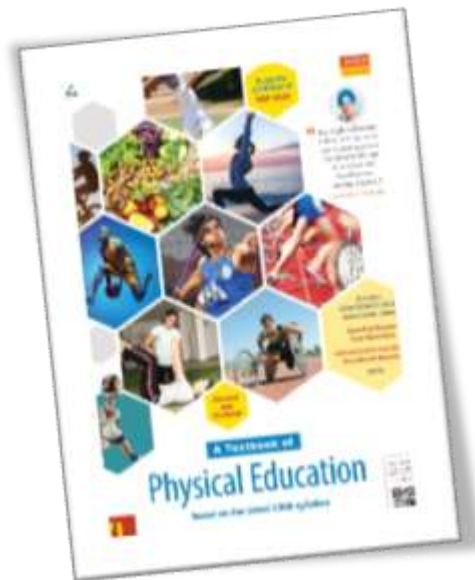


# TEACHER'S HANDBOOK

A TEXTBOOK OF

# PHYSICAL EDUCATION

Book 11



An Imprint of Ratna Sagar P. Ltd

**CHAPTER 1 CHANGING TRENDS AND CAREER  
IN PHYSICAL EDUCATION**

**P. 22–25**

**A. Objective Type/Multiple-Choice Questions**

**I. Multiple-Choice Questions**

**1.** What is the primary goal of physical education?

- (a) Increase productivity
- (b) Decrease productivity
- (c) Improve academic scores
- (d) Improve professional relationships

Ans. (a) Increase productivity

**2.** What kind of a system do sports and games rely on and why?

- (a) Two systems for coordination
- (b) Two systems for balance
- (c) Two systems for concentration
- (d) Two systems for endurance

Ans. (a) Two systems for coordination

**3.** Which of the following tournaments, is played on clay courts?

- (a) Australian Open (b) French Open
- (c) US Open (d) The Wimbledon

Ans. (b) French Open

**4.** Which of the following career options is associated with physical education?

- (a) Sports marketing
- (b) Sports administration
- (c) Professional sportsperson
- (d) All of these

Ans. (d) All of these

**5.** For those who have a strong passion for the camera, ..... is a career option.

- (a) Sports journalism
- (b) Sports photography
- (c) Sports broadcasting
- (d) Sports marketing

Ans. (b) Sports photography

**6.** Which technology is used in the picture given alongside?

- (a) GATE (b) GPS
- (c) Speedometer (d) VAR

Ans. (d) VAR

**7.** Khelo-India is an initiative of the .....

- (a) Government of Delhi
- (b) Government of UP
- (c) Government of India
- (d) Government of Maharashtra

Ans. (c) Government of India

**8.** Khelo-India would cover ..... most talented and deserving young athletes every year.

- (a) 1000 (b) 2000
- (c) 3000 (d) 4000

Ans. (a) 1000

**9.** Khelo-India strives to promote .....

- (a) 'Sports for one' as well as 'Sports for all'
- (b) 'Sports for all' as well as 'Sports for excellence'

(c) 'Sports for one' as well as 'Sports for many'

(d) 'Sports for development' as well as 'Sports for excellence'

Ans. (b) 'Sports for all' as well as 'Sports for excellence'

**10.** How much annual scholarship shall each selected athlete receive under the Khelo-India Scheme for eight consecutive years?

- (a) Two lakhs                      (b) Five lakhs  
(c) Three lakhs                    (d) Eight lakhs

Ans. (b) Five lakhs

**11.** When was the Fit-India Movement launched?

- (a) 29 August 2013 (b) 29 August 2016  
(c) 29 August 2019 (d) 29 August 2021

Ans. (c) 29 August 2019

**12.** There is a picture given alongside. This is the logo of

- (a) Khelo-India Programme.  
(b) Fit-India Programme.  
(c) Khel-India Programme.  
(d) Fitness India Programme.



Ans. (a) Khelo-India Programme.

## II. Match the following:

### List I – Acronym List II – Full-form

- |            |   |
|------------|---|
| (i) PU     | (1) National Testing Agency               |
| (ii) SAI   | (2) National Council of Teacher Education |
| (iii) NCTE | (3) Polyurethane                          |
| (iv) NTA   | (4) Sports Authority of India             |

## Select the correct set of options:

- (a) (i)—(3), (ii)—(4), (iii)—(2), (iv)—(1)  
(b) (i)—(2), (ii)—(4), (iii)—(1), (iv)—(3)  
(c) (i)—(1), (ii)—(2), (iii)—(3), (iv)—(4)  
(d) (i)—(4), (ii)—(3), (iii)—(2), (iv)—(1)

Ans. (a) (i)—(3), (ii)—(4), (iii)—(2), (iv)—(1)

## III. Assertion-Reason Type Questions:

### CBQ

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

**A:** Sports and games are an integral part of human culture and social interactions.

**R:** A number of sports events and games are played around the world.

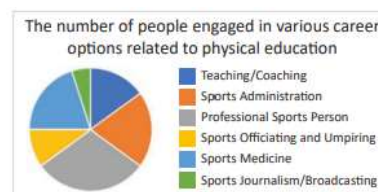
In the context of the two statements given above, which one of the following is correct?

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).  
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).  
(c) (A) is true, but (R) is false.  
(d) (A) is false, but (R) is true.

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

## IV. Data-Based Questions: CBQ

The following pie-chart depicts the number of people engaged in various career options related to physical education:



On the basis of the pie-chart given above, answer the following questions:

1. Which is the most popular profession?

- (a) Being a coach
- (b) Being an umpire
- (c) Being a professional player
- (d) Being a journalist

2. Which profession shows minimum engagement?

- (a) Journalism (b) Coaching
- (c) Administration (d) Medicine

3. A school, college or academy can be a possible place of work for

- (a) Sports Teachers/Coaches
- (b) Sports Administrators
- (c) Sports Doctors/Physicians
- (d) All of these

Ans. 1. (c) being a professional player;

2. (a) Journalism; 3. (d) All of these

**V. Picture-Based Questions: CBQ**

Identify the professions in sports:

1.



2.



3.



4.



Ans. 1. Sports Coaching; 2. Umpiring; 3. Sports Photography; 4. Sports Medicine

**VI. Case-Based Questions: CBQ**

1. A school did not have sports periods as part of its curriculum.

On the basis of the case given, answer the following questions:

(a) Which skills will most likely be missing in the students of such a school?

(b) If the school creates a sports department in future, what sort of employees will it require?

(c) ..... is an important objective of physical education?

(d) A ..... and ..... Physical Education Programme must be an integral part of school curriculums.

Ans. (a) Teamwork and cooperation

(b) Sports doctor and Coach

(c) Economic development

(d) well-structured; well-implemented

2. Look at the following figures and answer these questions.



(a) What does Figure A depict? Write one of its objectives.

(b) What does Figure B depict? Write one of its objectives.

(c) There were initially ..... disciplines under Figure A Programme.

(d) Figure B Programme was launched on ..... by the Prime Minister of India.

**Ans.** (a) Khelo –India Programme, Community Coaching Development

(b) Fit India Programme, To promote fitness as easy, fun and free.

(c) 16

(d) 29 August 2019

### **B. Very Short Answer Type Questions**

**1.** Define physical education.

**Ans.** Physical education is education through physical activities for the development of the total personality of child to its fullness and perfection in body, mind and spirit.

**2.** What is the primary aim of physical education?

**Ans.** The primary aim of physical education is to make every child physically, mentally and emotionally fit and also to develop in her/him such personal and social qualities as will help her/him to live happily with others and build him up as a good citizen.

**3.** Give a list of career options in physical education.

**Ans.** Teaching, Coaching, Personal Trainer, Professional sportsperson, Sports officiating and umpiring, Sports administration.

**4.** What are some diploma courses in physical education that you can take up in India?

**Ans.** Diploma courses in Physical education are for a duration of two years after class 12 in any stream. Diploma in Aerobics, Yoga Teacher Training, Yoga & Physical Education, Yoga, Physical Education, Special Olympics and Fitness are some courses.

**5.** What is the duration of a certificate course in physical education in India?

**Ans.** Certificate courses in physical education in India can be taken for a duration of one year after the student has passed 12th in any stream.

**6.** Give examples of at least two skills needed to become a coach.

**Ans.** Communication skills, Empathy, Work ethics, Leadership qualities, Time management abilities.

**7.** Mention two objectives of Khelo-India Programme.

**Ans.** i. Play Field Development

ii. Community Coaching Development

**8.** How many sports disciplines are covered under Khelo-India Programme? Mention any two.

**Ans.** 25 sports; Athletics and Badminton

**9.** What is the fitness mantra of Fit-India Programme?

**Ans.** Fit-India Mission encourages people to become part of Fit-India Movement by including at least 30–60 minutes of physical activities in their day-to-day lives.

### **C. Short Answer Type-I Questions**

**1.** Mention the different categories of the broad objective of physical education.

**Ans.** The different categories of the broad objective of physical education include organic aspect, neuromuscular aspect, mental aspect, emotional and social aspects of development.

**2.** Mention the three courses for physical education teachers for schools in India recognised by the NCTE.

**Ans.** i. Diploma in Physical Education (DPEd)

ii. Bachelor of Physical Education (BPEd)

iii. Master of Physical Education (MPEd)

**3.** Write briefly about the coaching career in physical education.

**Ans.** Refer to page 17 of the book.

**4.** What are the different kinds of job opportunities available under sports administration?

**Ans.** Chief Administrator in schools and colleges, Directors of Sports, District Sports Officers, etc.

**5.** Why do celebrities, models and sportspersons hire a personal trainer?

**Ans.** Celebrities, models and sportspersons are under constant pressure to appear fit and fabulous under the glare of cameras and the public eye or on the playground. And they often have a strict regime to follow. Almost every celebrity out there has their own personal trainer to help guide them with their training sessions

**6.** Mention any two career options in physical education.

**Ans.** Teaching and personal trainer

**7.** What is Hawk-Eye Technology?

**Ans.** Hawk-Eye System employs six to seven very powerful cameras which are fixed at various positions of the stadium to track and get the clear view of the ball from different angles in games like cricket, football, tennis, etc. This powerful and strong combination ensures that no shot is missed to be tracked by it. It also provides 3-D animation of the path of the ball

**8.** Briefly write about any two features of Khelo-India Programme.

**Ans.** i. The programme aims to promote 20 universities across the country as centres of sporting excellence, which would enable talented sportspersons to pursue both studies as well as sports.

ii. The programme also aims at creating an active population with healthy lifestyle.

**9.** Write any two objectives of Fit-India Programme.

**Ans.** i. To encourage indigenous sports.

ii. To make fitness reach every school, college/ university, panchayat/village, etc.

**10.** What is the goal of Fit-India Programme?

**Ans.** The goal of Fit-India is to change people's habits and encourage them to adopt a more physically active lifestyle.

**11.** What is the fitness pledge of Fit-India Programme?

**Ans.** "I promise to myself that I will devote time for physical activity and sports every day and I will encourage my family members and neighbours to be physically fit and make India a fit nation."

#### **D. Short Answer Type-II Questions**

**1.** Create a mind map depicting the aims and objectives of physical education.

**Ans.** Refer to Figure 1.2 page 11 of the book

**2.** Why is physical education important for youth? Give any three reasons.

**Ans.** Physical education is important for the youth for the following three reasons:

(i) Physical activities like jogging, walking, engaging in various sports help in maintaining correct posture and strengthening of the internal organs and muscles.

(ii) Physical education classes help the youths fruitfully employ their leisure time.

(iii) Many sporting activities function on certain social values like team spirit, fair play, cooperation and respect. These make the youths positive and mature.

**3.** How is physical education different from academic classroom-based education?

**Ans.** Physical education activities serve as a good outlet for students' surplus energy, reduce their anxiety and may bring them closer to their peers. Moreover, students get an opportunity to leave the classrooms and textbooks for a while and refresh their body and mind.

**4.** Write in brief about different wearable gears.

**Ans.** Sports gears are mostly worn to ensure basic safety related to the game/sport. Sports injury is the only limitation for the players to sustain their sports performance. So, all the respective sports have their minimum requirement of wearing sports gears as laid down in their regulations. Few common sports gears used are: Batting/kiping gloves, pads, helmets/ head gears used in various sports, shin/abdominal guards, caps used in various joints knee caps, etc.

**5.** What are the basic educational qualifications required for pursuing a serious career in physical education in India?

**Ans.** After passing class 12th with any stream, a student can pursue various certificate and diploma courses. Apart from these, other courses like degree

courses, postgraduate courses and advanced courses are also available.

**6.** What are the duties involved in teaching physical education?

**Ans.** Teaching physical education is a science in its own right, entailing a number of duties such as:

- training students in gymnastics, callisthenics and other physical activities
- coaching the students in specific sports
- organising sporting events
- maintaining sports equipment, gymnasiums, fields, pools, etc.

**7.** Make a table listing the various objectives of Khelo-India Programme and Fit-India Programme.

**Ans.**

<b>Objectives of Khelo-India Programme</b>
i. Play Field Development ii. Community Coaching Development iii. State Level Khelo-India Centres iv. Annual Sports Competition v. Talent Search and Development
<b>Objectives of Fit-India Programme</b>
i. To promote fitness as easy, fun and free. ii. To spread awareness on fitness and various physical activities that promote fitness through focused campaigns. iii. To encourage indigenous sports. iv. To make fitness reach every school, college/ university, panchayat/village, etc. v. To create a platform for citizens of India to share information, drive awareness and encourage sharing of personal fitness stories.



**8.** What is the Khelo-India Programme?

**Ans.** The Khelo-India is a national programme for the development of sports. It is an initiative of the Government of India to strengthen the sports ecosystem by encouraging mass participation and promotion of excellence. This programme has been introduced to revive the sports culture in India at the grass-root level by building a strong framework for all sports in India. It will provide a national level platform to the grassroots level talents.

**9.** Name the schemes that have been merged and revamped as Khelo-India Scheme.

**Ans.** Being approved by the Union Cabinet, KheloIndia Programme has been revamped after the merger of Rajiv Gandhi Khel Abhiyan (RGKA), Urban Sports Infrastructure Scheme (USIS) and National Sports Talent Search Scheme (NSTSS).

**10.** What are the different objectives of Fit-India Programme? Mention any three.

**Ans.** Refer to Answer of Question 7.

### **E. Long Answer Type Questions**

**1.** What are the various aspects of development achieved through physical education? Explain in detail.

**Ans.** The various aspects of development achieved through physical education are given below:

**(i) Organic aspect of development:** The first step of physical education is to establish physical fitness through regular exercise to strengthen the internal organs and muscles.

**(ii) Neuromuscular aspect of development:** Neuromuscular aspect of physical education enhances their relationship, in addition to gradually decreasing fatigue and providing mental satisfaction.

**(iii) Mental aspect of development:** Sports and games require mental alertness and concentration. The players learn how to face tough challenges and find within themselves a sense of self-reliance.

**(iv) Emotional aspect of development:** Physical education activities serve as a good outlet for teenagers' surplus energy, reduce their anxiety and may bring them closer to their peers.

**(v) Social aspect of development:** One of the most positive outcomes of physical education is the growth of social skills, although this may not be immediately visible. It is human nature to seek the society of fellow human beings, no matter how well we can act alone.

**2.** What are the changing trends in sports in terms of playing surfaces?

**Ans.** Refer to pages 12-13 of the book.

**3.** Describe in detail about the changing trends in sports in terms of technological advancements.

**4.** Classify various playing surfaces in sports.

**Ans.** Refer to page 12, Table 1.1 Different types of playing surfaces for outdoor and indoor sports of the book.

**5.** Make a table listing out the different courses available in physical education.



**Ans.** Refer to pages 15-16 of the book.

**6.** Discuss in detail about any five careers options available in physical education.

**Ans.** Refer to pages 16-19 of the textbook.

**7.** Write any five objectives of Khelo-India Programme.

**Ans.** The objectives of Khelo-India Programme are as follows:

- (i) Play Field Development
- (ii) Community Coaching Development
- (iii) State Level Khelo-India Centres
- (iv) Annual Sports Competition
- (v) Talent Search and Development
- (vi) Utilisation and Creation/Upgradation of Sports Infrastructure
- (vii) Support to National/Regional/State Sports Academics
- (viii) Physical Fitness of School Children (any five)

**8.** What are the features of Khelo-India Programme? Write about any five.

**Ans. Features of Khelo-India programme are given below.**

(i) This programme/scheme will be implemented by the Central Government machinery and 100 per cent of the funds will be provided by the central government.

