancient Olympic sports

4. **The word Yoga is derived from_____ word.**

(a) Yuj (b) Yug (c)Yog (d) None of the above

5. **What does APE stand for in the context of special education?**

(a) Advanced Physical Education (b) Applied Physical Education
(c) Adapted Physical Education (d) Academic Physical Education

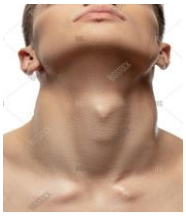
6.**Which of these is an example of inclusive practice?**
a) Separate sports events for disabled children
b) Avoiding group activities
c) Mainstreaming students with disabilities
d) Denying extra time during exams

7. **Which one of the following is not a component of physical fitness?**
(a) Speed (b) Strength
(c) Cardiovascular endurance (d) Flexibility

8. **Which type of muscle fibers are beneficial for endurance activities?**
(a) White muscle fibers (b) Pink muscle fibers
(c) Red muscle fibers (d) Both 'a' & 'b'

9. **Skin fold technique is used to measure.**
(a) Weight (b) Fat percentage
(c) Girth measurement (d) Over fatness

10.A**natomy is the study of……..__**
a) Function of body parts b) Structure of body parts
c) Disease in body parts d) Nutrition

11. **The pivot joint is found in:**
a)  b)  c)  d) 

12. **What term describes the study of forces influencing the human body?**
a) Kinematics b) Kinetics
c) Mechanics d) Ergonomics

13. Psyche refers to -
a) Mind or Soul b) Heart
c) Brain d) None of these

14. Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R).
Assertion (A)
An Infant can run and walk In better way than holding a pen or pencil to write.
Reason (R): An Infant first gains control over large muscle groups than the fine ones.**Which of the following statements 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 and (R) is false.
(d) (A) Is false and (R) is true.

15. An individual's ability to bounce back emotionally in the face of adversity is referred as:
a) Anxiety b) Motivation
c) Resilience d) Mental toughness

16. **Which Principle States that Long Period Of Inactivity Reduces The Physiological Capacities Of Sportsperson**?

(a) Overload (B) Continuity

(C) Individual Differences (D) Specificity

17. **"Super compensation" means ....**

(a) Fatigue (b) Oxygen debt

(c) Adaptation to load (d) None of these

18. Which of the following is the symptom of overload?

(a) Depression (b) Loss of weight

(c) Loss of sleep (d) All of these

SECTION-B

(Attempt any 5 questions)

19. Define Physical Education according to Jay.B Nash?
20. Write any one definition of Yoga?
21. What is inclusive education?
22. Define Test?
23. What role does the principle of maximum effort play in athletic performance?
24. Why is the frontal plane crucial for human movement?

SECTION-C

(Attempt any 5 questions)

25. Explain the three core Olympic values with examples.
26. Write about three features of inclusive education.
27. Elucidate any three dimensions of health.
28. Explain the importance of the skeletal system in sports performance.
29. What adaptations occur in the respiratory system with regular endurance training?
30. Write the significance of calcium in muscle contraction.

SECTION-D

(Internal choice available)

31. Rakesh is a good football player. He wants to improve his skills by doing some yogic exercises.

Based on this case study answer the following questions:

(a) Which exercise is good for controlling the breathing exercises?

(b) Which asana reduces the negative emotions?

(c) _____ is the best asana to improve his concentration level.

(d)_____ Pranayama supports the body with oxygen and decontaminate the body.

32. Krishna, a student in 11th grade, is a very active and athletic boy. He wakes up early in "the morning and also goes for archery training. In the training, he starts focusing on various psychological attributes such as attention, mental toughness and resilience. Based on the above information, answer the following questions:-

(a) _____ is the concentration of mental effort on sensory or mental events.

(b) Attention focus allowing athletes to perceive several occurrences simultaneously is referred as_____

(c) _____resilience is a type of resilience that occurs when one has to learn, and adapt, as a result of adverse circumstances.

(d) _____ is defined as a collection of values, attitudes, emotions, cognitions, and

behaviors that influence the way in which an athlete approaches, responds to, and appraises demanding events to consistently achieve his or her goals.

33.Meena is preparing for an inter-school badminton tournament. Her coach designs a weekly training schedule that includes skill practice, fitness workouts, tactical planning, and rest days. Meena practices footwork drills to improve movement and learns how to play against different types of opponents. During practice matches, she uses tactics like hitting the shuttle to the opponent's weak side. Her coach keeps monitoring her progress and makes changes to the training as needed.
Answer the following question based on above case study?
A. What is the purpose of footwork drills in Meena's training?
B. What part of training is Meena doing when she learns to play against different opponents?
C. Which principle is shown when the coach changes the training plan based on Meena's progress?
D. Why are rest days important in Meena's schedule?

OR

Reena is a national-level weightlifter who has been training for years. During her preparation for an international event, she starts using a diuretic to quickly reduce weight. Although the drug is not for strength, it is on the banned list because it can hide other substances. After the event, Reena is tested, and the
result comes back positive for the diuretic. She claims she didn't know it was banned, but the anti-doping
agency still punishes her.
Q1. Which type of banned substance did Reena use?
Q2. Why are diuretics banned in sports?
Q3. Can claiming "I didn't know" prevent punishment in doping cases?
Q4. What is the role of the anti-doping agency in this case?

SECTION-E

(Attempt any 3 questions)

34 Write about the various career opportunities available in the field of physical education.
35. Explain the problems of adolescence? How the problems can be managed?
36. Describe the importance of biomechanics in enhancing the performance of athletes.
37. Explain Importance of Test, Measurement and Evaluation.

SAMPLE PAPER-02
PHYSICAL EDUCATION (048)
CLASS XII

Time allowed: 03 hours **Maximum Marks: 70**

General Instructions:

a) The question paper consists of 5 sections and 37 questions
b) Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.
c) Section B consists of questions 19-24 carrying 2 marks each and are very short answers type and their answers should not exceed 60-90 words. Attempt any 5.
d) Section C consists of questions 25-30 carrying 3 marks each and are short answers type and their answers should not exceed 100-150 words. Attempt any 5.
e) Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is an Internal choice available.
f) Section E consists of questions 34-37 carrying 5 marks each and are Long answers type and their answers should not exceed 200-300 words. Attempt any 3**.**

SECTION – A
(All questions are compulsory)

Q.1 What does *emotional development* in Physical Education focus on?

a) Building muscles b) Managing stress and gaining confidence
c) Improving test scores d) Making money through sports

Q.2 Where were the first modern Olympic Games held?

a) Paris b) Athens c) Rome d) London

Q.3 Which of the following is a physical benefit of practicing yoga regularly?

a) Increase in ego b) Tension in muscles
c) Improved flexibility d) Lack of sleep

Q.4 Intellectual disability typically originates:

a) After the age of 25 **b)** During old age

c)Before the age of 18 **d)** At any age

Q.5 Skin fold technique is used to measure.

a) Weight b) Fat percentage

c)Girth measurement d) Over fatness

Q.6. Physiology focuses on:

a) Body structure b) Body function

c) Body diseases d) Body movements

Q.7 **What term describes the study of forces influencing the human body?**

a) Kinematics b) Kinetics c) Mechanics d) Ergonomics

Q.8_____ are highly emotional and Sensitive.

a) Infants b) Adolescents c) Adults d) Old people

Q.9 Which term describes the changes that occur within the body as it adjusts to the demands imposed by physical training?

a) Load b) Overload c) Recovery d) Adaptation

Q.10 Which of the following factors help in improving team cohesion?

a) Set individual goals b) Set team goals

c) Provide feedback to individuals d) All of these

Q.11 **At what point in an athlete's routine is limbering down most beneficial to help reduce muscle stiffness and aid recovery?**

a) Before competition b) After competition

c) During competition d) Never

Q.12 **After the culmination of intense training and competitions, which phase focuses on psychological relaxation and physical restoration in an athlete's annual schedule?**

a) Fitness period b) Training Period

c)Competition Period d) Rest and recovery period

Q.13 The pivot joint is found in:

a) Neck b) Elbow
c) Shoulder d) Wrist

Q.14 Which axis facilitates rotational movement of the body?

a) Sagittal axis b) Frontal axis

(C) Vertical axis d) Lateral axis

Q.15 The heart is made up of:

a) Smooth muscle b) Cardiac muscle

c) Skeletal muscle d) Connective tissue

Q.16 A student with autism benefits most from:

a) Unstructured play **b)** Strict discipline
c) A structured program with visual cards **d)** Competitive sports

Q.17 Which of the following is a backward-bending asana?

a) Paschimottanasana b) Ardha Matsyendrasana
c) Bhujangasana d) Halasana

Q.18 Which of the following is related to the Olympic Movement?

a) UNESCO b) WHO c) IOC d) FIFA

SECTION – B
(Attempt any 5 questions)

Q.19 State any two changing trends in physical education.