(ii) A Pan Indian Sports Scholarship scheme, which would cover 1,000 most talented and deserving young athletes every year across selected sports disciplines. Initially, there are 16 disciplines. They are: Archery, Athletics, Badminton, Basketball, Boxing, Football, Gymnastics, Hockey, Judo, Kabaddi, Kho-

Kho, Shooting, Swimming, Volleyball, Weightlifting and Wrestling.

(iii) Each selected athlete under the scheme shall receive an annual scholarship worth five lakh rupees for eight consecutive years.

(iv) A long-term athlete development pathway would be made available to gifted and talented youngsters to excel in competitive sports and will create a pool of highly competitive athletes who can compete to win at the global platform.

(v) The programme aims to promote 20 universities across the country as hubs of sporting excellence, which would enable talented sportspersons to pursue both studies as well as sports.

(vi) The programme also aims at creating an active population with healthy lifestyle.

(vii) The programme would cover about 20 crore children in the age group of 10–18 under a massive national physical fitness drive, which will not only measure the physical fitness of all children in the age group, but also support their fitness related activities. (any five)

**9.** What is Fit-India Programme? How is it important for rural players of India?

**Ans.** The Fit India Program is a government initiative launched by the Ministry of Youth Affairs and Sports in India in 2019. The program aims to encourage people to incorporate physical activity and sports into their daily lives and promote a culture of fitness across the country. The initiative intends to inspire citizens to adopt an active lifestyle by creating awareness about the benefits of regular exercise, a healthy diet, and the importance of mental well-being.

For rural players in India, the Fit-India Program is particularly important as it provides them with access to resources and opportunities that may not have been available to them previously. The program seeks to reach people in every corner of the country and aims to provide them with the necessary infrastructure, equipment, and guidance to promote fitness and sports. It also aims to create awareness about traditional Indian games and encourage their revival, which can have a positive impact on rural players who may have grown up playing these games.

Through the Fit India Program, rural players can benefit from the various schemes and initiatives that are offered, such as the construction of sports infrastructure, the promotion of indigenous games, the training of coaches, and the provision of financial assistance to individuals and institutions that promote fitness and sports. The program also aims to create a network of community-based fitness programs that can reach people at the grassroots level and help them adopt a healthy lifestyle.

Overall, the Fit India Program is important for rural players in India as it provides them with opportunities to participate in sports and fitness activities, which can have a positive impact on their physical and mental well-being. Additionally, the program can help in creating a culture of fitness in rural areas and promote the development of sports infrastructure and talent.

**10.** Make a list of objectives, fitness pledge and fitness mantra of Fit-India Programme.

**Ans. Objectives of Fit India Programme:**

- i. To promote physical activity and sports in every corner of the country.
- ii. To create awareness about the benefits of regular exercise, a healthy diet, and the importance of mental well-being.
- iii. To encourage citizens to adopt an active lifestyle.
- iv. To provide necessary infrastructure, equipment, and guidance to promote fitness and sports.
- v. To revive traditional Indian games and promote their importance.
- vi. To promote the development of sports infrastructure and talent in the country.
- vii. To create a network of community-based fitness programs that can reach people at the grassroots level.

**Fitness Pledge of Fit India Programme:**

"I pledge to make fitness an integral part of my daily routine. I will take the stairs instead of the elevator. I will cycle or walk short distances instead of taking a vehicle. I will take up a sport or physical activity that I enjoy. I will encourage my family, friends, and colleagues to join me on this journey towards a fit India."

**Fitness Mantra of Fit India Programme:**

"Fitness is not just about physical strength, but also mental well-being. It is a way of life that can help us lead a healthier, happier, and more fulfilling life. Let us make fitness a part of our daily routine and inspire others to do the same."

## F. Value-Based Question

Aarav is a sports enthusiast. He plays sports like cricket, football and basketball very well. He has represented his state in these sports. He has a very good writing skills. His command over English is very good. He takes more interest in sports than academics. He covers locally played cricket matches and writes for a local magazine. He gives his stipend so earned to charity.

**Answer the following questions based on the above passage:**

1. What career option would you suggest to Aarav?
2. What assets or skills are required for this career option?
3. What are the values shown by Aarav?

**Ans. 1.** Based on the given passage, a suitable career option for Aarav could be sports journalism or sports writing. This would allow him to utilize his passion for sports and his writing skills to report on

sports events and matches, and share his insights and opinions with a larger audience.

**2.** The assets and skills required for a career in sports journalism or sports writing would include a strong command over the language of communication (in this case, English), excellent writing skills, a good understanding of various sports, and the ability to work under pressure and tight deadlines. Aarav seems to possess all these skills and assets, based on the given passage.

**3.** Aarav has demonstrated a strong commitment to sports, which is evident from his representation of his state in various sports. Additionally, he is also interested in sharing his knowledge and experience of sports by writing for a local magazine, and is further showing his compassion by donating his earnings to charity. Therefore, Aarav's values include his passion for sports, his desire to share knowledge and insights, and his empathy towards others.

## CHAPTER 2

### OLYMPISM

P. 40–44

#### A. Objective Type/ Multiple-Choice Questions

##### I. Multiple-Choice Questions

1. Where can the ruins of the birthplace of Olympic Games be found?

- (a) Florence, Italy (b) Paris, France  
(c) Olympia, Greece (d) Berlin, Germany

**Ans.** (c) Olympia, Greece

2. What was the other name of the Olympic Truce?

- (a) Ekecheiria (b) Elecheiria  
(c) Elkcheiria (d) Emcheiria

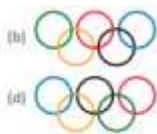
**Ans.** (a) Ekecheiria

3. When were the first modern Olympics held?

- (a) 1982 (b) 1882 (c) 1896 (d) 1892

**Ans.** (c) 1896

4. Which of the following is the Olympic symbol?



**Ans.** (d)

5. Which of the following values are a part of Olympic values?

- (a) Friendship and Solidarity  
(b) Peace and Equality  
(c) Fair Play  
(d) All of these

**Ans.** (d) All of these

6. When did women participate in the games for the first time?

- (a) 1900 (b) 1880 (c) 1904 (d) 1888

**Ans.** (a) 1900

7. Who composed the Olympic Anthem?

- (a) Rabindranath Tagore  
(b) Spiro Samara  
(c) Kostis Palamas  
(d) George Bernard Shaw

**Ans.** (b) Spiro Samara

8. Which of these sports forms an event at the Winter Olympics?

- (a) Judo (b) Luge  
(c) Handball (d) Water Polo

**Ans.** (b) Luge

9. In which country were the first Summer Olympics held?

- (a) France (b) USA  
(c) Greece (d) Great Britain

**Ans.** (c) Greece

10. At present, there are ..... NOCs recognised by the IOC.

- (a) 106 (b) 206 (c) 260 (d) 306

**Ans.** (b) 206

11. There are ..... international federations recognised by the IPC.

- (a) 6 (b) 9 (c) 10 (d) 17

**Ans.** (d) 17

12. Which of the following are the positions in the IOA board for which the elections are held?

- (a) President and Senior Vice President
- (b) Secretary General and Treasurer
- (c) One representative elected out of the Athletes Commission
- (d) All of the above

**Ans.** (d) All of the above

**13.** In which year was the Indian Olympic Association created?

- (a) 1927 (b) 1947 (c) 1952 (d) 1964

**Ans.** (a) 1927

**14.** What is the name of the anti-doping foundation initiated by the International Olympic Committee to promote, coordinate and monitor the fight against drugs in sports?

- (a) International Drug Monitoring Agency (IDMA)
- (b) World Anti-Drugs Council (WADC)
- (c) International Doping Committee (IDC)
- (d) World Anti-Doping Agency (WADA)

**Ans.** (d) World Anti-Doping Agency (WADA)

## II. Match the following:

Match list – I with list – II and select the correct answer from the code given below:

List I – Olympic Games Venue List II – Year

- (a) Antwerp (1) 2000
- (b) Sydney (2) 2012
- (c) London (3) 1896
- (d) Athens (4) 1920

Select the correct set of options:

- (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)
- (b) (i)–(2), (ii)–(4), (iii)–(1), (iv)–(3)
- (c) (i)–(1), (ii)–(2), (iii)–(3), (iv)–(4)

- (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans.** (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)

## III. Assertion-Reason Type Questions: CBQ

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

**A:** Olympic Games encourage the adoption of peace.

**R:** All individual differences are forgotten when participants arrive at the Games, and the event commences with mutual respect and harmony.

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

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true.

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

## IV. Data-Based Questions: CBQ

Given below is the depiction of equal importance of the values of Olympics:

On the basis of the pie-chart given above, answer the following questions:



1. Congratulating the winner despite losing depicts which value?

- (a) Friendship and Solidarity (b) Respect
- (c) Excellence (d) Fair Play

2. Which of the following values is represented by a dove above the Olympic symbol?

- (a) Friendship and Solidarity (b) Excellence
- (c) Respect (d) Fair Play

3. Penalising a player for adopting any unfair means to win the games is an example of .....

- (a) Friendship and Solidarity (b) Respect
- (c) Excellence (d) Fair Play

**Ans.** 1. (c) Equality; 2. (a) Friendship and Solidarity; 3. (d) Fair Play

**V. Picture-Based Questions: CBQ**

**Identify the following pictures related to Olympic Games and write their description:**

1.



2.



3.



4.



**Ans.** 1. Olympic Wreath – Award; 2. Olympic Rings – Symbol; 3. Olympic Torch – Ceremony; 4. Olympic Value – Truce Symbol – Friendship and Solidarity

**VI. Case-Based Questions: CBQ**

**1.** The International Olympic Committee consists of President, Vice Presidents and the members of the Executive Board.

On the basis of the case given, answer the following questions:

- (a) The President will be elected for..... years.
- (b) ..... VPs are elected for a term of four years.
- (c) When is the President eligible for a re-election?
- (d) Where is the IOC based in?

**Ans.** (a) 8 years

(b) 4

(c) Right after the expiry of his/her term.

(d) Lausanne, Switzerland

**2.** Look at the following figure and answer these questions.



(a) What do the five rings of the given flag represent?

(b) The Olympic Flag was first hoisted in .....

(c) What does the white background of the flag symbolise?

(d) The Olympic symbol of five rings was designed by .....

**Ans.** (a) The five rings represent the five continents, i.e. Africa, America, Asia, Australia and Europe.

(b) The Olympic flag was first hoisted in 1920 at the Antwerp Games, Belgium.

(c) Peace

(d) Baron de Coubertin (Pierre de Coubertin)

### **B. Very Short Answer Type Questions**

**1.** When was the first recorded Olympic Games held in ancient Greece?

**Ans.** The first recorded Olympic Games were held in Greece in 776 BCE.

**2.** Name the venue of the ancient Olympics.

**Ans.** The name of the Venue of the ancient Olympic Games was a valley in Elis on the Pelonnese Peninsula.

**3.** What were the rules of the ancient Olympics?

**Ans.** The rules of the ancient Olympics were as under:

- Only freeborn Greek males could participate in the Games. However, athletes from the Roman Empire were later allowed to join.
- Slaves and convicts were banned.
- Women were not even allowed to enter the stadiums once they were married.
- Competitors had to stay in Olympia for one month and practice before the commencement of the Games. They also had to take an oath that they were already trained for ten months in their state before coming to Olympia. (*any one*)

**4.** Write down the oath taken by the participants in the modern Olympics.

**Ans.** The oath taken by the participants in the modern Olympics is as under: "In the name of all the competitors I promise that we shall take part in these Olympic Games, respecting and abiding by the rules which govern them, committing ourselves to a sport without doping and without drugs, in the true spirit of sportsmanship, for the glory of sport and the honour of our teams."

**5.** What would you say is the biggest single difference between the ancient and the modern Olympic rules when it comes to participation rules?

**Ans.** The biggest difference between the ancient and modern Olympic rules when it comes to participation rules is that previously no women whether married or unmarried could participate in Olympic Games and now all females can participate in Olympic Games if they are eligible.

**6.** Where is the torch of the modern Olympic Games originally lit before it is brought to the host city?

**Ans.** The torch of the modern Olympic Games, originally lit, before it is brought to the host city, is Olympia Village, Greece.

**7.** What does Olympic symbol represent?

**Ans.** Olympic Symbol represents to celebrate the – sporting friendship and cooperation between the people of all the five continents.

**8.** What is the motto of the modern Olympic Games?

**Ans.** The new Olympic motto in Latin words



– *Citius, Altius, Fortius* – *Communiter* for  
Faster, Higher, Stronger – Together.

**9.** What do you understand by *Citius, Altius, Fortius* and *Communiter*?

**Ans.** The Latin words – *Citius, Altius, Fortius* – *Communiter* mean Faster, Higher, Stronger – Together.

**10.** In which years were the modern Olympic Games cancelled and why?

**Ans.** The Olympic Games were cancelled in the year 394 BCE by the Roman Emperor Theodosius as he did not favour “Pagan Practices”.

**11.** What is Olympism?

**Ans.** Olympism is a philosophy of life. The word ‘Olympism’ refers to the philosophy of the Olympic Games.

**12.** What is the goal of Olympism?

**Ans.** The goal of Olympism is to help construct a more peaceful and better world by teaching kids through sport activities, which must be done without prejudice, and inculcating the Olympic spirit, which demands mutual understanding, solidarity and fair play.

**13.** Who composed Olympic Anthem?

**Ans.** Spiro Samara

**14.** Which are the three primary components of the Olympic Movement?

**Ans.** The IOC, International Sports Federations (IFs), and National Olympic Committees (NOCs) are the three primary components of the Olympic Movement.

**15.** Where is the headquarters of International Olympic Committee located?

**Ans.** The headquarters of International Olympic Committee is located at Lausanne, Switzerland.

### C. Short Answer Type-I Questions

**1.** Where and when did the Olympics begin? What was the event and who won?

**Ans.** The ancient Olympic Games were first held in Olympia, Greece, in 776 BCE. The event was a one-day athletic competition that featured a single foot race, which was won by a cook from the city of Elis named Coroebus.

**2.** Mention any two rules of the ancient Olympics.

**Ans. i.** Only freeborn Greek males could participate in the Games. However, athletes from the Roman Empire were later allowed to join.

**ii.** Slaves and convicts were banned.

**3.** How did the modern Olympic Games begin?

**Ans.** The modern Olympic Games began in Athens, Greece in 1896, inspired by the ancient Olympics. The idea was proposed by French educator Baron de Coubertin, who believed in promoting international understanding and sportsmanship through athletics.

**4.** What is Olympism?

**Ans.** Olympism is a philosophy of life. The word ‘Olympism’ refers to the philosophy of the Olympic Games.

**5.** What is the Olympic oath?

**Ans.** “In the name of all the competitors, I promise that we shall take part in these Olympic Games, respecting and abiding by

the rules which govern them, committing ourselves to a sport without doping and without drugs, in the true spirit of sportsmanship, for the glory of sport and the honour of our teams.”

**6.** Mention any two rules of modern Olympics.

**Ans. i.** They should be the citizen of a participating country by law.

**ii.** Previously professionals were not allowed. This was eventually rectified.

**7.** What are the five educational values under the core Olympic values?

**Ans.** The five educational values under the core Olympic values are: Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, and Balance between Body, Will, and Mind. These values aim to promote personal development and a positive attitude towards sports and life.

**8.** Excellence is not only on the playground; it is also in the classroom. Comment.

**Ans.** This statement reflects the Olympic value of the pursuit of excellence, which encourages individuals to strive for their best in all aspects of life, including academics. The value of excellence is not limited to athletic achievements but extends to personal growth, education, and character development.

**9.** Mention the broad structure of the IOC.

**Ans.** The International Olympic Committee (IOC) is composed of the President, Vice Presidents, Executive Board, and Session, which is the supreme authority of the IOC. The IOC also includes commissions responsible for various

aspects of the Olympic Games and the Olympic Movement.

**10.** Write any two functions of the IOC.

**Ans. i.** To encourage and support the organisation, development and coordination of sports and sports competitions.

**ii.** To ensure the regular celebration of the Olympic Games.

**11.** Why was IOA established?

**Ans.** To prepare aspiring and skilled sportspersons of the country for participation in the Olympic Games, the Indian Olympic Association (IOA), also known as Bharatiya Olympic Sangh, was established in 1927.