Q.20 What are two modifications made in PE for CWSN?

Q.21 Why is physiology important in sports?

Q.22 What does the Olympic torch symbolize?

Q.23 What is Muscular Endurance?

Q.24 What are two causes of intellectual disability?

SECTION – C
(Attempt any 5 questions)

Q.25 How do Paralympics inspire students in everyday life?

Q.26 What is the difference between a test and measurement?

Q.27 Describe the role of tendons and ligaments in joint movement.

Q.28 Define biomechanics and explain two ways it is applied in sports.

Q.29 Write any 3 symptoms of Overload?

Q.30 Mention any three Side effects of consuming prohibited substances in sports?

SECTION – D
(Internal choice available)

Q.31 **Case Study Question**:
"Ravi is a 16-year-old student who participates in school athletics, particularly running. His coach wants to assess his speed and endurance. Ravi's coach conducts a 50-meter sprint test to measure his speed and a 12-minute run test to measure his endurance. After these tests, the coach compares Ravi's results with the standard norms for his age group. Ravi performs well in the sprint but struggles with maintaining his pace in the 12-minute run. Based on the test results, the coach decides to design a training program focused on improving Ravi's cardiovascular endurance."
Based on the above case study answer the following questions:

5. What does the 50-meter sprint test measure?
6. 2. What aspect of Ravi's fitness was identified as a weakness?
7. Why did Ravi's coach use the 12-minute run test?
8. How did the test results help Ravi's coach?

OR

Q.31 Priya is practicing gymnastics and faces difficulty staying balanced on the balance beam. Her coach explains concepts like centre of gravity and base of support to help her improve.

Answer the following:

Q1. Define centre of gravity and explain its importance in gymnastics.

Q2.How does base of support influence balance?

Q3. What kind of balance is necessary for beam routines?

Q4.Suggest how Priya can work on her stability.

Q.32 Reena is a national-level weightlifter who has been training for years. During her preparation for an international event, she starts using a diuretic to quickly reduce weight. Although the drug is not for strength, it is on the banned list because it can hide other substances. After the event, Reena is tested, and the result comes back positive for the diuretic. She claims she didn't know it was banned, but the anti-doping agency still punishes her.

Answer the following:
Q1. Which type of banned substance did Reena use?
Q2. Why are diuretics banned in sports?
Q3. Can claiming "I didn't know" prevent punishment in doping cases?
Q4. What is the role of the anti-doping agency in this case?

Q.33 Ravi is a young football player who trains regularly. During his matches, he notices that his heart rate increases and breathing becomes faster, especially during intense running. His coach tells him that his circulatory and respiratory systems are working harder to supply oxygen to his muscles. After the game, Ravi often feels soreness in his legs due to muscle exertion. His trainer advises him to practice cool-down exercises and maintain proper hydration and nutrition to recover faster.

Answer the following:

Q1. Which two systems help supply oxygen to Ravi's muscles during the match?
Q2.Why does Ravi experience muscle soreness after intense physical activity?
Q3. How do cool-down exercises help after a match?
Q4.Name one muscle group involved in running and its function.

SECTION – E
(Attempt any 3 questions)

Q.34 Describe the various career opportunities available in the field of physical education.

Q.35 Explain the role of yoga in managing lifestyle-related disease

Q.36 Describe attention and its types. Why is it important in sports?

Q.37 Discuss the problems faced by adolescents and suggest effective strategies for their management in the context of physical education and sports.

SAMPLE PAPER-03

PHYSICAL EDUCATION (048)
CLASS XII

Time allowed: 03 hours **Maximum Marks: 70**

General Instructions:

g) The question paper consists of 5 sections and 37 questions
h) Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.
i) Section B consists of questions 19-24 carrying 2 marks each and are very short answers type and their answers should not exceed 60-90 words. Attempt any 5.
j) Section C consists of questions 25-30 carrying 3 marks each and are short answers type and their answers should not exceed 100-150 words. Attempt any 5.
k) Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is an internal choice available.
l) Section E consists of questions 34-37 carrying 5 marks each and are Long answers type and their answers should not exceed 200-300 words. Attempt any 3**.**

SECTION – A
(All questions are compulsory)

1. Which of the following is related to social development in Physical Education?

(A) Diet planning (B) Respecting rules and teamwork
(C) Sleeping early (D) Practicing yoga alone

2 The Olympic Games were originally held in honor of which Greek god?

(A) Apollo (B) Ares (C) Zeus (D) Hermes

3. Yogic Kriya which cleans the digestive track is _____ .

(A) Basti (B) Neti (C) Dhauti (D) Nauli

4. Which is a common cause of physical disability?

(A). Heart disease (B) Birth defects (C) High blood pressure (D) Common cold

5. Which one of the following is not a part of dynamic strength?

(A) Maximum strength (B) Strength endurance (C) Explosive strength (D) Static strength

6. The excellent value of waist – Hip ratio in male is _____ .

(A) 0.95 (B). 0.75 (C) 1.0 (D) 1.3

7. The knowledge of anatomy is important in sports to _____ .

(A) To improve nutrition (B) To understand body structure and prevent injuries
(C) To learn sports rules (D) To enhance audience performance

8. Biomechanics utilizes principles from which scientific discipline to analyze human movement?

(A) Chemistry (B) Mathematics (C) Physics (D) Anatomy

9. "Adolescence is the period of great stress and strain, storm and strife" is the statement of.

(A) Watson (B) Crow and Crow (C) Clarke and Clarke (D) None of the above

10. Which of The Following is not A Principle of Training?

A) General & Specific Preparation (B) Active Involvement (C) Individuals Differences (D) Adaptation

11. Special Olympics are organized for:
(A) Elderly people (B) Athletes with physical disabilities
(D) Athletes with intellectual disabilities (C) None of these

12. Decreasing the angle between the forearm and upper arm by bending the elbow is:
(A) Extension (B) Rotation (C) Flexion (D) Supination

13. Which chamber of the heart receives oxygenated blood from the lungs?
(A) Right atrium (B) Left atrium (C) Right ventricle (D) Left ventricle

14. Use of banned substances or methods by players is called:
(A) Ideal diet (B) Doping (C) Synthetic material (D) None of these

15. Who manages India's representation at the Olympic Games?
A) Ministry of Youth Affairs and Sports B) Indian Olympic Association
C) Sports Authority of India D) Board of Control for Cricket in India

16. The sagittal plane divides the body into which parts?
(A) Upper and lower halves (B) Left and right halves
(D) Front and back halves (D) none of the above

17. Which muscle property allows it to return back to its original length after stretching?
(A) Contractility (B) Extensibility (C) Elasticity (D) Excitability

18. The way of performing an action scientifically is.....
(A) Style (B) Technique (C) Skill (D) Strategy

SECTION – B
(Attempt any 5 questions)

19. Name any two career options in the field of physical education.
20. Write any three importance of Yoga.
21. What do you understand by the following terms?
(a) Health related fitness (b) Importance of health
22. Define Evaluation?
23. What is Ectomorph body type?
24. Name the three types of bones based on their shape.

SECTION – C
(Attempt any 5 questions)

25. Compare Ancient and Modern Olympic Games.
26. Write a short note on the Special Olympics.
27. Describe the nature of intellectual disability.
28. What are the properties of skeletal muscles?
29. Explain different developmental characteristics of early childhood stage.
30. Write any 3 symptoms of Overload?

SECTION – D

(Internal choice available)

31. "Ravi is a 16-year-old student who participates in school athletics, particularly running. His coach wants to assess his speed and endurance. Ravi's coach conducts a 50-meter sprint test to measure his speed and a 12-minute run test to measure his endurance. After these tests, the coach compares Ravi's results with the standard norms for his age group. Ravi performs well in the sprint but struggles with maintaining his pace in the 12-minute run. Based on the test results, the coach decides to design a training program focused on improving Ravi's cardiovascular endurance."
Based on the above given paragraph, answer the following questions:

9. What does the 50-meter sprint test measure?
10. What aspect of Ravi's fitness was identified as a weakness?
11. Why did Ravi's coach use 12-minute run test?
12. How did the test results help Ravi's coach?