**12.** Write two main objectives of the IOA.

**Ans. i.** To educate the public of the country as to the value of sports.

**ii.** To guard and enforce the applicable rules in cooperation with National Sports Federations.

#### **D. Short Answer Type-II Questions**

**1.** Write a brief note on the ancient Olympics.

**Ans.** The Olympic began in Ancient Greece thousands of years ago. It is difficult to determine when exactly they did begin. We only know about venue and that venue is – Olympic, a valley in Elis on the Peloponnese Peninsula. The first recorded Olympics were held in 776 BCE. The only event was a single footrace won by a cook named Coroebus.

**2.** Why did the ancient Olympic Games decline?

**Ans.** The Olympic Games reached their peak by 400 BCE and began to decline. The Olympic Games were abolished in 394 CE by the Roman Emperor Theodosius I, who was Christian and did not favour pagan practice.

**3.** How were the ancient Olympics a period of peace?

**Ans.** Olympic Games played a vital role for peace by an agent of friendship and solidarity and encouraged the adoption of peace. The Olympic Games encourage to forget all the individual differences. The event commences with mutual respect and harmony.

**4.** Make a table to bring out the similarities and differences between the ancient Olympics and the modern Olympics?

**Ans.** The similarities between the ceremonies of the ancient Olympic and modern Olympics is that:

- (i) A torch is lit;
- (ii) The flag is hoisted.

**5.** What are the objectives of the Olympic Games?

**Ans.** Baron de Coubertin said of the Olympic Games:

“Why did I restore the Olympic Games? To enable and strengthen sports, to ensure their independence and duration and thus to enable them better to fulfil the educational role incumbent upon them in the modern world.”

The Objectives of the Olympic Games are thus:

- The development of team spirit, sense of loyalty, and honour not only among

sportsperson but also among humanity beyond the realm of sports.

- To promote competitive sports and preserve them for future generations.
- To bring international communities closer and call for peace and harmony by getting rid of divisions of caste, creed, colour, race and religion.
- To highlight the importance of physical education and the positive impact it has on the youth’s character and personality development.

**6.** What do you understand by *Citius, Altius* and *Fortius – Communiter*?

**Ans.** We understand by these Latin words *Citius, Altius* and *Fortius – Communiter* to celebrate the spiring friendship and cooperation between the people of all the five continents together.

The Olympic motto of three Latin words – *Citius, Altius, Fortius – Communiter* for Faster, Higher, Stronger – Together; is carved under the emblem

**7.** What do you mean by Olympic values?

**Ans.** The Olympic Games are about spreading the spirit of friendship and solidarity among the people from various countries of the world.

**8.** Create a mind map showing the fundamental principles of Olympism.

**Ans. Mind Map:**



9. What is the purpose of Olympic Movement?

**Ans.** The purpose of the Olympic Movement is to promote and spread the Olympic values of excellence, friendship, and respect across the world through the celebration of the Olympic Games and other initiatives. It aims to use sport as a means to promote social and cultural exchange and to build a better, more peaceful world.

10. Write about Respect in Olympic values.

**Ans.** Respect is one of the core Olympic values, promoting fair play and sportsmanship. It calls for mutual understanding and tolerance among individuals of different backgrounds and cultures. Respect extends beyond the playing field to the Olympic Movement's governance, anti-doping efforts, and environmental sustainability initiatives. It aims to create a better world through respect for diversity, integrity and human dignity.

11. How can you justify this statement — 'Respect lies in the heart of Olympism'?

**Ans.** Respect is one of the fundamental Olympic values that lies at the heart of Olympism. It is the foundation of the Olympic spirit, encouraging individuals to treat each other with fairness and dignity, on and off the playing field. The pursuit of excellence and the joy of effort are built on the foundation of mutual respect, which fosters a sense of belonging and unity among athletes, coaches, officials, and fans, creating a harmonious and peaceful Olympic community.

12. What is the significance of the design on the Olympic Flag?

**Ans.** The Olympic Flag was created in 1913 at the suggestion of the Baron de Coubertin. Olympic Flag is made of white silk and contains five interlocking rings / circles in five colours representing five continents of the world viz. America, Europe, Australia, Asia, and Africa. The five rings have different colours: Yellow, Red, Blue, Green and Black. The Interlocking of rings/circles symbolizes cooperation and friendship between the people of all five continents.

13. Write briefly on Baron de Coubertin and how he helped bring the Olympics back to life.

**Ans.** Baron de Coubertin, a Parisian, is considered the pioneer for injecting the life into the Olympics. He found the games as an agent to work for

international peace. He called a meeting of various countries in 1893. The countries included the Greece, Italy and Spain. In the meeting he talked about his endeavour. Then he called the second meeting on 16 June 1894 in Paris. In this meeting 75 representatives of 13 countries participated and resolved that;

“Sports competition should be held every four years on the line of the Greek Olympic Games and every nation should be invited to participate.” The first modern Olympic was organized in 1896.

Athens hosted it and nine countries competed.

14. Write in brief about International Olympic Committee (IOC).

**Ans.** The International Olympic Committee is an international, non-profit, non-governmental organization and the governing authority of the modern Olympic Games. It is based in Lausanne, Switzerland.

The IOC was founded by Pierre de Coubertin on 23 June, 1894 with Demetrio Vikelas as its first President. Its membership consists of 105 active members and 32 honorary members. It organizes the summer and winter Olympic Games every four years.

The structure of the IOC may be represented as under:

**President:** Elected by members for a term of eight years. She/he can be re-elected after the expiry of the term.

**The Vice Presidents:** Four VPs are elected by the members for a term of four years. They can also be re-elected after the term finishes.

**Executive Board:** It consists of the President, VPs, and ten other members elected by an IOC session through secret ballot with a simple majority declaring the chosen members. This Board is responsible for the administration of the IOC.

15. Write a note on Indian Olympic Association.

**Ans.** The Indian Olympic Association also known as Bhartiya Olympic Sangh was established in 1927 by Sir Dorabji Tata and A.G. Noehren as President and General Secretary. The former resigned in 1928 and the post was taken up by Maharaja Bhupinder Singh. It is a non-profit and non-governmental organization. It has its headquarters located at New Delhi. The official year of the IOA lasts from 1 April to 31 March. With the approval of the General Assembly the members consist of National Sports Federation whose sports are included in the programmes of the Olympic Games or the Commonwealth

Games or Asian Games. To appoint:

- President
- Senior Vice Presidents
- Eight Vice Presidents
- Secretary General
- Treasurer
- Six Joint Secretaries
- Ten Executive Council members
- One representative elected out of the

Athletes Commission, elections are held once every four years.

One male and one female athlete who have participated in the Olympic Games and fulfil the eligibility criteria of the guide lines; State and Union Territories Olympic Association; Service Sports Control Board, and the National Federation of Kho-Kho.

### E. Long Answer Type Questions

**1.** Discuss the ancient Olympic Games.

**Ans.** The Olympic Games began in Ancient Greece thousands of years ago. When exactly the Olympics began is not known, but the venue is known where the Olympics were held and it is at Olympia, a valley in Elis on the Peloponnese

Peninsula. The first recorded Olympics were held in 776 BCE. The only event was a single footrace, won by a cook named Coroebus. With the passage of time other events like: the hoplitodrome, chariot races, pentathlon consisting of five events like: Jumping, Javelin, Sprint, Discus, Wrestling and Pankration of boxing and wrestling where a player could be declared or lay unconscious in the arena, were eventually added. The Olympic Games were actually just one of four ancient Panhellenic Games held at two or four year intervals, but they were more prestigious than the other three – the Pythian, Nemean and Isthmian Games.

**2.** Write an essay on the modern Olympics.

**Ans.** The modern Olympics, which began in 1896, are a global sporting event that bring together athletes from around the world to compete in various sports. Inspired by the ancient Olympics, the modern Olympics are held every four years and showcase the highest levels of athletic achievement.

The modern Olympics have grown to become more than just a sporting event. They promote international understanding, friendship, and fair play. The Olympic values of excellence, respect, and friendship serve as a guide for athletes, coaches, and fans to foster a culture of sportsmanship and mutual respect.

In addition to the Summer Olympics, the Winter Olympics were introduced in 1924, featuring cold-weather sports such as skiing and ice skating. The Paralympic Games, which began in 1960, provide an opportunity for athletes with disabilities to showcase their abilities in a competitive setting.

Overall, the modern Olympics have become a symbol of unity and peace, showcasing the power of sport to bring people together from all corners of the world.

**3.** Write short notes on

**(a)** the Olympic ceremony.

**(b)** Olympic values.

**Ans. (a) The Olympic ceremony:** Olympic ceremony begins with the burning of the torch in Olympic village, Greece. This torch is then brought to the host city. The participants of each country conduct a march past, with the Greek troupe taking the lead and athletes from the host country take up the rear. An assortment of culture and entertainment programme is shown in the stadium, after which the Olympic Flag is hoisted and the flame lit by torch. The leader of the host city then declares the commencement of the Games.

The Olympic Games are closed with an assembly of all participants. They gather at the Stadium as a group.

Three flags are then hoisted. First, the Greek flag to the tune of the Greek national anthem; Second the host country's flag with its national anthem and third, the flag of the country hosting the next games, to the tune of its national anthem.

The president of the IOC expresses words of gratitude to the organizers and the participants and formally closes the games.



The Olympic flag is handed over to the mayor of the city, who keeps it safe till the next Games. The flame is finally extinguished.

**(b) Olympic values:** The Olympic Games are about spreading the spirit of friendship and solidarity among the people from various countries of the world. It is not only the players but also nations come together to participate in these games, leaving aside whatever political or any other differences they might have. Its endorsement of peace is reflected in its Olympic Truce Movement and in its logo: a dove drawn above the Olympic Symbol, therefore, IOC does not need to send out spondophoroi.

4. Enumerate the main functions of the IOC.

**Ans.** The main functions of IOC are:

- To encourage and support the promotions of ethics in sports as well as education of youth through sports and to dedicate its efforts to ensure that, in sports the spirit of fair play prevails and violence is banned.
- To encourage and support the organization, development and coordination of sports and sports competitions.
- To ensure the regular celebration of the Olympic Games.
- To cooperate with competent public or private organizations and authorities in the endeavour to place sports at the service of humanity and thereby to promote peace.
- To take action in order to strengthen the unity and to protect the independence of the Olympic Moment.

5. Write in detail about the objectives of the IOA.

**Ans.** The main objectives of the IOA are as under:

- Development and promotion of the Olympic movement.
- Promotion and encouragement of the physical, moral and cultural education of the young people of the nation so that their character can be developed.
- Provision of the Olympic Charter, the Olympic movement, the World Anti-Doping Code and to abide by the decisions of the International Olympic Committee.
- To enforce and defend the exclusive right of the IOC and Association to the use of the Olympic properties to the Olympic Charter.

- To certify the eligibility of competitors from India for such international competitions that require such certificates.

- To act as the channel of communication between National Sports Federation and the Government of India for financial or other assistance to the Federation.

- To have full and complete jurisdiction over all matters pertaining to the designation of the city in relation to hosting the Olympic Games in India.

- To resist in the realm of sports all pressure of any kind whether of a political, legal, racial, religious or economic.

6. Make a table to show the differences between IOC and IOA.

**Ans.** The differences between IOC and IOA can be enumerated as under:

International Olympic Committee (IOC)	Indian Olympic Association (IOA)
<p><b>(a)</b> IOC is an international organization.</p> <p><b>(b)</b> It is based in Lausanne, Switzerland.</p> <p><b>(c)</b> It was founded by Pierre de Coubertin.</p> <p><b>(d)</b> It was founded on 23 June, 1894.</p> <p><b>(e)</b> Its first President was Demetrios Vikelas.</p> <p><b>(f)</b> It organizes the youth Olympic Games.</p> <p><b>(g)</b> It is made up of IFSS and 15 representatives of the NOCs.</p> <p><b>(h)</b> It has the President, 4 VPs, and an executive consisting of the President, VPs, and ten other members elected by an IOC session through secret ballot with a simple majority declaring the chosen members.</p> <p><b>(i)</b> The board is responsible for the administration of the IOC.</p>	<p><b>(a)</b> It is a National organization.</p> <p><b>(b)</b> It was established in 1927.</p> <p><b>(c)</b> It is known as Bhartaya Olympic Sangh also.</p> <p><b>(d)</b> Its first president was Sir Dorabji Tata.</p> <p><b>(e)</b> Its headquarters are located in New Delhi.</p> <p><b>(f)</b> The official year of the IOA is 1 April to 31 March.</p> <p><b>(g)</b> It has to take the approval of the General Assembly which is fixing its members from different sports organizations.</p> <p><b>(h)</b> It consists of one President, Senior VP, 8 VPs, Secretary General, 6 Joint Secretaries, 10 Executive Council members, one representative elected out of the Athletes.</p>

### **F. Value-Based Question**

Akhil and Nitin excelled in school sports. Both were competitors. On sports day conducted by school, both were participating in various sports. In 800 m athletics run, Nitin was ahead of Akhil and both were leading. Suddenly Nitin saw Akhil tripping over. He stopped and helped Akhil on his feet and both continued the race. Akhil won the race but insisted on sharing his medal with Nitin.

**Answer the following questions based on the above passage:**

1. What values are shown by Akhil and Nitin?
2. Are these values similar to Olympic values? Explain in detail.
3. What are the five educational values under core Olympic values?

**Answer. 1.** Akhil and Nitin showed values of sportsmanship, compassion and teamwork.

**2.** Yes, these values are similar to Olympic values. The Olympic values of excellence, friendship and respect encourage fair play, compassion and cooperation among athletes. Akhil and Nitin's actions demonstrated these values, showcasing the importance of mutual respect and helping each other in sports.

**3.** The five educational values under the core Olympic values are Joy of Effort, Fair Play, Respect for Others, Pursuit of Excellence, and Balance between Body, Will and Mind.



## CHAPTER 3

### YOGA

P. 55–58

#### A. Objective Type/ Multiple-Choice Questions

##### I. Multiple-Choice Questions:

1. On which date is the International Yoga Day celebrated every year?

- (a) 15 August
- (b) 21 June
- (c) 26 January
- (d) 21 July

**Ans.** (b) 21 June

2. How many limbs of yoga are there?

- (a) 5
- (b) 7
- (c) 8
- (d) 13

**Ans.** (c) 8

3. Which of the following is not a meditative asana?

- (a) Vajrasana
- (b) Padmasana
- (c) Shavasana
- (d) Gomukhasana

**Ans.** (c) Shavasana

4. Which famous yogic book was written by Maharishi Patanjali?

- (a) *Yoga Sutra*
- (b) *Yoga Manjari*
- (c) *Ashtanga Yoga*

(d) *Samaveda*

**Ans.** (a) *Yoga Sutra*

5. The origin of yoga can be traced back to .....

- (a) post-Vedic Indian traditions – around fourth and fifth centuries BCE
- (b) pre-Vedic Indian traditions – around fourth and fifth centuries BCE
- (c) post-Vedic Indian traditions – around sixth and fifth centuries BCE
- (d) pre-Vedic Indian traditions – around sixth and fifth centuries BCE

**Ans.** (d) pre-Vedic Indian traditions – around sixth and fifth centuries BCE

6. What is the goal of yoga?

- (a) To help us utilise the mind and body to achieve an awareness of ourselves as a unit.
- (b) To help us utilise the breath and body to achieve an awareness of ourselves as a unit.
- (c) To help us utilise the breath and mind to achieve an awareness of ourselves as a unit.
- (d) To help us utilise the mind and physique to achieve an awareness of ourselves as a unit.

**Ans.** (b) To help us utilise the breath and body to achieve an awareness of ourselves as a unit.

7. Asanas refers to ..... While Pranayama refers to .....

- (a) physical exercises; breathing exercises and control of breath
- (b) body postures; breathing exercises and control of prana (internal energy)

(c) body movements; mind exercises and control of brain

(d) control of the senses; union with the divine

**Ans.** (b) body postures; breathing exercises and control of prana (internal energy)

**8.** What is the difference between Dhyana and Samadhi?

(a) Dhyana is devotion, meditation on the divine will, whereas, samadhi is union with the divine.

(b) Dhyana is union with the divine, whereas, samadhi is devotion, meditation on the divine will.

(c) Dhyana is concentration and cultivating inner perceptual awareness, whereas, samadhi is union with the divine.

(d) Dhyana is union with the divine, whereas, samadhi is concentration and cultivating inner perceptual awareness.

**Ans.** (a) Dhyana is devotion, meditation on the divine will, whereas, samadhi is union with the divine.

**9.** What is pratyahara?

(a) Profound contemplation without distraction (b) The sixth limb of Ashtanga Yoga

(c) The highest limb in Ashtanga Yoga

(d) Gaining mastery over external sensory pleasures

**Ans.** (d) Gaining mastery over external sensory pleasures

**10.** This is the initial step of deep concentration or Samadhi.

(a) Pratyahara

(b) Dhyana

(c) Dharana

(d) Samadhi

**Ans.** (c) Dharana

**11.** This means deep thinking without distraction.

(a) Dhyana

(b) Pratyahara

(c) Samadhi

(d) Dharana

**Ans.** (a) Dhyana

**12.** This is the highest limb in *Ashtanga Yoga*—in which a person experiences oneness with the universe.

(a) Pratyahara

(b) Samadhi

(c) Dharana

(d) Dhyana

**Ans.** (b) Samadhi

**13.** How many yogic kriyas are there?

(a) Six

(b) Five

(c) Four

(d) Seven

**Ans.** (a) Six

**14.** The figure shows



- (a) Suryabhedhi pranayama
- (b) Sheetkari pranayama
- (c) Bhramari pranayama
- (d) Sheetli pranayama

**Ans. (c) Bhramari pranayama**

**15.** This kriya helps in nasal cleansing.

- (a) Vasti
- (b) Neti
- (c) Nauli
- (d) Dhauti

**Ans. (b) Neti**

**16.** This kriya leads to the radiance of the head.

- (a) Kapalbhathi
- (b) Trataka
- (c) Vasti
- (d) Neti

**Ans. (a) Kapalbhathi**

**17.** This kriya improves the power of concentration and cures poor vision.

- (a) Vasti
- (b) Nauli
- (c) Neti
- (d) Trataka

**Ans. (d) Trataka**

**18.** This kriya cleanses the large intestine.

- (a) Vasti
- (b) Kapalbhathi
- (c) Dhauti
- (d) Neti

**Ans. (a) Vasti**

**II. Match the following:**

**List I – Limb of Yoga List II – Meaning**

- (i) Pranayama (1) Union with the Divine
- (ii) Pratyahara (2) Meditation on the Divine Will
- (iii) Dhyana (3) Control of the senses
- (iv) Samadhi (4) Breathing exercise

Select the correct set of options:

- (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)
- (b) (i)–(2), (ii)–(4), (iii)–(3), (iv)–(1)
- (c) (i)–(3), (ii)–(2), (iii)–(4), (iv)–(1)
- (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans. (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)**

**III. Assertion-Reason Type Questions:**

**CBQ**

**Given below are the two statements labelled Assertion (A) and Reason (R).**

A: Stress and anxiety can be reduced by regular practice of yoga.

R: Practising breathing techniques drives away insomnia to a large extent.

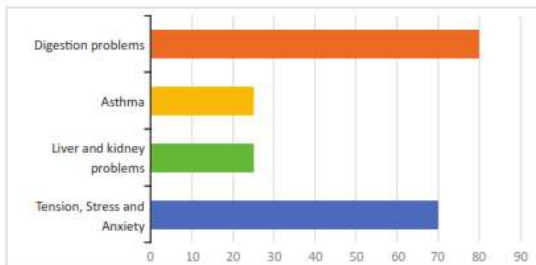
**In the context of the two statements given above, which one of the following is correct?**

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true.

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

**IV. Data-Based Questions:** **CBQ**

Given below is a data collected from a locality identifying the common ailments:



On the basis of the chart given above, answer the following questions:

1. Which pranayama can help in reducing digestion problems?

- (a) Suryabhedhi
- (b) Ujjayi
- (c) Sheetli
- (d) Plavini

2. Which pranayama will help in curing asthma?

- (a) Kapalbhata
- (b) Bhastrika
- (c) Ujjayi
- (d) Sheetkari

3. Which pranayama helps in relieving tension, stress and anxiety?

- (a) Bhastrika
- (b) Suryabhedhi
- (c) Bhramari
- (d) Plavini

4. This pranayama enhances the functions of liver and kidneys.

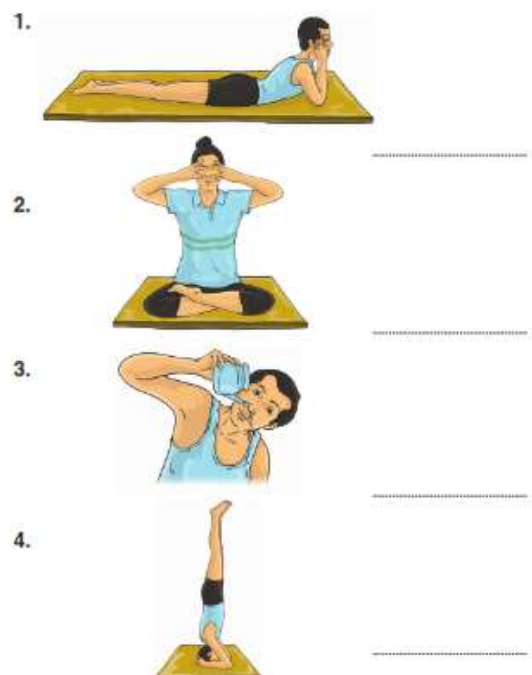
- (a) Ujjayi
- (b) Sheetkari
- (c) Sheetli
- (d) Kapalbhata

Ans. 1. (c) Naukasana; 2. (d) All of these;

3. (a) Constipation; 4. (d) Kapalbhata

**V. Picture-Based Questions:** **CBQ**

Identify the following sanas/kriyas/pranayama:



Ans. 1. Makarasana; 2. Bhramari Pranayama; 3. Jal Neti Kriya; 4. Shirshasana

**VI. Case-Based Questions:** **CBQ**

1. An expert has been called to demonstrate different yogic kriyas in a school campus and also train the students.

On the basis of the case given, answer the following questions:

(a) Which of the kriyas will be taught to children for training the eyes and mind?

(b) The expert tells the students to perform nauli regularly. What are the benefits of nauli?

(c) ..... kriya will help in cases of sinusitis.

(d) ..... is a method of churning or shaking the belly to stimulate the intestines, strengthen the liver and ease the processes of digestion and ejection.

**Ans.** (a) Trataka; (b) Strengthens liver; (c) Neti; (d) Nauli

2. The yoga teacher of a school tells students that the goal of yoga is to help one utilise the breath and body to achieve an awareness of oneself and connect with others to create one whole. In this context, he introduces eight limbs of yoga.

**Now answer the following questions.**

(a) Which are the five sub-disciplines of yama?

(b) ..... and ..... are the sub-disciplines of niyama.

(c) ..... means gaining mastery over external sensory pleasures.

(d) Which is the highest limb in *Ashtanga Yoga* — The final stage in which a person experiences oneness with the universe?

**Ans.** (a) Ahimsa, Satya, Asteya, Brahmacharya and Aparigraha; (b) Saucha and Santosha; (c) Pratyahara; (d) Samadhi.

**B. Very Short Answer Type Questions**

1. Mention two importance of yoga.

**Ans.** i. Yoga promotes physical and mental well-being by improving flexibility,

strength and balance while reducing stress and anxiety.

ii. It enhances self-awareness and mindfulness, allowing individuals to cultivate a deeper connection between their mind, body and spirit, leading to overall holistic health.

2. How does yoga help in maintaining correct body posture?

**Ans.** Yoga helps maintain correct body posture by strengthening the core muscles, improving flexibility and aligning the spine. It promotes awareness of body alignment and encourages the practice of proper posture both on and off the yoga mat.

3. How does yoga instil moral and ethical values in practitioners?

**Ans.** Yoga instils moral and ethical values by promoting self-discipline, compassion and mindfulness. Through practices like self-reflection, non-violence (*ahimsa*) and truthfulness (*satya*), practitioners develop a deeper understanding of themselves and their interactions with others, fostering a more virtuous and ethical approach to life.

4. Write the names of any four limbs of yoga.

**Ans.** The four limbs of yoga are:

i. Yama (Universal Morality and ethics)

ii. Niyama (Personal rules)

iii. Asana (Yogic postures and positions)

iv. Pranayama (Breathing exercises)

5. Which sub-discipline of yama preaches non-violence? How?

**Ans.** The sub-discipline of yama that preaches non-violence is called 'Ahimsa'. It promotes refraining from causing harm or violence to oneself or others, cultivating compassion, kindness, and respect for all living beings through thoughts, words and actions.

**6.** Differentiate between yama and niyama.

**Ans.** Yama refers to the ethical principles or restraints in yoga, guiding practitioners in how to interact with the external world. Niyama, on the other hand, pertains to personal observances and disciplines, focusing on self-discipline and inner purification to cultivate a positive internal state.

**7.** What is tapa?

**Ans.** Tapa is the disciplined use of the energy produced by the body by applying it to fruitful physical tasks and activities. A healthy diet, correct body posture, energetic exercise – all these are part of the rule of tapa.

**8.** What are the three constituents of pranayama?

**Ans.** The three constituents of pranayama are:

- i. Puraka: Inhalation or the process of taking in breath.
- ii. Kumbhaka: Breath retention or the pause between inhalation and exhalation.
- iii. Rechaka: Exhalation or the process of releasing breath.

**9.** Which is the initial step of Samadhi?

**Ans.** The initial step of Samadhi, the state of profound meditation and self-realisation in yoga, is known as Dharana. Dharana refers to the concentration and focus of the mind on a single point or

object, preparing the practitioner for deeper states of meditation.

**10.** What are the two kinds of Samadhi?

**Ans.** There are two kinds of samadhi: *samprajnata samadhi*, also called *savikalpa samadhi* and *sabija samadhi*, in which the meditation is supported by an external object.

The second is *asamprajnata samadhi*, also called *nirvikalpa samadhi* and *nirbija samadhi*, in which meditation is carried out without focusing on an object.

**11.** Mention the different types of yogic kriyas.

**Ans.** Yogic kriyas encompass various purification practices in yoga. Some types include Neti (nasal cleansing), Kapalabhati (detox breath), Dhauti (cleansing of the digestive tract), Nauli (abdominal massage) and Vasti (colon cleansing).

**12.** Which yogic kriya leads to breathe detoxification?

**Ans.** Kapalabhati leads to breathe detoxification.

**13.** What is dhauti? What are its different types?

**Ans.** Dhauti is the cleansing the internal parts of the body such as the digestive tract, the chest, the mouth, and the rectum. Types of dhauti include jala dhauti which uses warm saline water, sutra dhauti which uses a sterilised piece of cotton, and vatsara dhauti which uses breathing techniques.

**14.** What is nauli? What are its benefits?

**Ans.** Nauli is a method of churning or shaking the belly to stimulate the

intestines, strengthen the liver and ease the processes of digestion and ejection.

### C. Short Answer Type-I Questions

1. What is the meaning of yoga?

**Ans.** The term '*yoga*' originates from the Sanskrit word '*yuj*', which means to unite or join. In a broader sense, yoga signifies the union of the individual self with the universal consciousness or the state of harmony and balance within oneself. It encompasses physical, mental and spiritual practices aimed at fostering self-realisation, inner peace, and a holistic connection between mind, body and spirit.

2. What are the eight limbs of yoga?

**Ans.** The eight limbs of yoga are:

- i. Yama (Universal Morality and ethics)
- ii. Niyama (Personal rules)
- iii. Asana (Yogic postures and positions)
- iv. Pranayama (Breathing exercises)
- v. Pratyahara (withdrawal from the senses)
- vi. Dharana (concentration)
- vii. Dhyana (meditation)
- viii. Samadhi (enlightenment)

3. Mention any two benefits of practising the eight limbs of yoga.

**Ans.** Practising the eight limbs of yoga offers numerous benefits. Two key benefits are:

i. **Enhanced self-awareness:** The practices foster self-reflection, mindfulness and introspection, leading to a deeper understanding of one's thoughts, emotions and behaviours.

ii. **Inner peace and harmony:** The combined practice of the eight limbs cultivates mental and emotional well-being, reduces stress, and promotes a sense of balance, tranquility and overall inner harmony.

4. What are the sub-disciplines of yama? Explain any two.

**Ans.** The sub-disciplines of yama are Ahimsa, Satya, Asteya, Brahmcharya and Aparigraha. The two sub-disciplines are as follows:

i. **Ahimsa:** It emphasises non-violence and compassion towards all living beings. Practitioners refrain from causing harm or violence in thoughts, words and actions, promoting peace and harmony.

ii. **Satya:** Satya represents truthfulness and honesty. It encourages individuals to speak and act truthfully, fostering authenticity, trust and integrity. Practicing satya involves aligning one's words and actions with what is true and just.

5. Briefly explain (a) ahimsa and (b) asteya.

**Ans. (a) Ahimsa:** Ahimsa means 'non-violence'. To observe ahimsa is to show kindness towards all living beings and avoid causing harm to any; to be kind, friendly and accepting. This is only possible when negative emotions like anger, jealousy, cruelty, and hatred are erased from one's mental makeup. Ahimsa is thus an outlook full of bravery, sympathy and courage.

(b) **Asteya:** Asteya means to 'not steal'. Why does theft occur? Either to acquire necessities that cannot be obtained by honest means, or to satisfy greed. In either case, theft goes against the other



principles of yama, since it is a dishonest and cruel act. The better alternative is to live according to one's means or work and earn so that there is no need to prevent others from having what is rightfully theirs.

**6.** What are the sub-disciplines of niyama? Explain any two.

**Ans.** The sub-disciplines of niyama are Saucha (Cleanliness or purity, Santosha (Contentment), Tapa (Discipline or austerity), Swadhyaya (Self-study or self-reflection) and Ishwara Pranidhana (Surrender to a higher power or devotion to the divine).

Two are mentioned below:

i. **Saucha:** It is about purity and cleanliness, both externally and internally. It involves maintaining cleanliness of the body, mind and surroundings, and practicing purity in thoughts, speech and actions.

ii. **Santosha:** It is contentment and finding joy in the present moment. It is the practice of accepting oneself and one's circumstances with gratitude, cultivating a sense of inner satisfaction and peace, regardless of external circumstances.

**7.** What are the similarities between 'aparigraha' and 'santosha'?

**Ans.** Both aparigraha and santosha are concepts in yoga philosophy that promote a positive mind-set and contentment:

i. **Aparigraha:** It emphasises non-possessiveness and non-greed, encouraging individuals to let go of attachments to material possessions, desires and expectations.

ii. **Santosha:** It is contentment, finding joy in the present moment and being satisfied with what one has, without constantly seeking external validation or longing for more. Both promote inner peace and a mind-set of gratitude.

**8.** What is the difference between dharana, dhyana and samadhi?

**Ans.** Dharana, dhyana and samadhi are progressive stages of meditation:

i. **Dharana:** Dharana is the stage of concentration, where the practitioner focuses the mind on a single point, object or mantra, developing unwavering attention and mental stability.

ii. **Dhyana:** Dhyana is the stage of meditation or sustained contemplation. It is a state of uninterrupted flow of awareness, where the meditator becomes fully absorbed in the object of meditation, transcending the distractions of the external world.

iii. **Samadhi:** Samadhi is the ultimate stage of meditation, representing a state of deep absorption and oneness. In this state, the meditator experiences a merging of the individual self with the object of meditation, leading to transcendence of the ego and profound realization of unity and interconnectedness with the divine or universal consciousness.

**9.** What are the different yogic kriyas? Explain any two in detail.

**Ans.** Yogic kriyas are purification practices in yoga. They are neti, Kapalbhata, Trataka, Dhauti, Vasti and Nauli.

Two examples are:

i. **Neti:** It is a nasal cleansing technique. It involves pouring lukewarm saline water into one nostril, allowing it to flow out through the other nostril, clearing the nasal passages and removing excess mucus. Neti helps maintain nasal hygiene, alleviates sinus issues, and promotes respiratory health.

ii. **Trataka:** It is a concentrated gazing practice. It involves fixing the gaze on a specific object, such as a candle flame or a symbol, without blinking or moving the eyes. Trataka enhances concentration, improves eye health, and calms the mind, making it beneficial for meditation and developing focus.