32. During a basketball jump shot, the player uses coordinated movements involving multiple joints, along with precise timing and balance.

Answer the following questions:
a) Identify the motions involved in a jump shot.
b) What type of lever is at work during elbow extension?
c) What function does angular motion serve in this skill?
d) State one biomechanical aspect that boosts shooting accuracy.

33. Priya, a sprinter performed very well in training but couldn't replicate the same during competitions. Her coach suspected that, it may be due to lack of confidence and highly competitive anxiety.

Q. Identify and explain two types of anxiety, Priya might have experienced during competition.

SECTION – E
(Attempt any 3 questions)

34. Explain the development of physical education in India after independence?
35. Write about the Technology Advancement in Sport indetail.
36. Describe the Yogic Kriyas along with benefits.
37. What do you mean by physical fitness and wellness? Explain the importance of physical fitness and wellness.

Sample Paper-4

PHYSICAL EDUCATION (CLASS XI)
2025-26

DURATION: 180 MINUTES **MAX.MARKS:70**

NAME OF STUDENT: **ROLL NO:**

GENERAL INSTRUCTIONS:

1. **QUESTION NO. 1-18** ARE MULTIPLE CHOICE QUESTIONS AND HAVING 1 MARK EACH. **ALL QUESTIONS ARE COMPULSORY.**
2. **QUESTION NO. 19-24** ARE VERY SHORT ANSWER TYPE QUESTIONS AND HAVING 2 MARKS EACH. **ATTEMPT ANY 5**
3. **QUESTION NO. 25-30** ARE SHORT ANSER TYPE QUESTIONS AND HAVING 3 MARKS EACH. **ATTEMPT ANY 5**
4. **QUESTION NO. 31-33** ARE CASE STUDY BASED QUESTIONS HAVING 4 MARKS EACH. **ALL QUESTIONS ARE COMPULSORY.**
5. **QUESTION NO. 34-37** ARE LONG ANSWER TYPE QUESTIONS HAVING 5 MARKS EACH. **ATTEMPT ANY 3**

SECTION A

Q.1 Which committee was established in 1948 to assess the status of Physical Education in India?

A) Mudaliar Committee (B) Tara Chand Committee
C) Kothari Commission (D) Radhakrishnan Commission

Q.2 Which of the following is NOT an Olympic value?

(A) Respect (B) Excellence (C) Fair Play (D) Aggression

Q.3 Ancient Indian Science of Medicine is called _____.
(A) Ayurveda (B) Asana (C) Atharvaveda (D) Samaveda

Q.4. ADHD is classified as a:
A. Physical disability **B.** Sensory disorder
C. Mental disorder **D.** Behavioural disorder

Q.5 **What should be the body fat percentage in women?**

(A) 5 to 10 (B) 10 to 15

(C) 15 to 20 (D)20 to 25

Q.6 What is the primary purpose of testing in physical education?

(A). To punish students **(B). To evaluate student progress**

(C). To compare students (D). To promote students

Q.7. Which of the following is NOT a function of the skeletal system?

(A) Protection (B) Support

(C) Hormone production (D) Movement

Q.8 The term "kinesiology" originates from which language?

(A) Latin (B) Greek

(C) Sanskrit (D) French

Q.9. "Psychology is the science of human behavior. whose statement is it?

(A) Pillsbury (B) Watson

(C) Woodworth (D) Singer

Q.10 Assertion: Jogging And Stretching Are The Examples Of Active Warming Up.
Reason: Active Warming Up Is To Increase The Body Temperature Without Performing Any Physical activity.

(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) R Is True But A Is False.

Q.11 In sports training, Limbering down is done:

(a) Before competition (b) After competition

(c) During competition (d) Never

Q.12 which of the following is a mascot feature in the Olympics?

(A) Judges (B) Country's cultural symbol

(C) Athletes' tattoos (D) Advertisements

Q.13 The Indian sage who compiled all types of Yoga: _____.

(A) Ojus (B) Props
(C) Patanjali (D) Yogavasiha

Q.14. The term "disorder" refers to:

A. A permanent disability
B. A curable disease
C. A disturbance in mental or physical health
D. A sensory disability

Q.15Which one of the following is not a component health related fitness.

(A) Cardio-respiratory endurance

(B) Muscular endurance

(C) Flexibility

(D) Speed

Q.16 Which of the following is **not** a Health-related Fitness?

A. Body composition B. Muscular Endurance

C. Flexibility **D. coordination**

Q.17 The function of red blood cells is to:

A) Fight infection B) Carry oxygen

C) Clot blood D) Transport hormones

Q.18 A movement combining flexion, extension, abduction, and adduction is referred to as:

A) Circumduction B) Rotation

C) Supination D) Pronation

SECTION B

Attempt Any Five Questions

Q.19 What is meant by adapted physical education?

Q.20 Name any two learning outcomes of APE related to daily life

Q.21 What do you mean by muscular strength?

Q.22 . How can CWSN be encouraged to develop self-esteem through APE?

Q.23 What are ligaments?

Q.24.What is the role of Diagnosis in Measurement and Evaluation?

SECTION C

Attempt Any Five Questions

Q.25. Write a short note on the Special Olympics.

Q.26 What is the role of a physiotherapist for CWSN?

Q.27 Define any three types of Pranayama.

Q.28 Outline the flow of blood through the heart starting from the right atrium.

Q29 . What does the principle of maximum velocity state? Give an example from sports.

Q.30 What do understand by the Term TEST, MEASUREMENT & EVALUATION.

SECTION D

ALL QUESTIONS ARE COMPULSORY

Q.31 Akshay learnt about the kinematics in biomechanics, he talked about this with his younger sister. On the basis of the study give the answer of the following.

Kinetics is the study of ……

Application of kinematics in sports is the analysis of …… motion.

Q.32 A sprinter uses blocks to launch into a 100-meter race.

Answer the following:

a) Which principle explains the force exerted back by the starting blocks?

b) What term describes the measurement of speed and acceleration during the sprint?

c) How does torque contribute to the push-off?

d) How can biomechanics help reduce the occurrence of false starts?

Q.33 Reena is a national-level weightlifter who has been training for years. During her preparation for an international event, she starts using a diuretic to quickly reduce weight. Although the drug is not for strength, it is on the banned list because it can hide other substances. After the event, Reena is tested, and the result comes back positive for the diuretic. She claims she didn't know it was banned, but the anti-doping agency still punishes her.

A.. Which type of banned substance did Reena use?

B. Why are diuretics banned in sports?

C . Can claiming "I didn't know" prevent punishment in doping cases?

D. What is the role of the anti-doping agency in this case?

SECTION E

Attempt Any Three Questions

Q. 34 Describe the technology advancement in sports..

. 35 Explain how yoga can help the active lifestyle and stress management

Q.36 Discuss the developmental characteristics during adolescence and how they impact

Sports performance.

Q.37 Explain the importance of Warming up and limbering down in Sports .

SAMPLE QUESTION PAPER-5

SESSION -2025-26
CLASS -11
PHYSICAL EDUCATION (048)

General Instructions: -

7. The question paper consist of 5 sections and 37 questions
8. Sections A consist of question 1-18 carrying 01 mark each and are Multiple Choice Questions.
3. Sections B consist of question no. 19-24 carrying 02 marks each are very short answer type questions and should not exceed 60-90 words. Attempt any five
4. Section C consist of question no.25-30 carrying 03 marks each are short answer type questions and should not exceed 100-150 words. . Attempt any five
5. Sections D consist of question no. 31-33 carrying 04 marks each and are case studies there is internal choice available
6. Section E consist of question no. 34-37 carrying 05 marks each are long answer type questions and should not exceed200-300 words. . Attempt any three-

---

SECTION-A
(All Questions are compulsory.)

Q.1 What was the primary objective of the National Plan of Physical Education and Recreation introduced in 1956?

(A) To promote yoga in schools (B) To develop sports infrastructure in rural areas
(C) To integrate physical education into the national education system
(D) To organize international sports events

Q.2 How often are the Olympic Games held**?**

A) Every 2 years B) Every 3 years C) Every 4 years D) Every year

Q.3 Paralympics are conducted**:**

A) Before the Olympics B) Alongside the Olympics

C) After the Olympics D) During winter only

Q.4 Answer the question that follows:

What do the five interlocking rings in the Olympic symbol represent?