**10.** Rakhi wants to cleanse her nasal passage for making respiration easier, preventing infection and ensuring personal hygiene. What would you suggest her? Why?

**Ans.** I would suggest Rakhi to practice the yogic kriya called Neti. It is a nasal cleansing technique that involves pouring lukewarm saline water into one nostril and allowing it to flow out through the other nostril. This practice helps cleanse the nasal passages, remove excess mucus and maintain nasal hygiene. It can aid in making respiration easier, prevent nasal infections and promote overall respiratory health, ensuring personal hygiene in that area.

#### **D. Short Answer Type-II Questions**

**1.** Create a mind map showing the importance of yoga in modern life.

**Ans.** Refer to pages 46-47 of the book and create mind map on their own.

**2.** What does yama comprise of?

**Ans.** Refer to pages 47-48 of the book.

**3.** What does niyama comprise of?

**Ans.** Refer to page 48 of the book.

**4.** Write briefly about asteya.

**Ans.** Refer to page 48 of the book.

**5.** Write briefly about aparigraha.

**Ans.** Refer to page 48 of the book.

**6.** Explain santosha and tapa.

**Ans.** Refer to page 48 of the book.

**7.** Write the constituents of pranayama.

**Ans.** Refer to page 50 of the book.

**8.** Write short notes on: samadhi, dharana, pratyahara and dhyana.

**Ans. • Samadhi:** It is the highest limb in *Ashtanga Yoga* – the final stage in which a person experiences oneness with the universe.

There are two types of samadhi: one as samprajnata samadhi also called savikalpa samadhi and the other asamprajnata samadhi also called as nirvikalpa samadhi.

• **Dharana:** It is sixth limb of *Ashtanga Yoga*, translated as concentration or single focus. It is the initial step of deep concentration or Samadhi, where the object being focused upon is held in the mind without consciousness wavering from it. The focal point can be at the centre of the head of the navel.

• **Pratyahara:** *Ahara* means food or anything we take into ourselves from the outside. *Prati* stands for against or away. Pratyahara, therefore, literally means 'control of ahara', or gaining mastery over sensory pleasures.

Its primary function is the withdrawal from or control over sensory impressions, releasing the mind's external influences. It strengthens the mind's power of immunity and brings it close to divinity by

avoiding sensory distractions of sound, beauty, smell, touch, etc.

- **Dhyana:** It is known as meditation. It means profound contemplation without distraction. Here the practitioner trains the mind to remain fixed at a single external point in a continuous flow. The concentration is so strong that no sensory perception or intrusion can break it. In this way, the practitioner approaches spiritual liberation and bliss.

9. Discuss at least three types of asanas for concentration.

**Ans.** The three types of asanas for concentration are as under:

- **Padmasana (lotus pose):** A cross-legged sitting yoga posture which can calm the mind and fight physical ailments. Four mudras (hand gestures) can be used in padmasana: chin mudra, chinmayi mudra, adi mudra and brahma mudra.

- **Swastikasana (ankle lock pose):** Also known as the auspicious pose, swastikasana is a simple sitting posture with the ankles locked against each other. It can bring relief from muscle pain.

- **Vajrasana (thunderbolt pose):** Performed by sitting on the knees with a straight posture and upward spine. It is known to stimulate digestion and liver function.

10. Differentiate between Relaxative Asanas and Cultural Asanas.

**Ans.** The differences between Relaxative asanas and Cultural asanas are as under:

**Relaxative asanas:** These asanas are designed in such a manner that there is no need to contract the muscles. Its aim is to remove fatigue and relax an individual physically and mentally. For example, we take a few relaxative asanas here:

Shashankasana, Shavasana, etc.

**Cultural asanas:** These are exercise poses that imitate various aspects of God in the form of animals and divine beings. It has three stages: coming into the position, holding the position and releasing oneself from the position. It also has different types like: Shalabhasana (locust pose), Halasana (plow pose), Matsyasana (fish pose) and Shirshasana (headstand pose).

11. Write short notes on any three yogic kriyas.

**Ans.** Three yogic kriyas can be described as under:

- **Neti (Nasal cleansing):** It is important to keep our nasal clean for making respiration easier, maintaining personal hygiene and preventing infection. It can be done in two ways like Sutra neti and Jal neti.

- **Nauli (Abdominal message):** It is a method of churning or sacking the body to stimulate the intestines, strengthen the liver and ease the process of digestion and ejection.

- **Vasti (Colon cleansing):** Like an enema, vasti also cleans the large intestine. It achieves this with the suction of water or air through the rectum.

12. What are the benefits of doing kapalbhati?

**Ans.** Refer to page 52 of the book.

13. What are the benefits of doing trataka?

**Ans.** Refer to page 52 of the book.

14. Write briefly about kriya that helps in internal cleansing.

**Ans.** Dhauti - Refer to page 53 of the book.

**15.** Make a table on various yogic kriyas and their benefits.

**Ans. Table**

Yogic Kriyas	Benefits
Neti	Cleanses nasal passages, removes excess mucus, promotes respiratory health, prevents nasal infections, ensures nasal hygiene.
Kapalbhati	Improves lung capacity, enhances respiratory function, strengthens abdominal muscles, detoxifies the body, increases mental alertness and clarity.
Trataka	Enhances concentration, improves focus and memory, calms the mind, relieves eye strain, enhances eye health and vision.
Dhauti	Cleanses the digestive system, improves digestion, eliminates toxins from the stomach, helps in overcoming digestive disorders.
Vasti	Aids in colon cleansing, relieves constipation, detoxifies the body, promotes healthy bowel movements, improves overall digestive health.
Nauli	Stimulates abdominal organs, strengthens abdominal muscles, improves digestion, tones the digestive system, massages and activates the internal organs.

### E. Long Answer Type Questions

**1.** Write a brief note on the eight limbs of yoga.

**Ans.** The eight limbs of yoga are:

- Yama: Universal morality and ethics comprising ahimsa, satya, asteya, brahmacharya and aparigraha.
- Niyama: Personal rules, comprising saucha, tapa, swadhyaya, and ishwara pranidhana.

- Asanas: It means body posture.
- Pranayam: It is the breathing exercises and control of prana.
- Pratyahara: It means the control of senses.
- Dharana: It means concentration and cultivating inner peace and awareness.
- Dhyana: It is the devotion, meditation on the divine will.
- Samadhi: It means the union with the divine.

**2.** Write in detail on: (a) yama and (b) niyama.

**Ans. (a) Yama:** It is the first form of Yoga. It has the following five sub-disciplines:

- Ahimsa: One of the most recognized terms in Indian cultural history. It means nonviolence.
- Satya: It means the truth. This highlights the importance of truthfulness.
- Asteya: It means to 'not steal' or non-stealing of anything whether money, material, ideas, speeches or writings, etc.
- Brahmacharya: It is denouncement of excessive sexual desire and lust rather than abstinence from sexual activity which is necessary for protection.
- Aparigraha: It is the hoarding of wealth for self-interest. It enables us to be satisfied with what we have or get.

**(b) Niyama:** It is being performed to eliminate wrong, harmful or disturbing behaviour. We have five types of niyamas like:

- Saucha which focuses on the importance of having a clean body and mind which can be realised by practising asanas and prayanamas.
- Santosh: Like aparigraha, santosh upholds modesty, as a virtue which can bring us contentment of mind.
- Tapa: It is called for a discipline use of the energy produced by the body by

applying it to fruitful physical tasks and activities.

- Swadhyaya: 'swa' means 'self', adhyaya' means 'study'. It is, therefore, thoughtful reflection on oneself and one's actions.
- Ishwara pranidhana: Proximity with the Divine will save us from going astray.

**3.** Describe asana and its benefits in detail.

**Ans.** Refer to pages 48-49 of the book.

**4.** What are the eight types of pranayama? Discuss.

**Ans.** Refer to pages 50-51 of the book.

**5.** Make a table differentiating between different types of pranayama and their benefits.

**Ans.** Refer to pages 50-51 of the book.

**6.** Describe the benefits of (a) pratyahara and (b) pranayama.

**Ans.** Refer to pages 50-51 of the book.

**7.** Discuss how shat karma can cleanse the human body.

**Ans.** Refer to pages 51-53 of the book.

### **F. Value-Based Question**

During summer vacations, Neha decided to join a yoga camp with one of her friends, Jenny. Their yoga trainer taught them different types of pranayama. He

told them about the importance of yoga in one's life. "Yoga is nothing but discipline." Yoga helps to become creative, focused and develops positive qualities in life. He suggested them to practice asanas and breathing exercises every day. He suggested them to live healthy and maintain positive lifestyle by adopting healthy eating habits. After re-joining school, they continued to practice yoga. They felt some physiological changes as well as psychological changes in them.

**Answer the following questions based on the above passage:**

1. What are the different types of pranayama?
2. What is the importance of yoga in our life?
3. What are the values shown by Neha and Jenny during the camp?

**Ans.**

1. Meditative asanas are the postures to attain peace of mind.
2. The importance of yoga in our life is that it aids us to understand our inner self, gives us lasting peace of mind and appreciation of life.
3. Self-care, health consciousness, use of knowledge, etc.

**CHAPTER 4**

**PHYSICAL EDUCATION AND SPORTS FOR CWSN**

**P. 67–71**

**A. Objective Type/ Multiple-Choice Questions**

**I. Multiple-Choice Questions:**

**1.** In which of the following areas can the disability not be seen?

- (a) Physical
- (b) Financial
- (c) Mental
- (d) Cognitive

**Ans.** (b) Financial

**2.** When did the Government of India pass RPWD Act to give an effect to the United Nations Convention on the Rights of Person with Disabilities?

- (a) 20 December 2016
- (b) 27 December 2016
- (c) 27 December 2015
- (d) 20 December 2015

**Ans.** (b) 27 December 2016

**3.** Which day every year is celebrated as World Disability Day?

- (a) December 3
- (b) December 4
- (c) December 5
- (d) December 6

**Ans.** (a) December 3

**4.** If the IQ of a child is between ....., she/he is considered to have mild intellectual disability.

- (a) 35 and 55
- (b) 20 and 40
- (c) 10 and 20
- (d) 55 and 75

**Ans.** (d) 55 and 75

**5.** If the IQ of a child is between ....., then the child is in the category of moderate intellectual disability.

- (a) 35 and 55
- (b) 20 and 40
- (c) 10 and 20
- (d) 55 and 75
- (d) 55 and 75

**Ans.** (a) 35 and 55

**6.** A child falls in the severe intellectual disability category if the IQ is between .....

- (a) 35 and 55
- (b) 20 and 40
- (c) 10 and 20
- (d) 55 and 75

**Ans.** (b) 20 and 40

**7.** For a child to be considered in the severe intellectual disability category, his/her IQ has to be below what value?

- (a) 70
- (b) 55
- (c) 30
- (d) 15

**Ans. (c) 30**

**8.** A child with intellectual disability will show limitations in which of the following areas?

- (a) Conceptual skills
- (b) Social skills
- (c) Practical skills
- (d) All of these

**Ans. (d) All of these**

**9.** Which of the following is not a cause of physical disability?

- (a) Cold and fever
- (b) Genetic disorder
- (c) Spinal injury
- (d) Muscle dystrophy

**Ans. (a) Cold and fever**

**10.** How can physical disabilities be diagnosed?

- (a) Through observation of child's development
- (b) Behaviour and physical performance
- (c) Understanding of the mental state
- (d) Only through (a) and (b)

**Ans. (d) Only through (a) and (b)**

**11.** Which of the following is a gene anomaly?

- (a) Spina bifida
- (b) Down syndrome
- (c) Fragile X syndrome

(d) All of these

**Ans. (d) All of these**

**12.** Which of the following is not due to vitamin deficiency?

- (a) Night blindness
- (b) Filaria
- (c) Osteomalacia
- (d) Functional disability

**Ans. (d) Functional disability**

**13.** What is the name for the condition under which a person has difficulty in comprehending written text, spelling and writing accurately?

- (a) Spina bifida
- (b) Epilepsy
- (c) Dyslexia
- (d) Arthritis

**Ans. (c) Dyslexia**

**14.** Which of the following does not broadly define disability?

- (a) Blindness and low-vision
- (b) Leprosy-cured
- (c) Mental retardation and illness
- (d) Leukoderma-cured

**Ans. (d) Leukoderma-cured**

**15.** A physiotherapist is usually well-versed in related disciplines such as .....

- (a) anatomy, physiology, biomechanics, kinesiology and neuroscience
- (b) psychology, anatomy, biomechanics, kinesiology and neurology
- (c) anatomy, physiology, psychology, kinesiology and neurology



(d) psychology, anatomy, biomechanics, physiology and neurology

**Ans.** (a) anatomy, physiology, biomechanics, kinesiology and neuroscience

**16.** Which of these professionals working for children with special needs is mainly responsible for improvement in instructional methods, such as modification of the classroom equipment and facilities?

- (a) Physical education teacher
- (b) Speech language pathologist
- (c) Occupational therapist
- (d) Physiotherapist

**Ans.** (c) Occupational therapist

**17.** Which professional works with CWSN to evaluate their existing skill sets and potential to design a suitable instructional method and alter general education lessons to make these accessible to them?

- (a) Counsellor
- (b) Physiotherapist
- (c) Special educator
- (d) Speech therapist

**Ans.** (c) Special educator

## II. Match the following:

**List I – IQ Range    List II – Intellectual Disability**

- |                 |              |
|-----------------|--------------|
| (i) 55 and 75   | (1) Moderate |
| (ii) 35 and 55  | (2) Profound |
| (iii) 20 and 40 | (3) Mild     |
| (iv) Below 25   | (4) Severe   |

## Select the correct set of options:

- (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)
- (b) (i)–(3), (ii)–(1), (iii)–(4), (iv)–(2)
- (c) (i)–(3), (ii)–(2), (iii)–(4), (iv)–(1)
- (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans.** (b) (i)–(3), (ii)–(1), (iii)–(4), (iv)–(2)

## III. Assertion-Reason Type Questions: CBQ

**Given below are the two statements labelled Assertion (A) and Reason (R).**

**A:** Physical education is recognised as an indispensable portion of the school curriculum because of its many faceted benefits.

**R:** It helps students attain physical, emotional, mental and social prowess.

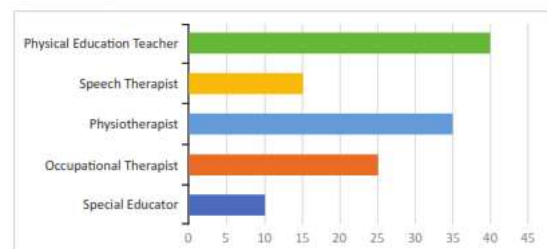
**In the context of the two statements given above, which one of the following is correct?**

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true.

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

## IV. Data-Based Questions: CBQ

The data collected from a country about the kind of professions related to physical education and well-being preferred by people is given below:



**On the basis of the chart given, answer the following questions:**

1. What would a Special Educator be required to do?

- (a) Make considerations for cultural and environmental factors
- (b) Teach basic literacy and communication skills
- (c) Evaluate and adapt existing curriculum
- (d) None of the above

**Ans.** (b) Teach basic literacy and communication skills

2. Which is the most popular profession?

- (a) Special educator
- (b) Physical education teacher
- (c) Speech therapist
- (d) Physiotherapist

**Ans.** (d) Physiotherapist

3. A professional who helps students perfect their fine motor and visual skills, as well as take care of themselves is a

- (a) occupational therapist.
- (b) physical education teacher.
- (c) speech therapist.
- (d) physiotherapist.

**Ans.** (a) occupational therapist.

**V. Picture-Based Questions: CBQ**

1.  .....
2.  .....
3.  .....
4.  .....

- Ans. 1.** Physical Education Teacher;
- 2.** Physiotherapist; **3.** Speech Therapist;
- 4.** Special Educator

**VI. Case-Based Questions: CBQ**

**1. A person is well-versed in anatomy, physiology, biomechanics, kinesiology and neuroscience.**

**On the basis of the case given, answer the following questions:**

(a) What would be the possible occupation of the person described above?