A) The five rings reflect the union of the five continents namely North and South America, Africa, Asia, Australia, and Europe
B) Five Olympic values: Respect, Excellence, Friendship, Equality, and Fairness
C) Five types of Olympic medals
D) Five ancient Olympic sports

Q.5 Pranayama is derived from _____ word and _____Language.
(A) Asana – Telugu

(B) Meditation- English
(D) Prana – Sanskrit
(D) None of the above

Q.6 identifies the following Yoga posture and name it 

A) Tadasana B) Trikonasana C) Bhujangasana 4) Padmasana

Q.7. Special Olympics are organized for**:**
A) Athletes under 14 B) Women athletes only
C) Children with special needs D) none of these

Q8. Which one of the following is an intellectual disability**?**
A) Autism B) Polio C) Cerebral palsy D) Blindness

Q9. Which is the component of wellness in the following?
(A) Nutritional wellness (B) Physical wellness (C) Social wellness (D) All of the above

Q10. According to the World Health Organization (WHO), a healthy WHR (Waist Hip ratio) is
A) 0.9 for male and 0.85 for female B) 0.8 for both male and female
C) 0.5 for male and 0.7 for female D) 0.65 for male and 0.72 for female

Q11. Which bone classification is the femur?
A) Long bone B) Short bone C) Flat bone D) Irregular bone

Q12. Who is known as the founder of Biomechanics?
A) Galileo B) Borelli C) Hooke D) Avicenna

Q13 When the spine twists during a golf swing, this movement is classified as**:**
A) Flexion B) Adduction C) Rotation D) Abduction
Q14 Which movements typically occur in the frontal plane?
A) Flexion and extension B) Rotation
C) Abduction and adduction D) Circumduction

Q15. Which of the following in the age group for Adolescence?
A) 8-16 years B) 9-18 years C) 10-19 years D) 12-19 years

Q.16. In modern scenario meaning of psychology is –
(A) Soul (B) Mind **(**c) Behavior (d) Consciousness

Q.17 Intensity of load, volume of load physical exercise are feature of..
A) Outer load (B) Intensity (C) Inner load (D) Recovery

Q.18 When you are dealing with the people of substance abuse, what will be your initial step?
(A) Detoxification (B) Supportive Environment (C) Rehabilitation (D) Medication

SECTION-B
(Attempt any 5 questions.)

Q19 what is the Olympic Creed??

Q20 Discuss 'Body Composition' as a component of health-related fitness.

Q21. What do you mean by First Aid?

Q22 How does the stability principle benefit athletes?

Q23 What is out-of-competition testing?

Q24 Why is the frontal plane crucial for human movement?

SECTION-C
(Attempt any 5 questions.)

Q25 How has technology changed physical education?

Q26 What is the role of Diagnosis in Measurement and Evaluation?

Q27 How does the respiratory system support athletic performance?

Q28 Define flexion, extension, and rotation. Provide one example for each.

Q29 What do you understand by the Term "Specific Warming up"?

Q30 Explain the significance of calcium in muscle contraction.

SECTION-D
(Internal choices available)

Q **31**. Ravi loves teaching football to children and wants to become a professional coach. He plans to Enroll in a sports coaching diploma course.

Based on this case study answer the following questions:

A. What profession is Ravi aiming for?
B. Name one course that supports this profession..
C. Mention two skills needed to be a good coach.
D. List one place where Ravi could work after completing his course.

OR

Q32 Ram is a student of Class 11 and an active sports enthusiast. He has been selected to represent his school in the inter-school athletic meet. His Physical Education teacher advised him to undergo a few physical fitness tests to understand his fitness level before starting intense training. The teacher conducted the following tests:

A Harvard Step Test – to assess _____
B Sit and Reach Test – to evaluate _____
C Standing Broad Jump – to measure _____
D. Partial Curl-Up Test – to check _____

Q33. Anaya is preparing for a 10 km cross-country race. Her training includes long-distance runs, breathing exercises, and regular hydration. During runs, her heart rate increases, she sweats heavily, and her legs feel tired after long stretches. Her coach advises her to consume carbohydrate-rich food and rest properly to improve recovery and endurance.

Answer the following question based on above case study
A. What is the physiological reason for Anaya sweating during the run?
B. Which energy system is primarily used during a long-distance race?
C. What causes muscle tiredness in long-duration running?
D. What is the function of carbohydrates in an athlete's diet?

Q34. Riya is a c lass XI students who participates actively in Sports and Fitness activities. She goes for morning Walk daily, practices Yoga in the evening and follows a balance diet , Recently her school organized a fitness assessment where her BMI was to be in the healthy range she was also able to complete 600 mts run without much fatigue. Her flexibility and strength score were also above average .

Based on the case above answer the following questions.

A) what component of Physical fitness are highlighted in Riya's routine.
B) Why is BMI Important in assessment Fitness level
C) how does Yoga contribute to overall wellness.
D) Suggest two ways Riya can further improve her Fitness.

SECTION – E
(Attempt any 3 questions.)

Q35 Elaborate types of Pranayama.
Q36 Suggest five strategies a physical education teacher can adopt to ensure inclusive participation in PE classes.
Q37 Describe various adolescents' problems. How can they be managed?
Q38 Explain Importance of Test, Measurement and Evaluation.

SAMPLE PAPER- 06

PHYSICAL EDUCATION (048)

CLASS XI

TIME ALLOWED: 3 HRS **MM. 70 MARKS**

General Instructions: -

1.The question paper consist of 5 sections and 37 questions
2.Sections A consist of question 1-18 carrying 01 mark each and are Multiple Choice Questions.
3.Sections B consist of question no. 19-24 carrying 02 marks each are very short answer type questions and should not exceed 60-90 words. Attempt any five
4.Section C consist of question no.25-30 carrying 03 marks each are short answer type questions and should not exceed 100-150 words. . Attempt any five
5.Sections D consist of question no. 31-33 carrying 04 marks each and are case studies there is internal choice available
6.Section E consist of question no. 34-37 carrying 05 marks each are long answer type questions and should not exceed200-300 words. . Attempt any three-

---

SECTION-A

(All question are compulsory)

Q.1 A institution was established in 1957 as the first college dedicated to Physical Education in India?

a) Lakshmibai National College of Physical Education (LNCPE)
b) National Sports University
c) Indira Gandhi Institute of Physical Education
d) Netaji Subhas National Institute of Sports

Q2. The five rings of the Olympic symbol represent:

a) Five Olympic events b) Five world records

c) Five continents d) Five ancient cities

Q3. What is the primary focus of occupational therapy for CWSN?

a. Speech clarity **b.** Self-care and motor skills
c. Sports strategy **d.** Pain relief

Q4. Which of the following is not a component of yoga?

a) Yama b) Niyama c) Pranayama d) Gymnastics

Q5.To measure Lower body flexibility fitness, which one of the following is best?

a. Harvard Step Test. b. Sit and reach test

c) Barrow fitness test D. General fitness test

Q6.The skeletal system stores which important mineral?

a) Calcium b) Potassium

c) Sodium d) Iron

Q7. Newton's Third Law corresponds to which biomechanical concept?

a) Principle of Stability b) Principle of Reaction

c) Principle of Force d) Principle of Impulse

Q.8 After the culmination of intense training and competitions, which phase focuses on psychological relaxation and physical restoration in an athlete's annual schedule?

(a) Fitness period (b) Training Period

(c)Competition Period (d) Rest and recovery period

Q9. The pivot joint is found in:

a) Neck b) Elbow

c) Shoulder d) Wrist

Q10.Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R).

Assertion (A)

An Infant can run and walk In better way than holding a pen or pencil to write.

Reason (R): An Infant first gains control over large muscle groups than the fine ones.Which of the **following statements 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 and (R) is false.

(d) (A) Is false and (R) is true

Q11.Which are the conditions that need to be fulfilled for adaptation to the training load?

(a) Recovery period should be in proportion to the training load.

(b) Rest should be given more focus than training.

(c) Loading process must be repeated for a long period.

(d) Training load should not be compromised even during injury

Q12. Children in adolescent age demand.
a) Money b) Self-worth c) Freedom d) Reward

Q13.The joint that allows movement in all directions is called:
a) Hinge joint b) Ball and socket joint
c) Pivot joint d) Gliding joint

Q14.Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R).

Assertion (A)

An Infant can run and walk In better way than holding a pen or pencil to write.

Reason (R): An Infant first gains control over large muscle groups than the fine ones.Which of the **following statements 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 and (R) is false.

(d) (A) Is false and (R) is true.

Q15. 6. What should be the body fat percentage for men?

(a) 5 to 10 (b) 10 to 15 (c) 15 to 18 (d)18 to 20

Q16**.** The main aim of Adapted Physical Education is to:
a Teach sports to all children
b. Provide physical education as per the individual's needs
c. Avoid competitive games
d. Replace general PE

Q17 .Which of the following is a forward-bending asana?
a) Bhujangasana b) Tadasana c)Paschimottanasana d) Ustrasana

Q18. Who manages India's representation at the Olympic Games?

a) Sports Authority of India b) International Olympic Committee

c) Indian Olympic Association d) Ministry of Youth Affairs and Sports

SECTION-B

(Attempt any 5 questions)

Q19.What is a muscle twitch?

Q20.Clarify the meaning of speed

Q21. How does APE help students with ADHD?

Q22. Define sports journalism?

Q23.Write Two changes in Modern Playing surfaces

Q24. What do you mean by traditional sports and regional games?

SECTION-C

(Attempt any 5 questions)

Q25. What is the relevance of the Olympic motto in academic life?

Q26. Explain any three roles of a special educator in supporting CWSN.

Q27. Define BMI? Explain the procedure for the calculation of BMI?

Q28. Differentiate between a hinge joint and a ball and socket joint with examples.

Q29.Name and describe three types of daily physical movements.

SECTION-D

(Attempt any 3questions)

Q30. Aman is a young sprinter aiming to qualify for a national athletics meet. Under pressure to perform better, he is offered a performance-enhancing drug by a fellow athlete. Aman takes the substance without knowing it is banned. During the competition, he is selected for doping control and tests positive. As a result, Aman is disqualified and banned from competitions for two years. His coach and team are also questioned.

A. What rule did Aman violate by taking the banned substance?

B What is the consequence Aman faced after testing positive?

C. Who else can be held responsible in a doping case besides the athlete?

D. Why are performance-enhancing drugs banned in sports?

Q31. Priya is practicing gymnastics and faces difficulty staying balanced on the balance beam. Her coach explains concepts like centre of gravity and base of support to help her improve.

A. Define centre of gravity and explain its importance in gymnastics.

B. How does base of support influence balance?

C. What kind of balance is necessary for beam routines?

D. Suggest how Priya can work on her stability.

Q32. During the Olympic Games, athletes from over 200 nations live together in the Olympic Village, sharing meals, traditions, and values.

Questions:

5. What value is reflected by this practice?
6. What does such interaction promote among athletes?
7. How does the Olympic movement contribute to global unity?
8. Define the concept of Olympic Solidarity

Q33. A coach wants to determine the somato type of an athlete to design a training program. Describe the procedure for somato typing and explain how it can be used to inform training and nutrition planning.
Answer: Somatotyping is a method of classifying body shape and composition.

SECTION-E

(Attempt any 3 questions)

Q34. Describe attention and its types. Why is it important in sports?

Q35.What is the Fit India Movement? How has it influenced the lifestyle of Indians?

Q36. Describe the physiological benefits of yoga
Q37. Describe the role of different professionals involved in supporting CWSN.

SAMPLE PAPER -7

PHYSICAL EDUCATION (048)

TIME: - 3:00 HOURS **CLASS:-XI** **M.M:-70**

General Instructions:

m) The question paper consists of 5 sections and 37 questions

n) Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.

o) Section B consists of questions 19-24 carrying 2 marks each and are very short answers type and their answers should not exceed 60-90 words. Attempt any 5.

p) Section C consists of questions 25-30 carrying 3 marks each and are short answers type and their answers should not exceed 100-150 words. Attempt any 5.

q) Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is an Internal choice available.

r) Section E consists of questions 34-37 carrying 5 marks each and are Long answers type and their answers should not exceed 200-300 words. Attempt any 3**.**

SECTION-A (18 X 1=18) ATTEMPT ALL THE QUESTION

1-Which component of development in Physical Education involves feelings and behavior?

a) Mental development b) Social development

c) Emotional development d) Physical development

2- What color is NOT found in the Olympic rings?

a) Red b) Green c) Purple d) Blue

3- Which country has hosted the most Olympic Games?

a) France b) USA c) Germany d) Japan

4- To stabilize and focus the mind on one object, Image, Sound or Idea is called_____.

(a) Samadhi (b) Dharana (c) Dhyana (d) Pratyahara

5-Special schools are meant for**:**

a) Athletes b) General public c) Children with disabilities d) Teachers

6-The ability to overcome resistance is called.

(a) Muscular strength (b) Muscular endurance

(c) Body composition (d) Flexibility

7-Which one of the following is not component of health related fitness?

(a) Cardio-respiratory endurance (b) Muscular endurance

(c) Flexibility (d) Speed

8-The physical makeup of a person's body is called their _____.

a. Size. b. Height.

c. Shape. d. Body type

9-Which valve prevents blood from flowing back into the left atrium?

a) Tricuspid valve b) Mitral valve c) Pulmonary valve d) Aortic valve

The respiratory system includes all EXCEPT:

a) Nose b) Lungs c) Kidneys d) Trachea

10- When the spine twists during a golf swing, this movement is classified as.

a) Flexion b) Adduction

c) Rotation d) Abduction

11-It is combination of resilience, determination and optimism that motivate people to face adversity.

(a) Task cohesion (b) Alertness

(c) Mental toughness (d) Team

12-The ability to bounce back from adversity is called.

(a) Mental toughness (b) Resilience

(c) Alertness (d) Cohesion

13-Match the following:

List-I	**List-II**
(I) Late Childhood	1. 0 to 5 years
(II) Adulthood	2. 6 to 9 years
(III) Infancy	3. 9 to 12 years
(IV) Early childhood	4. 18 years onward

(a) 3 4 1 2

(b) 1 2 3 4

(c) 4 3 1 2

(d) 3 1 4 2

14- WADA stands for.

a) World Anti-Doping Association (b) World Anti-Doping Alliance

(c) World Anti-Doping Agency (d) World Anti-Doping Alumina

15-Which of the following is the symptom of overload?

(a) Depression (b) Loss of weight

(c) Loss of sleep (d) All of these

16-Which type of joint is involved in shoulder movement during throwing?
a) Hinge joint b) Gliding joint
c) Ball and socket joint d) Pivot joint

17-Which of the following is a hearing impairment aid?

a) Wheelchair b) Braille c) Hearing Aid d) Crutches

18 - **Which is not a component of inclusive education?**

a) Acceptance b) Discrimination c) Collaboration d) Adaptation

SECTION – B
(Attempt any 5 questions)

19- Define Physical Education?

20-What do you mean by Dharana?

21-Name two types of physical disabilities.

22-Define Evaluation?

23-How is kinesiology applied in the rehabilitation process?

24-Write any one specific Definition about sports training.

SECTION – C
(Attempt any 5 questions)

25-Explain three core Olympic values with examples.

26-State three objectives of the Special Olympics

27-What do you mean by physical fitness and wellness?

28-Explain the significance of calcium in muscle contraction.

29-Describe the function of white blood cells in the circulatory system.

30-Write down the developmental characteristics of late childhood.

SECTION – B
(Attempt any 3 questions)

31-Ranjan is a good football player. He wants to improve his skills by doing some yogic exercises.

Based on this case study answer the following questions:

(a) Which exercise is good for controlling the breathing exercises?
(b) Which asana reduces the negative emotions?
(c) _____ is the best asana to improve his concentration level.
(d) _____ Pranayama supports the body with oxygen and decontaminates the body.

32-A sprinter uses blocks to launch into a 100-meter race.

Answer the following:

a) Which principle explains the force exerted back by the starting blocks?

b) What term describes the measurement of speed and acceleration during the sprint?

c) How does torque contribute to the push-off?

d) How can biomechanics help reduce the occurrence of false starts?

33- Reena is a national-level weightlifter who has been training for years. During her preparation for an international event, she starts using a diuretic to quickly reduce weight. Although the drug is not for strength, it is on the banned list because it can hide other substances. After the event, Reena is tested, and the result comes back positive for the diuretic. She claims she didn't know it was banned, but the anti-doping agency still punishes her.

Q1. Which type of banned substance did Reena use?

Q2. Why are diuretics banned in sports?

Q3. Can claiming "I didn't know" prevent punishment in doping cases?