(b) The above professional is needed for .....

(c) Which role will such a person play?

(d) The above professional will help students gain control of fundamental ..... skills.

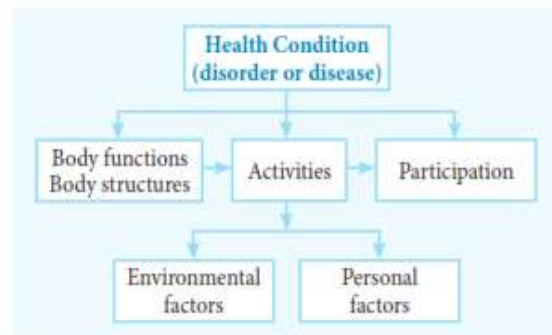
**Ans.** (a) Physiotherapist

(b) Medical consultation and observation

(c) Designs programs and activities that involve promotion of balance, strength and coordination

(d) motor

**2.** Look at the diagram given and answer the following questions.



(a) What does the given flow chart depict?

- (b) This diagram was given by .....
- (c) How many types of disability are there?
- (d) Genetic disorder and muscle dystrophy are the causes of .....

**Ans.** (a) depicts the model of disability.  
 (b) International Classification of Functioning  
 (c) 21 types  
 (d) physical disability

### B. Very Short Answer Type Questions

1. Define disability.

**Ans.** Disability is the inability or incompetency in performing any functional work by the body.

2. When is the World Disability Day celebrated every year?

**Ans.** Every year December 3 is celebrated as World Disability Day.

3. What is disorder?

**Ans.** A disorder is an illness or a dysfunctional factor that affects the physiology and/or psychology of an individual.

4. How many types of disorder are there?

**Ans.** Mainly there are two types of disorder – functional and psychological.

5. What are the types of disability?

**Ans.** Intellectual disability and physical disability.

6. What is the IQ of a child with moderate intellectual disability?

**Ans.** Between 35 and 55.

7. What is the IQ of a child with profound intellectual disability?

**Ans.** Below 25.

8. Mention any two causes of physical disability.

**Ans.** Genetic disorder and muscle dystrophy.

9. What was the result of the Bhopal Gas Tragedy of 1984?

**Ans.** The Bhopal Gas Tragedy of 1984 produced long-term health effects that included neurological disabilities like impairment of memory and motor skills and inability to grow in children.

10. What is PTSD? What is its significance?

**Ans.** PTSD is Post Traumatic Stress Disorder. It is a mental health condition that can develop after experiencing or witnessing a traumatic event. It is significant as it can severely impact a person's well-being, causing distressing symptoms like flashbacks, nightmares, anxiety and emotional disturbances.

11. Mention two objectives of adaptive physical education.

**Ans.** Two objectives of adaptive physical education are as follows:

- i. develop fundamental motor skills and patterns of students with disabilities, such as running, throwing, catching, etc.
- ii. help students to improve their balance, coordination and posture.

12. Mention two principles of adaptive physical education.

**Ans.** Two principles of adaptive physical education:

- i. It is important to have a thorough knowledge of motor behaviours and development patterns of the different kinds of disabilities, and how people with these disabilities differ from their abled counterparts. Additionally, the trainers should also be aware of the neurological basis of these behaviours and patterns.
- ii. Routine medical check-up should be conducted not only for pure health benefits, but also to monitor the progress of the students and assess the effectiveness of the programmes.

13. What are the soft skills required for the occupation special education counsellor?

**Ans.** Empathy, patience, communication, active listening, adaptability, collaboration, problem-solving, flexibility and cultural sensitivity are essential soft skills for a special education counsellor.

**14.** Mention one significant role of occupational therapist.

**Ans.** One significant role of an occupational therapist is to help individuals of all ages improve their functional abilities and independence in daily activities, such as self-care, work, and leisure, through assessment, intervention and environmental modifications.

**15.** Which disciplines is a physiotherapist well-versed in?

**Ans.** Physiotherapists are well-versed in disciplines such as anatomy, physiology, kinesiology, biomechanics, neurology and exercise science. They utilise this knowledge to assess, diagnose and treat musculoskeletal, neurological, and cardiopulmonary conditions, aiming to enhance movement, function and overall well-being.

**16.** What types of students do special educators work with?

**Ans.** Special educators work with a diverse range of students, including those with learning disabilities, developmental delays, behavioural challenges and communication disorders. They work with students with learning, mental, emotional and physical disabilities.

### **C. Short Answer Type-I Questions**

**1.** What is disability? Give an example.

**Ans.** Disability refers to a condition or impairment that limits a person's ability to perform certain tasks or activities. It can be physical, cognitive, sensory or emotional in nature. For example, a person with a physical disability such as paralysis may experience limited mobility and require

assistive devices, modifications or support to engage in daily activities or navigate their environment effectively.

**2.** Explain briefly the different types of disability.

**Ans.** There are various types of disabilities. But two main types are mentioned below:

**i.** Intellectual disability refers to limitations in intellectual functioning and adaptive behaviour. It impacts cognitive abilities, problem-solving, learning and social skills. People with intellectual disabilities may require support in areas like communication and independent living.

**ii.** Physical disability involves limitations in mobility, dexterity, or physical functioning. It can be caused by conditions such as paralysis, amputation or muscular dystrophy. Physical disabilities may necessitate assistive devices, modifications to the environment or mobility aids to enhance independence and accessibility.

**3.** How is intellectual disability characterised as mild, moderate, severe and profound?

**Ans.** Intellectual disability is categorized based on the severity of the impairment:

**i. Mild:** Individuals have an intellectual quotient (IQ) of 55-75. They may experience delays in academic and social skills but can often live independently with support.

**ii. Moderate:** IQ ranges from 35-55. Individuals may require support in daily tasks, have limited academic abilities, and benefit from supervised living arrangements and vocational training.

**iii. Severe:** IQ ranges from 20-40. Significant limitations in intellectual and adaptive functioning require extensive support and assistance in daily activities.

**iv. Profound:** Individuals have an IQ below 25, significant intellectual and adaptive impairments and often require round-the-clock support and care.

4. In which areas will a child with intellectual disability show limitation?

**Ans.** A child with intellectual disability will have limitations in the functioning of mental capacity such as learning, reasoning, problem-solving and IQ level.

5. What are the causes of physical disability?

**Ans.** Physical disabilities can have various causes:

**i. Genetics:** Anomalies in genes can cause disabilities such as spinal bifida (split spine) and muscular dystrophy, and intellectual disabilities like Down syndrome and Fragile X syndrome.

These are inherited at birth. However, diseases and overexposure to radiation may also bring about genetic abnormalities.

**ii. Hormonal Imbalances:** Disturbances in the function of the endocrine glands are also responsible for bringing about disabilities, both physical and mental.

**iii. Poverty:** Many families live below the poverty line and go without two square meals a day. Their living conditions are poor and they do not have access to quality healthcare, safe drinking water, proper sanitation and wholesome nutrition. As such, they fall prey to many diseases and disabilities and pass them on to their offspring.

6. How do genetics and malnutrition cause physical disability?

**Ans.** Genetics can contribute to physical disabilities when there are inherited abnormalities or mutations in genes responsible for normal physical development. These genetic variations can affect the formation or functioning of body structures, leading to physical disabilities.

**Malnutrition**, especially during critical stages of growth and development, can

result in inadequate nourishment and essential nutrient deficiencies. This can impair proper bone and muscle development, causing physical disabilities like stunted growth, skeletal deformities or muscle weakness.

7. Children were adversely affected by the Bhopal Gas Tragedy of 1984. How?

**Ans.** The Bhopal Gas Tragedy of 1984, caused by a gas leak from a pesticide plant, had severe repercussions on children. Exposure to toxic gases led to various health effects, including respiratory problems, eye injuries, neurological disorders and developmental delays. Children born to exposed parents faced a higher risk of congenital disabilities and birth defects. The tragedy left a lasting impact on the physical and cognitive well-being of the affected children.

8. Mention any four objectives of adaptive physical education.

**Ans.** Refer to page 63 of the book.

9. Briefly write about any four principles of adaptive physical education.

**Ans.** Refer to page 63 of the book.

10. Briefly mention the roles and responsibilities of special education counsellor.

**Ans.** Refer to pages 63-64 of the book.

11. How can a physical education teacher improve the physical, social and emotional skills of CWSN?

**Ans.** Refer to page 65 of the book.

12. What are the roles and responsibilities of a speech therapist?

**Ans.** Refer to page 65 of the book.

#### D. Short Answer Type-II Questions

1. How do you define 'disability'? Explain with examples.

**Ans.** Disability is a term used to describe a physical, cognitive, sensory, or developmental condition that significantly impairs a person's ability to perform everyday tasks and participate fully in society. Examples include:

**i. Physical Disability:** Paralysis, limb amputation, or mobility impairments affecting movement and coordination.

**ii. Cognitive Disability:** Intellectual disabilities, learning disorders, or memory impairments affecting cognitive functions and learning abilities.

**iii. Sensory Disability:** Blindness, deafness, or hearing/vision impairments that impact sensory perception.

**iv. Developmental Disability:** Autism spectrum disorder, Down syndrome, or cerebral palsy affecting overall development and social interaction.

2. What is intellectual disability?

**Ans.** Intellectual disability is a neurodevelopmental disorder characterised by significant limitations in intellectual functioning and adaptive behaviour. It is typically diagnosed in childhood and affects cognitive abilities, problem-solving skills, learning and social functioning. Individuals with intellectual disability may experience challenges in areas such as communication, self-care, academic achievement and independent living. The severity of intellectual disability can vary, ranging from mild to profound, and support and interventions are provided based on individual needs.

3. What are the causes of physical disability? Write about any two in detail.

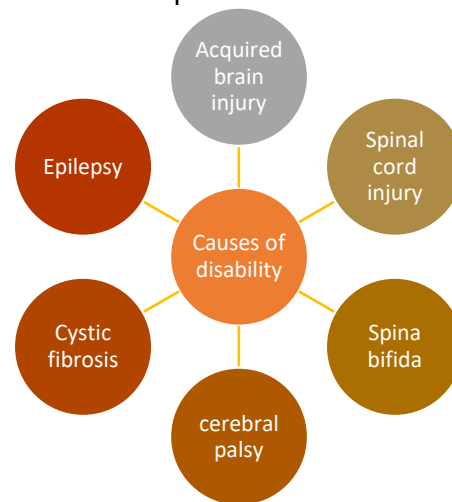
**Ans.** Physical disabilities can have various causes. They are acquired brain injury spinal cord injury, spina bifida, cerebral palsy, cystic fibrosis, epilepsy, multiple sclerosis, etc.

**i. Spina bifida** is a neural tube defect occurring during early pregnancy when the spinal column does not close properly. It can lead to paralysis or weakness in the legs, bladder and bowel control issues and mobility challenges.

**ii. Cerebral palsy** results from brain damage before or shortly after birth, affecting muscle control and coordination. Causes include brain injury, infections, or oxygen deprivation. Both conditions can lead to significant physical disabilities and require specialised care and interventions.

4. Create a mind map on the various causes of disability.

**Ans.** Mind Map:



5. What are the objectives of adapted physical education?

**Ans.** Refer to page 63 of the book.

6. How is physical education beneficial for students with disability?

**Ans.** Physical education provides numerous benefits for students with disabilities. It promotes physical fitness, improves motor skills and enhances overall health and well-



being. It can also contribute to the development of social skills, self-confidence and teamwork. Adapted physical education programs cater to the specific needs of students with disabilities, offering modified activities, equipment, and strategies to ensure inclusivity and participation. These programs help students with disabilities improve their physical abilities, enjoy recreational activities and experience the joy of movement and physical achievement.

**7.** What are the obstacles faced in the implementation of adapted physical education in India?

**Ans.** The implementation of adapted physical education in India faces several obstacles. Limited awareness and understanding of inclusive education among educators and administrators hinder the development of appropriate programs. Insufficient training and resources for teachers to deliver adapted physical education, including lack of specialised equipment and facilities, pose challenges. Inadequate policy support and funding for inclusive education initiatives further impede progress. Additionally, societal attitudes and stigmas towards disabilities may contribute to the exclusion of students with disabilities from physical education opportunities, limiting their access to the benefits of inclusive physical education.

**8.** Make a table on the role of various professionals working with CWSN.

**Ans.** The following table explains the role of various professionals working with CWSN.

Professional	Role
<b>Special Education Counsellor</b>	Provides counselling and emotional support to CWSN, collaborates with families and

	educators to address social and emotional needs, and develops individualised support plans.
<b>Occupational Therapist</b>	Assesses and addresses fine motor skills, sensory integration and activities of daily living for CWSN. Provides therapy and recommendations for adaptive equipment and environmental modifications.
<b>Physiotherapist</b>	Assesses and treats physical disabilities, mobility issues, and gross motor skills in CWSN. Provides therapy, exercises, and recommendations for assistive devices.
<b>Physical Education Teacher</b>	Develops and implements adapted physical education programs, modifies activities to meet the needs of CWSN, and promotes physical fitness, motor skills and inclusive participation.
<b>Speech Therapist</b>	Evaluates and addresses speech, language, and communication difficulties in CWSN. Provides therapy and interventions to



	improve communication skills.
<b>Special Educator</b>	Provides individualised instruction and support, develops and implements individualised education plans, and adapts curriculum for CWSN.

### E. Long Answer Type Questions

1. Describe the concept of disability and disorder in detail.

**Ans.** Refer to pages 59-60 of the book.

2. Make a table on the types of disability, its causes and its nature.

**Ans.** Refer to pages 60-61 of the book.

3. Elaborate on the nature of intellectual disability.

**Ans.** Refer to pages 60-61 of the book.

4. Discuss five causes of disability in detail.

**Ans.** Refer to pages 61-62 of the book.

5. What are the characteristics of physical disability?

**Ans.** Refer to page 60 of the book.

6. Describe the objectives and principles of adaptive physical education.

**Ans.** Adapted physical education aims at to:

- Develop fundamental motor skills and patterns of students with disabilities, such as running, throwing, catching, etc.
- Help students to improve their balance coordination and posture.
- Bring about their participation in activities such as dance, aquatics and other sports.
- To make them realize healthy self-esteem through increased physical independence.

- Reduce health complications.

### **Principals of Adapted Physical education are as under:**

- It is imperative to have thorough knowledge of motor behaviours and development patterns of the different kinds of disabilities and how people with these disabilities vary from their abled counterparts.

- The activities and programmes should be planned according to the interests of their students and after taking their specific needs into consideration.

- Routine medical check-up should be conducted not only for pure health benefits but also to monitor the progress of the students and assess the effectiveness of the programmes.

- The rules governing physical education classes for abled students cannot be applied to their peers who have special needs.

- Apart from having sufficient knowledge and experience, the trainers should also have abundant patience, empathy and strong communication skills.

7. Write notes on how the following can help students with special needs:

- (a) Special Education Counsellor
- (b) Occupational Therapist
- (c) Special Educator
- (d) Physical Education Teacher
- (e) Physiotherapist
- (f) Speech Therapist

**Ans. (a)** The special education counsellor can look after the students and their well-being, taking into consideration the academic, vocational, social and psychological factors. He can be helpful in deepening the connection between the students and their families, to expand their social skills, to provide guidance to hold

sessions with the students, to communicate with students, etc.

**(b)** Occupational therapist can be helpful to students perfect their fine motor and visual skills, to aid the students in gaining correct hand-eye coordination, to assess the abilities of the students and encourage them to participate in the activities of the class room.

**(c)** Special educator can be helpful to a student in altering general education lessons to make it accessible according to the needs of the students, to help the students achieve academic success, to have literacy and communication skills.

**(d)** Physical education teacher can be helpful to devise or setting in which students with special needs can perform exercise and activity, to cultivate and adapt existing curriculum, so that students with special needs can adjust, to plan and prepare the activities according to the needs of the students, to install a positive attitude in the students, to approach the students' needs on individual and group levels, to satisfy the emotional needs of the students.

**(e)** Physiotherapist can be helpful to the students to achieve full physical functions.

He can help the students to gain control of fundamental motor skills, to promote balance, strength and coordination, to monitor and make adjustments to the programmes and activities of the students as require, etc.

**(f)** A speech therapist, also known as Speech Language Pathologist (SLP) or

speech pathologist, works with communicative and speech disorders, which may be speech and lingual issues, problems with swallowing and voice, cognitive communication, etc.