Q4. What is the role of the anti-doping agency in this case?

or

Vijay is a sprinter who competes in 100m races. During his sprints, he uses explosive leg movements and quick arm swings. His coach has explained that muscle contraction, joint movement, and energy release are key to his performance. After a race, Varun feels tightness in his calves and practices cool-down stretches.

Q1. Which muscles are mainly responsible for Varun's leg movement during sprinting?

a) Biceps and triceps b) Hamstrings and quadriceps
c) Deltoid and pectorals d) Abdominals and trapezius

Q2. What type of contraction occurs in his leg muscles when he pushes off the ground?

a) Eccentric b) Concentric
c) Isometric d) Reflexive

Q3. What type of joint is found in the knee that enables sprinting motion?

a) Pivot joint b) Saddle joint
c) Hinge joint d) Gliding joint

Q4. Why does Varun perform stretching after a race?

a) To increase body temperature b) To reduce lactic acid build-up and prevent cramps
c) To improve digestion d) To increase heart rate

SECTION – E
(Attempt any 3 questions)

34-Define Anatomy and write its importance in games and sports.

35-Describe the Technology Advancement in Sport?

36-List and explain the tests related to Cardiovascular Endurance.

37-How does biomechanics contribute to preventing injuries and aiding rehabilitatio

Sample Paper-8
PHYSICAL EDUCATION (048)
CLASS XII

Time allowed: 03 hours **Maximum Marks: 70**

General Instructions:

s) The question paper consists of 5 sections and 37 questions

t) Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.

u) Section B consists of questions 19-24 carrying 2 marks each and are very short answers type and their answers should not exceed 60-90 words. Attempt any 5.

v) Section C consists of questions 25-30 carrying 3 marks each and are short answers type and their answers should not exceed 100-150 words. Attempt any 5.

w) Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is an Internal choice available.

x) Section E consists of questions 34-37 carrying 5 marks each and are Long answers type and their answers should not exceed 200-300 words. Attempt any 3**.**

SECTION – A
(All questions are compulsory)

1. **What is the primary aim of the Khelo India program launched in 2018?**

A) To provide free gym memberships to citizens

B) (B) To promote traditional Indian games

C) C) To revive the sports culture at the grassroots level

D) (D) To train athletes for the Olympics exclusively

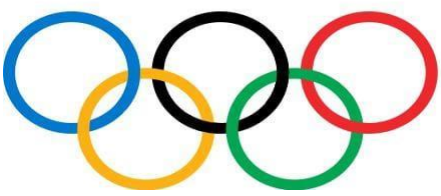
2. **1What is the primary aim of the Khelo India program launched in 2018?**

(A) To provide free gym memberships to citizens
(B) To promote traditional Indian games
(C) To revive the sports culture at the grassroots level
(D) To train athletes for the Olympics exclusively

3. What color is NOT found in the Olympic rings?

A) Red B) Green C) Purple D) Blue

4. Observe the image below and answer the question that follows:



What do the five interlocking rings in the Olympic symbol represent?

A) The five rings reflect the union of the five continents namely North and South America, Africa, Asia, Australia, and Europe
B) Five Olympic values: Respect, Excellence, Friendship, Equality, and Fairness
C) Five types of Olympic medals
D) Five ancient Olympic sports

5. How many Yogic – Kriyas are there?
(A) 6 (B) 4 (C) 3 (D) 9

6. Given below are the two statements one is labelled as Assertion (A) and other is Labelled as Reason (R).
Assertion (A): Pranayama is also known as Yogic Breathing.
Reason (R): Neti Kriya is a cleaning 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 the correct explanation of (A).
(C) (A) is true but (R) is False.
(D) (A) is false but (R) is true.

7. **Which is not a component of inclusive education?**

A) Acceptance B) Discrimination C) Collaboration D) Adaptation

8. The percentage of bones, tendons, muscles, water, ligaments, organs, etc., in comparison to body fat is called:

(A) Muscular strength (B) Muscular endurance

(C) Body composition (D) None of these

9. The purpose of the evaluation is to make?

(A). Decision (B). Prediction (C). Judgement (D). Opinion

10. The skull bones are an example of which classification?

A) Long bones B) Short bones

C) Flat bones D) Sesamoid bones

11. The skeletal system stores which important mineral?

A) Calcium B) Potassium

C) Sodium D) Iron

12. The pivot joint is found in:

A) Neck B) Elbow C) Shoulder D) Wrist

13. What is the term for the product of force multiplied by the time during which it is applied?

A) Momentum B) Torque

C) Impulse D) Velocity

14. Changes in memory and perception are indicators of

A) Physical development B) Social development

C) Mental development D) Emotional development

15**. Which of these terms describes the degree to which group members come together as one unit to reach a common goals?**

(A) Group Cohesion (B) Group synergy

(C) Group respect (D) Group collaboration

16. **It is combination of resilience, determination and optimism that motivate people to face adversity-**

(A) Task cohesion (B) Alertness

(C) Mental toughness (D) Team

17. **The ability of to bounce back from adversity is called-**

(A) Mental toughness (B) Resilience

(C) Alertness (D) Cohesion

18. SWOT strategy is required as

(A) strategy, working, output, and thought.

(B) strengths, weaknesses, opportunities, and threats.

(C) strengths, working, opportunities, and threats.

(D) success, weaknesses, outcome, and target.

SECTION – B
(Attempt any 5 questions)

19. Name the ministry that launched the Khelo India initiative.

20. State any two aims of the PWD Act (1995).

21. What is cardiovascular Endurance?

22. What is the function of alveoli?

23. How does biomechanics influence the design of sports equipment?

24. Write down two principle of biomechanics?

SECTION – C

(Attempt any 5 questions)

25. Write a short note on the role of sports in promoting international peace

26. Describe the function of white blood cells in the circulatory system.

27. Explain the social characterstics of adolescents.

28. Warm up is important for optimum performance" justify it?

29. Write any 3 symptoms of Overload?

30. What is yoga and elements of yoga.

SECTION – D
(Internal choice available)

31. Case Study: 1: . Last year, our school organised a programme 'Run for Unity'. All the students and teachers of our school were involved in this race. Such runs promote unity, peace and harmony among the people. After covering a distance of two kilometers, one student suddenly felt chest pain. He complained to a teacher regarding pain. Immediately some of the teachers, who were running beside him, took him to the doctor for necessary checkup. His blood pressure was measured and ECG was also performed. Doctor said that it was not the case of heart problem. It was surely the problem of second wind which is a usual phenomenon for individual who does not practice to run a race.

Based on the above passage, answer the following questions:

1. What is physical fitness?
2. What values did the teachers show by taking the student to the doctor immediately?
3. Was the student physically fit enough?
4. What are the types of endurance?

32. Case Study 2: A district sports meet was organized exclusively for children with hearing impairments. Instructions were given through visual cues and signs. The event received strong community support.

Questions:

a) What type of communication barrier do hearing-impaired students face?

sample paper-09

PHYSICAL EDUCATION (048)
CLASS XII

Time allowed: 03 hours **Maximum Marks: 70**

General Instructions:

y) The question paper consists of 5 sections and 37 questions

z) Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.

aa) Section B consists of questions 19-24 carrying 2 marks each and are very short answers type and their answers should not exceed 60-90 words. Attempt any 5.

bb) Section C consists of questions 25-30 carrying 3 marks each and are short answers type and their answers should not exceed 100-150 words. Attempt any 5.

cc) Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is an Internal choice available.

dd) Section E consists of questions 34-37 carrying 5 marks each and are Long answers type and their answers should not exceed 200-300 words. Attempt any 3**.**

SECTION – A
(All questions are compulsory)

Q.1 A professional who helps athletes with diet and nutrition is called a:

(A) Sports Psychologist
(B) Sports Manager
(C) Sports Analyst
(D) Sports Nutritionist

Q.2 Which country has hosted the most Olympic Games?

(A) France
(B) USA
(C) Germany
(D) Japan

Q.3 The Olympic rings represent _____

Q.4 The word Kapalabhati is associated with _____.

(A) Asana
(B) Kriya
(C) Pranayama
(D) Dhyana

Q.5 Match List –I and List-II and select the correct :

List – I	List – II
(a) Yama	(1) Meditation
(b) Niyama	(2) Concentration
(c) Dharana	(3) Self Discipline

(d) Dyana (4) Moral codes

Answer code:

I	II	III	IV
(A) 4	3	2	1
(B) 3	2	1	4
(C) 2	1	3	4
(D) 1	2	3	4

Q.6. Cleaning of Colon is known as:

(A) Nauli (B) Basti

(C) Neti (D) Trataka

Q.**7** A person-first language example is:

(A) Crippled child (**B)** Disabled boy

(C) Child with a disability (**D)** Handicapped person

Q.8 What should you avoid when interacting with a person with a disability?

(A) Offering help (**B)** Speaking directly

(C) Making assumptions (**D)** Being patient

Q.9 The ability of body to execute movements with greater range is called:

(A) Strength (B) Flexibility

(C) Body composition (D) Endurance

Q.10 Sheldon's body theory work?

(A) Sheldon created labels to characterize body types and personalize

(B) Sheldon believed body types could be measured and related to income levels,

(C) Sheldon thought body types and race were related.

(D) Sheldon thought there was no real on between body types and other factors.

Q.11 Which property allows muscles to shorten and produce movement?

(A) Excitability (B) Contractility

(C) Elasticity (D) Extensibility

Q.12 Which valve prevents blood from flowing back into the left atrium?

(A) Tricuspid valve (B) Mitral valve

(C) Pulmonary valve (D) Aortic valve

Q.13 In order to achieve the highest velocity, how should body segments move?

(A) From smaller joints to larger joints (B) In no specific order

(C) Simultaneously (D) From larger joints to smaller joints

Q.14 Which axis facilitates rotational movement of the body?

(A) Sagittal axis (B) Frontal axis

(C) Vertical axis (D) Lateral axis

Q.15 Decreasing the angle between the forearm and upper arm by bending the elbow is:

(A) Extension (B) Rotation

(C) Flexion (D) Supination

Q.16 Which one of the following is not a problem related to adolescence?
(A) Eating Disorder (B) Substance abuse
(C) Anti-Social behaviour **(D)** Lack of language development.

Q.17 The ability of to bounce back from adversity is called-

(A) Mental toughness (B) Resilience
(C) Alertness (D) Cohesion

Q.18 In football, shooting is required to score goals. Shooting is a..
(A) technique (B) style
(C) skill (D) strategy

SECTION – B
(Attempt any 5 questions)

Q.19 What is the meaning of "Fit India Movement"?

Q.20 What is the Aim of Physical Education?

Q.21 Define physical disability.

Q.22 Define Flexibility?

Q.23 What is Muscular Endurance?

Q.24 List some of the problems of Adolescence.

SECTION – C

(Attempt any 5 questions)

Q.25 Enlist the various physical education institute of India?

Q.26 Write a short note on the role of sports in promoting international peace.

Q.27 Describe the role of a speech therapist in helping students with special needs.

Q.28 What do you understand by 'Team Cohesion'? Enlist it's types.

Q.29 Write any 3 symptoms of Overload?

Q.30 Mention any three Side effects of consuming prohibited substances in sports?

SECTION – D
(Internal choice available)

Q.31 Ananya is a 17-year-old student who recently began practicing yoga to cope with academic pressure and poor concentration. She started with simple Asanas like **Tadasana** and **Bhujangasana**, and added **Anulom Vilom Pranayama** to her morning routine. After a month, she noticed improved focus during exams, better sleep, and reduced stress. Encouraged by these benefits, she joined a weekend yoga class where she learned about **Ashtanga Yoga** and the importance of **Yamas** and **Niyamas**.

Questions:

a) Identify **two benefits** Ananya experienced from her yoga practice.
b) Name **one Asana** and **one Pranayama** that she practiced, and state their specific benefits.
c) Briefly explain how the principles of **Yamas** and **Niyamas** can support students like Ananya.
d) What is Ashtanga Yoga? Mention **any two limbs** of it and their purpose.

OR

Q.31 Rohit is a class XI student who often finds it difficult to concentrate during studies and feels anxious before exams. His physical education teacher notices this and advises him to practice certain yogic techniques regularly. Rohit starts doing Anuloma Viloma Pranayama, Shashankasana, and Trataka every morning. After a few weeks, he begins to feel calmer, more focused, and confident in his studies.

Q. Based on the above case study, answer the following:

a) Name the yogic practices suggested to Rohit.
b) Explain how these practices helped him in improving concentration and reducing anxiety.
c) Why is Trataka considered beneficial for students?
d) Mention one precaution to be kept in mind while practicing any one of the techniques.

Q.32 Arvind is a 16-year-old student who leads a sedentary lifestyle, often spending hours on his phone or computer. He frequently feels tired and stressed and has trouble sleeping at night. His school's Physical Education teacher notices his condition and advises him to start participating in physical activities and follow a proper wellness routine. Arvind begins practicing yoga, walking daily, and eating balanced meals. Within a few weeks, he experiences improved sleep, better mood, and increased energy levels.

Answer the following questions:

a) Identify two dimensions of wellness that Arvind improved through his routine.
b) How does physical activity contribute to mental and emotional well-being?
c) What role does nutrition play in maintaining physical fitness?

d) Suggest one traditional Indian game that can help improve Arvind's physical fitness and explain how.

Q.33 Ravi is a young football player who trains regularly. During his matches, he notices that his heart rate increases and breathing becomes faster, especially during intense running. His coach tells him that his **circulatory and respiratory systems** are working harder to supply **oxygen** to his **muscles**. After the game, Ravi often feels soreness in his legs due to muscle exertion. His trainer advises him to practice **cool-down exercises** and maintain proper **hydration** and **nutrition** to recover faster.

Answer the following:

a) Which two systems help supply oxygen to Ravi's muscles during the match?
b) Why does Ravi experience muscle soreness after intense physical activity?
c) How do cool-down exercises help after a match?
d) Name one muscle group involved in running and its function.

SECTION – E
(Attempt any 3 questions)

Q.34 Explain the importance of Test, Measurement, and Evaluation in the field of Physical Education. Describe any four key purposes they serve

Q.35 Explain the role of Kinesiology and Biomechanics in enhancing athletic performance. Support your answer with any four key contributions.

Q.36 What is mental toughness? Explain its key attributes and discuss its significance in enhancing sports performance.

Q.37 Discuss the problems faced by adolescents and suggest effective strategies for their management in the context of physical education and sports.

SAMPLE PAPER-10

SESSION -2025-26
CLASS -11
PHYSICAL EDUCATION (048)

Time allowed: 3 hours **Maximum Marks : 70**

General Instructions: -

9. The question paper consist of 5 sections and 37 questions
10. Sections A consist of question 1-18 carrying 01 mark each and are Multiple Choice Questions.
11. Sections B consist of question no. 19-24 carrying 02 marks each are very short answer type questions and should not exceed 60-90 words. **Attempt any five**
12. Section C consist of question no.25-30 carrying 03 marks each are short answer type questions and should not exceed 100-150 words. . **Attempt any five**
13. Sections D consist of question no. 31-33 carrying 04 marks each and are case studies there is **internal choice available**
14. Section E consist of question no. 34-37 carrying 05 marks each are long answer type questions and should not exceed200-300 words. . **Attempt any three-**

SECTION-A

(All Questions are compulsory.)

Q.1 Which of these professionals is responsible for preventing and treating sports injuries?

(A) Sports Physiotherapist (B) Sports Coach
(C) Event Manager (D) Biomechanics

Q.2 Which component of development in Physical Education involves feelings and behavior?

(A) Mental development (B) Social development
(C) Emotional development (D) Physical development

Q.3 Who is responsible for writing reports, covering sports events, and analyzing games for media?

(A) Sports Trainer (B) Sports Journalist
(C) Sports Official (D) Sports Therapist

Q4. What is the significance of the Olympic flame?

(A) To cook food (B) To represent unity
(C) To light the stadium (D) To honor the winners

Q5. The Olympic Games promotes Unity though ---

(a) Education (b) celebration
(c) sports (d) Technology

Q6, Among Eight stages of training for a Yogi to go through and attain "Moksha", what is the Final stage called?

(A) Yama (C) Samadhi
(B) Kaivalya (D) Pranayama

Q 7. Which of the following aims at empowering persons with disabilities?
A) Khelo India (B) PWD Act
(C) UDAAN Scheme (D) RTI Act

Q 8.When an athlete performs pull ups what type of strength is required?

(A) Explosive strength (A) Dynamic strength

(C) Static strength (D) None of these

Q 9. Which type of muscle fibers is beneficial for endurance activities?