#### **F. Value-Based Question**

**1.** Sajid is a student of Class 11. He is physically impaired (differently abled). He has different leg lengths. Though he is very good in sports, he never takes part in any activity. Mr Yogesh Chandra, the Physical Education teacher of his school, observed him and judged his capabilities to excel in sports. He encouraged Sajid to participate in sports. He helped him to boost confidence and hone his skills.

As a result of this motivation and support, he contested in National Games and performed well.

#### **Answer the following questions based on the above passage:**

- 1.** What do you understand by the term disability?
- 2.** What is leg length?
- 3.** What are the values shown by the physical education teacher?

#### **Ans.**

- 1.** By the term disability we understand the one who is physically impaired.
- 2.** By the term leg length we understand that it is the length between bottom edges of the foot base to the upper edge of the greater trochanter.
- 3.** Helping others, value of human being, etc.

## CHAPTER 5

### PHYSICAL FITNESS, HEALTH AND WELLNESS

P. 84–89

#### A. Objective Type/ Multiple-Choice Questions

##### I. Multiple-Choice Questions:

1. What is wellness?

- (a) It is the state of being healthy and free of diseases.
- (b) It is the state of being healthy and happy.
- (c) It is the state of being happy and fit.
- (d) It is the state of being fit and content.

**Ans. (a)** It is the state of being healthy and free of diseases.

2. “Lifestyle is a set of attitudes, habits or possessions associated with a particular person or group.”

What is the source of the given statement?

- (a) Business Dictionary
- (b) Harper Collins Dictionary
- (c) Encyclopaedia of Public Health
- (d) American Heritage Dictionary

**Ans. (b)** Harper Collins Dictionary

3. A sharp and alert mind is a sign of which component of wellness?

- (a) Intellectual wellness
- (b) Financial wellness
- (c) Environmental wellness
- (d) Physical wellness

**Ans. (a)** Intellectual wellness

4. Which of these is not a component of physical fitness?

- (a) Strength
- (b) Flexibility
- (c) Speed
- (d) Memory

**Ans. (d)** Memory

5. What is a key component of social wellness?

- (a) Balanced engagement with one’s spiritual surroundings

- (b) Active engagement with one’s spiritual surroundings

- (c) Passive engagement with one’s social surroundings

- (d) Healthy engagement with one’s social surroundings

**Ans. (d)** Healthy engagement with one’s social surroundings

6. What are the activities that require strength endurance?

- (a) Running
- (b) Cycling
- (c) Combative sports
- (d) All of these

**Ans. (d)** All of these

7. Which of these types of strength is also known as isometric strength?

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

**Ans. (b)** Static strength

8. Which of these is not a way to cultivate physical fitness and wellness?

- (a) Meeting friends and family members regularly
- (b) Spending long hours sitting at the office
- (c) Taking a brisk walk every day for 30 minutes
- (d) Spending every weekend outside the city at a farm

**Ans. (b)** Spending long hours sitting at the office

9. Which of these components of physical fitness would a marathon runner need the most?

- (a) Explosive strength
- (b) Locomotor ability
- (c) Reaction ability
- (d) Long term endurance

**Ans. (d)** Long term endurance

10. What does good cardiovascular endurance imply?

- (a) Heart, lungs and vascular system are in perfect working condition.

(b) Heart and mind are in perfect working condition.

(c) Respiratory and nervous system are in perfect working condition.

(d) Brain, heart and sensory system are in perfect working condition.

**Ans. (a)** Heart, lungs and vascular system are in perfect working condition.

**11.** Gilli Danda is a traditional sport of India. What is the name of this game in Nepal?

(a) Atayu Patayu      (b) Mallakhamb

(c) Dandi Biyo      (d) Alak-Dolak

**Ans. (c)** Dandi Biyo

**12.** In which state of India the game Thang-Ta is practised?

(a) Assam      (b) Manipur

(c) Mizoram      (d) Karnataka

**Ans. (b)** Manipur

## II. Match the following:

**List I – Components of Health Related Fitness**

**List II– Assessment Activity**

(i) Cardiovascular Endurance      (1) Yoga

(ii) Muscular Strength      (2) Aerobic Exercise

(iii) Muscular Endurance      (3) Dancing

(iv) Flexibility      (4) Squats

**Select the correct set of options:**

(a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)

(b) (i)–(2), (ii)–(4), (iii)–(3), (iv)–(1)

(c) (i)–(1), (ii)–(2), (iii)–(3), (iv)–(4)

(d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans. (b)** (i)–(2), (ii)–(4), (iii)–(3), (iv)–(1)

## III. Assertion-Reason Type Questions: CBQ

**Given below are the two statements labelled Assertion (A) and Reason (R).**

**A:** A physically fit person responds effortlessly to physical tasks.

**R:** It is due to her/his healthy organs that she/he does not get tired easily, has keen and focused mind and has enough extra

energy to recover quickly in case of exhaustion.

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

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

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

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

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

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

## IV. Data-Based Questions:

**CBQ**

**Given below is the depiction data collected from a sports training academy which assessed its students for various components of physical fitness and the percentage of students who passed in various categories are as follows:**



**On the basis of the pie-chart given, answer the following questions:**

**1.** The percentage of people who passed the flexibility assessment were most likely to perform ..... regularly.

(a) Yoga      (b) Boxing

(c) Weightlifting      (d) None of these

**2.** The students who passed the endurance test would have been tested for..... and ..... endurance.

(a) maximum, explosive

(b) dynamic, static

(c) reaction, acceleration

(d) short term, long term

**3.** How many categories does speed test have?

(a) 5

(b) 6

(c) 3

(d) 4

Ans. 1. (a) Yoga; 2. (d) short term, long term; 3. (a) 5

**V. Picture-Based Questions:** **CBQ**  
Identify the following activities and write the kind of component of physical fitness and wellness required for it:

1.



.....

2.



.....

3.



.....

4.



.....

Ans. 1. Sprinting – Speed; 2. Swimming – Endurance; 3. Weightlifting – Strength; 4. Yoga – Flexibility

**VI. Case-Based Questions:** **CBQ**

1. In a class of 50 students, a teacher was taking a lesson on components of wellness. The students were later assessed on what they had learnt.

On the basis of the case given, answer the following questions:

- (a) What will happen if a person does not pay attention to social wellness?
- (b) How can financial wellness be achieved?

(c) If a person responds intelligently to circumstances and is receptive to new ideas and challenges, then ..... component of wellness justifies her/his qualities.

(d) Physical wellness highlights the ..... aspect of wellness.

Ans. (a) It will result inability to build lasting friendships; (b) By developing money management goals, spending after saving and focusing on the principle of ‘waste not, want not’;; financial wellness can be achieved (c) Intellectual wellness (d) physiological

2. Radhika wants to be a gymnast. She is training under a gymnast trainer to achieve her ambition.



Based on this case, answer the following questions.

- (a) Which component of physical fitness is required by Radhika to become a gymnast?
- (b) This physical component is of two types: ..... and .....
- (c) This physical component is also required in other sports like ..... and .....
- (d) What are the benefits of this physical component?

**Ans.** (a) Flexibility; (b) passive and active (c) figure skating and swimming (d) Flexibility improves range of motion, enhances athletic performance, reduces the risk of injuries, and promotes better posture and body alignment.

### **B. Very Short Answer Type Questions**

**1.** What is the meaning of physical fitness?

**Ans.** Physical fitness is the state of physical health characterised by the smooth functioning of the body, absence of illness, a sound immune system and a robust physique.

**2.** What is the meaning of wellness?

**Ans.** Wellness is the state of being healthy and free of diseases. However, its meaning can be broadened to show the inter-relationship between physiological health, psychological health and social health.

**3.** Give two importance of physical fitness and wellness.

**Ans.** Two importance of physical fitness and wellness are as follows:

**i.** Improve efficiency of body organs and reduce the risk of heart, lungs and liver ailments.

**ii.** Improve posture and balance of the body, thereby making the outer appearance more fit and attractive.

**4.** Give a tip for cultivating physical fitness and wellness.

**Ans.** A tip for cultivating physical fitness and wellness:

**i.** Exert your body as often as possible. Use the stairs instead of escalators and elevators. Walk or cycle if the distance allows it instead of driving a vehicle or taking public transport.

**5.** Mention the various components of physical fitness and wellness.

**Ans.** Physical fitness and wellness encompass cardiovascular endurance, muscular strength, muscular endurance,

flexibility and body composition. It also includes mental well-being, stress management, healthy nutrition and adequate sleep for overall health and vitality.

**6.** What are the different types of dynamic strength?

**Ans.** The different types of dynamic strength include explosive strength, which involves quick and powerful movements; maximal strength, which refers to the maximum force a muscle or group of muscles can generate; and strength endurance, which is the ability to sustain muscular contractions over an extended period.

**7.** What are the different types of endurance?

**Ans.** Based on speed, endurance can be broadly divided into:

**i. Short-Term Endurance:** Short-term endurance is required to resist tiredness in sports where the action lasts for a short period but is intense in terms of force applied. It is utilised in events like 800 m race, swimming, gymnastics and combative sports like wrestling.

**ii. Long-Term Endurance:** Long-term endurance is required in sports activities in which intensity of force applied is less but the duration longer. For instance, long distance events such as 5,000 m and 10,000 m cross-country races, as well as marathon.

**8.** How would you categorise speed?

**Ans.** Speed can be categorised into various types:

**i.** Reaction Ability:

**ii.** Acceleration Ability:

**iii.** Locomotor Ability:

**iv.** Movement Ability:

**v.** Speed Endurance:

**9.** Give two components of wellness.

**Ans.** Physical wellness and Intellectual wellness.



**10.** How can one build muscular strength?

**Ans.** Building muscular strength can be achieved through progressive resistance training, which involves gradually increasing the weight or resistance used during exercises. Incorporating compound exercises that target multiple muscle groups, ensuring adequate rest and recovery, and maintaining a balanced diet are also important factors.

**11.** Mention one traditional game of Kerala.

**Ans.** Boat races are held during the harvest festival of Onam in autumn. Chundan Vallams are paddled longboats. They are the biggest and longest boats used in a sport in the world.

The races are held on the fifth day of the Onam celebrations at places such as Aranmula, Kollam, Kottayam and Kumarakom. The snake boats of Kerala have over four hundred years of history associated with them.

### **C. Short Answer Type-I Questions**

**1.** Write two benefits of physical fitness and wellness.

**Ans.** Physical fitness and wellness offer numerous benefits.

**i.** They enhance overall health by reducing the risk of chronic diseases such as heart disease, obesity, and diabetes.

**ii.** They contribute to improved mental well-being by reducing stress, improving mood, promoting better sleep, and boosting self-confidence, leading to a higher quality of life and increased productivity.

**2.** Give a few tips for cultivating physical fitness and wellness.

**Ans.** Refer to pages 73-74 of the book.

**3.** Explain briefly the importance of a healthy and positive living.

**Ans.** Refer to page 75 of the book.

**4.** What are the differences between maximum strength, explosive strength and strength endurance?

**Ans. i. Maximum Strength:** It is the ability of a muscle to overcome resistance of maximum intensity. It is applied in sports where a huge burst of strength is needed to accomplish tasks of short duration and heavy resistance, such as weightlifting, discus throw, hammer throw, javelin throw and shot put. In sports like long jump, pole vault, and high jump, in which the take-off has to be powerful, maximum strength is also required.

**ii. Explosive Strength:** It is the ability of a muscle to exert against a strong resistance at high speed. It is commonly used in high jump, long jump, pole vault, sprint starts, etc. in which the strength is used much like an explosion. Explosive strength can be understood as a combination of strength and speed.

**iii. Strength Endurance:** It is the ability of a muscle to overcome resistance for as long as possible, i.e. even under conditions of tiredness. It is used in activities in which muscular strength performs with minimal decrease in efficiency over a longer duration of time, such as long distance running, cycling, combative sports, etc. Strength endurance is formed by blending strength and endurance.

**5.** What is endurance? What are its different types?

**Ans.** Refer to page 77 of the book.

**6.** What is speed? What are its various types? Explain any three in detail.

**Ans.** Refer to page 77 of the book.

**7.** What is flexibility and its various types?

**Ans.** Refer to pages 77-78 of the book.

**8.** How is intellectual wellness different from emotional wellness?



**Ans.** Intellectual wellness differs from emotional wellness in the following manner:

**i. Intellectual Wellness:** Mental wellness focuses on the intellectual health of the individual. It is just as important for the happiness of the individual as physical health. It can even be said that there is a strong association between physical wellness and intellectual wellness. Intellectual wellness is characterised by a sharp and alert mind which can concentrate on the task at hand, respond intelligently to circumstances, is receptive to new ideas and challenges, nurtures positive thinking and can provide productive solutions to problems.

**ii. Emotional Wellness:** Even if a person is physically and intellectually fit, she/he will still not have a fulfilling life without emotional wellness. When anxiety, depression, frustration and a general feeling of negativity consume an individual, she/he will not be able to achieve much. Therefore, it is crucial to address emotional tension, identify its causes and deal with them accordingly.

**9.** How is muscular strength different from muscular endurance?

**Ans.** Muscular strength refers to the maximum force a muscle or group of muscles can exert against resistance in a single effort. It is typically measured by the amount of weight one can lift or push. Muscular endurance, on the other hand, refers to the ability of a muscle or group of muscles to perform repetitive contractions over an extended period without fatigue. It relates to sustained muscular activity and resistance to fatigue.

**10.** Ravish wants to increase his cardiovascular endurance. What should he do?

**Ans.** To increase cardiovascular endurance, Ravish can engage in activities that elevate his heart rate and sustain it over an extended period. Options include aerobic exercises such as running, cycling, swimming or brisk walking. He should aim for at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity exercise per week. Additionally, incorporating interval training, circuit training or participating in sports can further enhance cardiovascular endurance.

**11.** What are the components of skill-related fitness? Explain any two.

**Ans.** Refer to pages 80-81 of the book.

**12.** Name any four traditional games of India.

**13.** What is Inbuan wrestling?

**Ans.** Inbuan is a form of wrestling, native to the people of Mizoram in India. Inbuan is said to have originated in the village of Dunglelang in 1750. It was recognised as a sport after the Mizo people migrated from Burma to the Lushai Hills.

**14.** How is Sikkim archery different from mainstream archery?

**Ans.** Sikkim archery is a traditional archery style specific to the Sikkim region in India. It differs from mainstream archery in several ways. Firstly, in Sikkim archery, bows and arrows made up of bamboo are used. This is also known as bamboo archery. Secondly, it has its unique set of rules, rituals and ceremonies associated with the sport. Additionally, Sikkim archery often includes cultural and religious elements, making it a significant part of the local tradition and festivities in the region.

#### **D. Short Answer Type-II Questions**

**1.** How do physical fitness and wellness play an important role in our lives?

**Ans.** Refer to page 73 of the book.

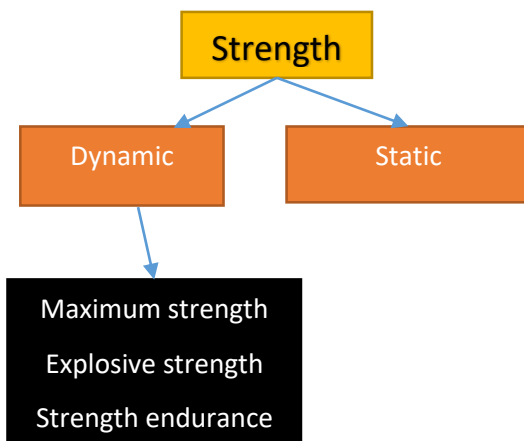
2. Make a list of tips for cultivating physical fitness and wellness.

**Ans.** The list of tips for cultivating physical fitness and wellness are as under:

- Exert your body as often as possible.
- Use the stairs of escalators and elevators.
- Walk or cycle if the distance allows instead of driving or taking public transport.
- Exercise for a minimum of 30 minutes a day to improve muscular strength, flexibility and also to fully energy derived from food.
- Eat a balanced diet which includes a variety of nutrients and contains the right amount of carbohydrates.
- Spend time in clean and calm environment like parks and gardens.
- Socialise with people and develop hobbies to reduce stress and revitalise yourself.