(A) White muscle fibers (B) Red muscle fibers

(C) Red muscle fibers (D) Both 'a' & 'b'

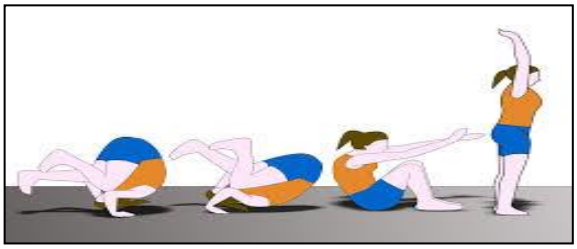
Q 10 Which of the following body types is generally long and thin?
A. Ectomorphs B. Endomorphs
C. Mesomorphs D. None of the above

Q 11. Among the different types of muscles in the human body, which type is under conscious control and allows voluntary movements such as walking, running, and lifting objects?
(A) Skeletal muscle (B) Cardiac muscle
(C) Smooth muscle (D) Involuntary muscle

Q 12.The pivot joint is found in:
(A) Neck (B) Elbow
(C) Shoulder (D) Wrist

Q 13. The term defines the capacity to maintain balance or resist displacement?
(A) Flexibility (B) Stability
(C) Endurance (D) Agility

Q 14. Performing a forward roll (somersault) occurs within which plane?



(A) Sagittal plane (B) Frontal plane
(C) Transverse plane (D) Oblique plane

Q 15. Moving your arms sideways away from the body are called:
(A) Flexion (B) Abduction
(C) Adduction (D) Extension

Q 16. Which factor increases group Cohesiveness?
(A) Trust (B) Diversity
(C) Arrogance (D) Negative put group experiences.

Q.17 WADA stands for.

(A) World Anti-Doping Association (B) World Anti-Doping Alliance
(C) World Anti-Doping Agency (D) World Anti-Doping Alumina

Q.18 "Super compensation" means ....
(A) Fatigue (B) Oxygen debt
(C) Adaptation to load (D) None of these

SECTION-B
(Attempt any 5 questions.)

Q.19 Define Pranayama
.

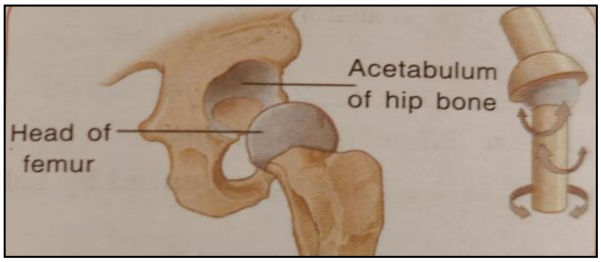
Q.20 What is the role of a physical education teacher in an inclusive setup?

Q.21 Enlist different stages of Development.

Q.22 Why is the frontal plane crucial for human movement?

Q.23 Elucidate Tactics in brief?

Q.24 Identify the type of joints in the human body as shown in the picture and write Its names



SECTION-C
(Attempt any 5 questions.)

Q. 25 Explain the three core Olympic values with examples..

Q.26 Explain health and its component? .

Q.27 Describe the function of white blood cells in the circulatory system.

Q. 28 Outline the flow of blood through the heart starting from the right atrium.

Q.29 Write any three importance of Limbering Down?

Q.30 What is BMI. How it calculated?

SECTION-D
(Internal choices available)

Q.31

Mohan is a good basketball player. He wants to improve his skills by doing some yogic exercises. Based on this case study answer the following questions:
(A) Which exercise is good for controlling the breathing exercises?

(B)Which asana reduces the negative emotions?
(C) _____ is the best asana to improve his concentration level.
(D)_____ Pranayama supports the body with oxygen and decontaminate the body.

OR

Amit is preparing for a national-level debate competition. Though intelligent, he finds it difficult to concentrate and often forgets his points while speaking. His teacher advises him to practice meditation and breathing exercises. After practicing Nadi Shodhana, Bhramari Pranayama, and Dhyana (meditation) for two weeks, Amit reports improved focus, memory, and calmness.

A-What issue was Amit facing?
B-Which yoga techniques helped Amit?
C-Name one pranayama that improves concentration
D- What are two benefits of meditation?

Q. 32.

Government Model School introduced a weekly program called "Equal Play," focusing on adapted physical education for students with special needs. Activities like yoga, balance games, and stretching are included. The program is supported by special educators and physical education teachers who plan individualized activities for each student.
Answer the following questions:
(A) What is adapted physical education?
(B) Mention two activities suitable for students with physical disabilities.
(C) Why is individual planning important in such programs?
(D) How do yoga and balance games help students with disabilities?

Q.33

A volleyball team lacked coordination and motivation. A new coach focused on developing group dynamics, team bonding activities, and clear communication. Soon, the team began performing better.

A-What were the initial problems faced by the volleyball team?

B-Mention any two strategies used by the new coach to improve team performance.

C- How can group dynamics influence the performance of a team?

D-Why are team bonding activities important in sports?

SECTION – E

(Attempt any 3 questions.)

Q. 34 How the Trends are changing in sports Equipment?

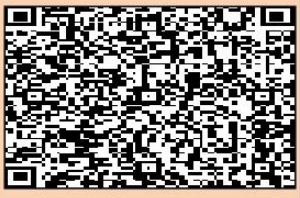
Q. 35 Explain the three Somato types in detail

Q.36 How does biomechanics contribute to preventing injuries and aiding rehabilitation?

Q.37 Describe attention and its types. Why is it important in sports?

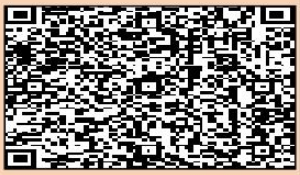
LESSON PLAN UNIT WISE (XI)

1. *CHANGING TRENDS AND CAREER IN PHYSICAL EDUCATION*

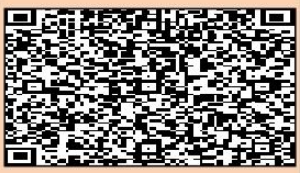


2. OLYMPIC VALUE EDUCATION

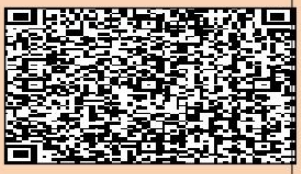
3. YOGA



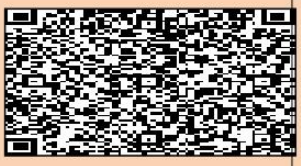
4. PHYSICAL EDUCATION & SPORTS FOR CWSN



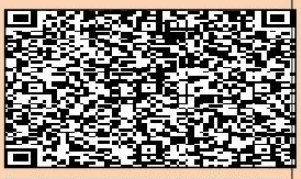
5. PHYSICAL FITNESS AND WELLNESS



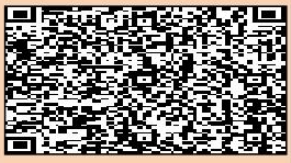
6. TEST, MEASURMENTS & EVALUATION



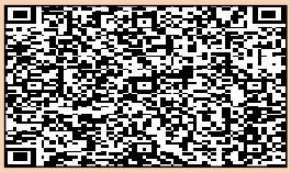
7. FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY IN SPORTS



8. FUNDAMENTALS OF KINESIOLOGY AND BIOMECHANICS IN SPORTS



9. PSYCHOLOGY AND SPORTS



10. TRAINING AND DOPING IN SPORTS

BEST PRACTICES (GOOGLE QUIZ UNIT WISE)

GENERAL INSTRUNCTIONS:-

1. Scene the QR codes to access exciting Google Quizzes tailored to Specific Topic.
2. You're encouraged to take these Quizzes to reinforce your understanding and test your knowledge.
3. Once you submit your answers, you'll instantly see your score and learn from any mistakes by reviewing the correct answers.

TOPICS	QR
1. CHANGING TRENDS & CAREER IN PHYSICAL EDUCATION	
2. OLYMPIC VALUE EDUCATION	
3. YOGA	
4. PHYSICAL EDUCATION & SPORTS FOR CHILDREN WITH SPECIAL NEED	
5. PHYSICAL FITNESS, HEALTH AND WELLNESS	
6. TEST, MEASURMENT AND EVALUATION	
7. FUNDAMENTALS OF ANATOMY AND PHYSIOLOGY IN SPORTS	
8. FUNDAMENTALS OF KINESIOLOGY &BIOMECHANICS IN SPORTS	
9. PSYCHOLOGY AND SPORTS	
10. TRAINING AND DOPING IN SPORTS