3. Create a mind map explaining strength and its types.

**Ans.** Mind Map



4. What do you mean by endurance? Write about its types.

**Ans.** Refer page 77 of the book.

5. Make a table to differentiate between active flexibility and passive flexibility.

**Ans.** Refer page 78 of the book.

6. Explain the components of wellness.

**Ans.** Refer pages 78-79 of the book.

7. Explain any three skill-related components of fitness.

**Ans.** Refer pages 80-81 of the book.

8. Write about Dhoop Khel and Cowrie Khel.

9. Explain briefly about Kalaripayattu.

**Ans.** Kalaripayattu is derived from the Malayalam words 'kalari' meaning gymnasium and 'payattu' meaning fighting/exercising.

This martial art is said to have been born out of a long-drawn-out period of conflict between the Cheras of Kerala and the Cholas of Tamil Nadu in the 11th century. Legend traces this art form to Sage Parasurama, who was the master of all martial art forms, and is credited to being the reclamer of Kerala from the Arabian Sea. Kalaripayattu is one of the oldest fighting arts in the world, practised in Kerala, Tamil Nadu and Karnataka, as well as in Sri Lanka and Malaysia.

### E. Long Answer Type Questions

1. Describe the importance of wellness and physical fitness.

**Ans.** According to Shri Rama Krishna, "He who is soft and weak minded like the puffed rice soaked in milk, is good for nothing. He cannot achieve anything great. But the strong and virile one is heroic. He is the accomplisher of everything in life."

Therefore physical fitness and wellness plays an important role in one's life. They are as under:

- Improves efficiency of body organs and reduces the risk of heart, lungs, and liver ailments.
- Improves posture and balance of the body, thereby, making the outer appearance more fit and attractive.
- Keeps an individual energetic, focused and intelligent so that he can confidently

deal with all sorts of situations and challenges

- In cases like expectancy and eases the function of daily routine such as walking, lifting and carrying, etc.
- Keeps away fatigue and reduces recovery time after exhaustion.
- Boosts the immune system so that recovery after illness and injuries is quicker.
- Raises the ability to cope with stress and anxiety.
- Delays ageing to an individual.
- Enables an individual to maintain an ideal body weight, which in turn prevents the onset of chronic diseases and disorders.
- Raises a person's self-esteem and helps him to maintain an attractive and personable appearance.
- Overall improvement of the quality of life.

**2.** What are the components of physical fitness? Discuss in detail.

**Ans.** The components of physical fitness are as under:

- **Strength:** The general interpretation of strength is our power to accomplish a work or series of works without getting tired quickly.

“Strength is the ability of the muscles to overcome resistance or the amount of force that can be exerted by a muscle or a group of muscles against a resistance.”

Strengths can be dynamic which is involved in muscles. This kind of strength are of three types like:

Maximum Strength, Explosive Strength and Strength Endurance.

- **Static strength:** It is the ability of the muscle to act against resistance offered by an immovable object. It is called isometric strength also. While using this kind of strength, the joint angle and muscle length do not change.
- **Endurance:** It is the ability to resist fatigue and sustain an activity for a long duration of

time. It is determined by the working capacity of the individual's muscles, the degree of resistance against fatigue and environmental conditions and their pace of recovery after exhaustion. It differs from muscular strength because it concerns the individual's capability to perform a type of task repeatedly over an extended period of time. Endurance can be of two forms like short term and long term.

- **Speed:** It is the ability to perform a movement or a continuous series of movements within a very short period of time. It can be described as the capacity to produce the greatest possible muscular action in the shortest possible time also. It also differs according to the functioning of one's nervous system. There are different kinds of speed like: Reaction Ability, Acceleration Ability, Locomotive Ability, Movement Ability and Speed Endurance.

- **Flexibility:** Flexibility is the ability of an individual's joints to execute a wide spectrum of movements. It lowers fatigue and risk of injuries and increases speed, strength and endurance at the same time. Flexibility can be of passive flexibility and active flexibility.

**3.** Explain dynamic strength and static strength in brief.

**Ans. (a) Dynamic strength:** It is involved in movement of muscles. It is known as “isotonic strength” also. It is the strength used in exercises such as lifting weights, squatting, jumping, etc. in which muscles contract and joints close and open visibly. The dynamic strength is of three types:

- **Maximum strength:** It is the ability of a muscle to overcome resistance of maximum intensity. It is commonly used in weightlifting, discus throw, hammer throw, javelin throw and also in long jump, pole vault, and high jump.

• **Explosive strength:** It is the ability of a muscle to exert against a strong resistance at high speed. This kind of strength is commonly used in high jump, long jump, pole vault and sprint starts.

• **Strength endurance:** It is ability of a muscle to overcome resistance for as long as possible. It is used in long distance running, cycling, combative sports, etc.

**(b) Static strength:** It is the ability of the muscle to act against resistance offered by an immovable object. It is also called isometric strength. While using this strength, the joint and muscle length do not change.

4. What do you understand by the term 'flexibility'? Discuss its types in detail.

**Ans.** Flexibility is the ability of an individual's joints to execute a wide spectrum of movements. An individual who has great flexibility can efficiently perform more physical activities than one who has a limited range. Flexibility also reduces the amount of time required by a sportsperson to master moves. It lowers fatigue and risk of injuries and increases speed, strength and endurance at the same time. It is determined by the anatomical structure of joints, extension of ligaments and muscles, warm body temperature and the individual's age gender and physical strength. Flexibility is required in every kind of sports. Flexibility can be of two types like:

• **Passive flexibility:** It is the ability to perform a range of movements with the aid of an external application.

• **Active flexibility:** In this kind of flexibility no external help is needed. The individual uses her/his own muscular strength to execute the movements. It is lesser in force than passive flexibility. It can be of static one in which the movement is performed while remaining in a static position.

5. Explain how health threats can be prevented through healthy changes.

**Ans.** Lifestyle is a term which we generally use to mean the way people live reflecting the entire range of social values, attitudes and activities.

Today our health fitness and illness are greatly influenced by our lifestyle covering a number of aspects of human behaviour like the way we eat, the way we drink, smoke, exercises, drug dependence, human reproduction, sexual behaviour, etc. It is very necessary for us to follow a healthy lifestyle.

We need adequate nutrition, enough sleep, sufficient physical activity, personal hygiene, habits and behaviour to contribute to promote save ourselves from the threats and endangers of life. We should therefore, apply maximum strategies to achieve optimal health for the general people and these strategies can be like: diseases and illness treatment, diseases and illness prevention, and above all health and wellness promotion. All the three need due attention and care. Diseases like cancer, heart diseases, diabetes, chronic obstructive pulmonary diseases, kidney diseases, hypertension, obesity, arthritis, depression and many other diseases are the results of poor lifestyle and health threats. It is therefore, necessary to take care of above diseases and prevent them while not smoking, avoiding drugs, not to be alcoholic, in short avoiding everything which creates any kind of health problems.

6. What are the different types of exercises that can be done to prevent various health threats?

**Ans.** Exercise features as a key area of positive lifestyle. Exercising for a few hours in a week can help expend the energy derived from food.

There are many exercises like: Aerobic or anaerobic activities that can be done at home or under the guidance of a trainer. These exercises are simple and easy and routines that require equipment. The most vital part is to stick to a daily routine and make a habit of discipline our body so that it can operate smoothly. Walking and jogging, cycling, dancing, push ups, jumping, swinging, leg stretching, toe touching, bending, running, boxing, weightlifting, tennis, hockey, football, etc. are the different types of exercises that can be done to prevent various health threats like burn fats, strengthen the joint, smoothens cardiovascular activity and to promote mental satisfaction. Therefore, by exercising for an hour daily one can avoid health risks action.

**7.** What are the components of health exercises related fitness? Explain each of them briefly.

**Ans.** The components of health-related fitness are:

- **Cardiovascular endurance:** It refers to our physical ability to undergo aerobic exercise for prolonged periods of time.

- **Muscular strength:** It deals with short duration muscle contraction involved in anaerobic activities. Short duration in this context varies from 0 to 15 seconds. In short, muscular strength means the ability of the muscles to lift weight. It is measured in pounds and dynes.

- **Muscular endurance:** Muscular endurance is defined as the ability of a muscle or a group of muscles to perform repeated muscular contraction against resistance for a longer period of time. While muscular strength deals with short duration muscle contractions, muscle endurance deals with sustained muscle contractions.

- **Body composition:** Body composition is the percentage of your body's tissues which

are composed of fat versus tissues which are fat-free. It differs from individual to individual. A healthy amount of fat for men is 15 to 18%, while that of a woman is between 20 to 25%. To avoid diseases such as diabetes, heart diseases, joint pain, muscular pain and obesity caused by excessive fat deposition, we should maintain a healthy percentage of body fat.

- **Flexibility:** Flexibility is the ability of a joint to move through a full range of motion. It is affected by joint structure, muscle length, tendons, ligaments, etc. Good flexibility in the joints can help prevent injuries through all stages of life. Without it, our posture and balance suffer and we become more vulnerable to injuries.

For improving flexibility, we can try activities that lengthen the muscles such as swimming or a basic stretching programme.

**8.** What is the importance of traditional and regional games of India?

**Ans.** Refer to pages 83-84 of the book.

**9.** Briefly describe about the following traditional and regional games of India.

**(a)** Boat Races **(b)** Akhara Kushti **(c)** Roll Ball **(d)** Mallakhamb

**Ans.** Refer to pages 81-83 of the book.

**10.** Make a table on any five traditional sports and games played in different Indian states, giving a brief description of each.

**Ans.** Refer to pages 81-83 of the book.

#### **F. Value-Based Question**

Kavya and her friends from a society decided to reduce their TV watching time and instead play games and sports to stay healthy. Today, they were playing an interesting game Kho-Kho.

**Answer the following questions based on the above passage:**

**1.** What is the history of Kho-Kho game?

2. What skills does the game of Kho-Kho require?
3. What are the values shown by Kavya and her friends?

**Ans. 1.** The history of the Kho-Kho game traces back to ancient India, with its origins believed to date back several centuries. It is often associated with Maharashtra and is recognized as one of the traditional Indian sports.

**2.** The game of Kho-Kho requires various skills such as agility, speed, quick reflexes,

coordination, teamwork, and strategic thinking. Players need to swiftly change directions, dodge opponents and tag opponents in a limited time frame.

**3.** Kavya and her friends demonstrate several values through their decision to reduce TV watching time and engage in games and sports. These values include a commitment to maintaining good health, an active lifestyle, team spirit, camaraderie, discipline, and a willingness to explore and enjoy traditional games.

## CHAPTER 6

### TEST, MEASUREMENT AND EVALUATION

P. 96–99

#### A. Objective Type/ Multiple-Choice Questions

##### I. Multiple-Choice Questions:

1. “A test is a tool to evaluate the skill, knowledge, capacities or aptitudes of an individual or a group.” Who gave this statement?

- (a) John F Kennedy
- (b) H M Barrow
- (c) Webster Dictionary
- (d) Jack Nelson

**Ans. (c) Webster Dictionary**

2. What is the systematic assessment of information using criteria governed by a set of standards that provides useful feedback about the performance of a sportsperson called?

- (a) Assessment
- (b) Evaluation
- (c) Test
- (d) Measurement

**Ans. (b) Evaluation**

3. .... is the process of assessment of a content, which can be academics, skills, knowledge, concept, quality, quantity, vocabulary, etc.

- (a) Test
- (b) Measurement
- (c) Evaluation
- (d) Result

**Ans. (a) Test**

4. .... refers to how well students do in tests and exams, whether on the field or in the classroom.

- (a) Test
- (b) Measurement
- (c) Evaluation
- (d) None of these

**Ans. (b) Measurement**

5. .... is a process of analysing the measurements acquired based on test conducted.

- (a) Test
- (b) Measurement
- (c) Evaluation
- (d) Result

**Ans. (c) Evaluation**

6. The evaluation process can be ..... or .....

- (a) theoretical, practical
- (b) test, measurement
- (c) formative, summative
- (d) right, wrong

**Ans. (c) formative, summative**

7. In anthropometric test, body measurement does not include the following.

- (a) Body weight
- (b) Ankle diameter
- (c) BMI
- (d) Waist-Hip Ratio

**Ans. (b) Ankle diameter**

8. Which one of the following developed Physical Fitness Test battery for Indian school children between the age group of 9 and 18 in 2019?

- (a) Ministry of Education, India
- (b) Fit India Mission
- (c) Indian Olympic Association
- (d) BCCI

**Ans. (b) Fit India Mission**

9. Warm-up for a duration of minutes will be an integral part of the exercise protocol.

- (a) 2–5 minutes
- (b) 5–10 minutes
- (c) 10–15 minutes
- (d) 15–20 minutes

**Ans. (b) 5–10 minutes**

10. Appropriate measures should be undertaken during the exercise to maintain adequate hydration to make up for the loss of ..... and .....



- (a) sugar, salt
- (b) water, sugar
- (c) water, salt
- (d) sugar, salt

**Ans.** (c) water, salt

**11.** In Pre test planning:

- (a) Assistants/Volunteers are arranged.
- (b) Standard test equipment are arranged.
- (c) Backup equipment are arranged.
- (d) All of these.

**Ans.** (d) All of these.

**12.** Which of the following is not considered during test operation?

- (a) Warm-up
- (b) Safety
- (c) Test record
- (d) Explanation

**Ans.** (c) Test record

## II. Match the following:

### List I

- (i) Arrangement of Equipment
- (ii) Directing the Test
- (iii) Collecting Score Sheet
- (iv) Light Stretching

### List II

(1) Post Test Function

(2) Pre Test Planning

(3) Warm-up

(4) Test Operations

### Select the correct set of options:

- (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)
- (b) (i)–(2), (ii)–(4), (iii)–(1), (iv)–(3)
- (c) (i)–(3), (ii)–(2), (iii)–(4), (iv)–(1)
- (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans.** (b) (i)–(2), (ii)–(4), (iii)–(1), (iv)–(3)

## III. Assertion-Reason Type Questions:

**CBQ**

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

**A:** In the field of sports, objectives are set to decide which goals to achieve, and how to motivate and build self-confidence to successfully achieve them.

**R:** Test, measurement and evaluation are not important factors involved in this process.

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

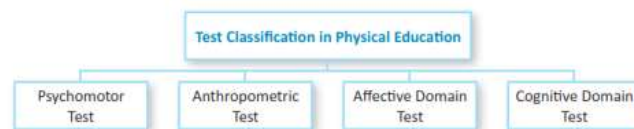
- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true.

**Ans.** (c) (A) is true, but (R) is false.

## IV. Data-Based Questions:

**CBQ**

Following flowchart gives the classification of test in physical education.



On the basis of the classification given above, answer the following questions:

**1.** BMI is an example of which of the following type of tests:

- (a) Written Tests
- (b) Physical Fitness Tests
- (c) Psychomotor Tests
- (d) Anthropometric Tests

**2.** Which type of test may be used to test social behaviour?

- (a) Anthropometric Tests
- (b) Physical Fitness Tests
- (c) Psychomotor Tests
- (d) Affective domain Tests

**3.** Which type of test may be used to test analytical skill?

- (a) Anthropometric Tests
- (b) Physical Fitness Tests
- (c) Psychomotor Tests

(d) Cognitive Domain Tests

**Ans.** 1. (d) Anthropometric Tests; 2. (d) Affective domain Tests; 3. (d) Cognitive Domain Tests

**V. Picture-Based Questions:** **CBQ**  
**Fill in the given flow chart to show the classification of Anthropometric test.**



**Ans.** 1. Stature; 2. Girth; 3. Width; 4. Skinfold /somatotypes

**VI. Case-Based Questions:** **CBQ**

1. In 2019, Fit India Mission developed Physical Fitness Test battery for Indian school children in the age group of 9–18.

On the basis of the case given, answer the following questions.

- (a) What are the various health-related fitness components?
- (b) Sit and reach test the .....
- (c) 600 m Run/Walk test the .....
- (d) How should the tests be classified?

**Ans.** (a) Body composition, cardiorespiratory endurance, muscular strength and flexibility; (b) Flexibility (c) muscular strength (d) These test can be classified into various categories or components. These components typically include assessments of body composition, strength, endurance and flexibility.

2. As a part of summer camp, a school invited test administrators for the administration of test batteries to students.

On the basis of the case given, answer the following questions.

- (a) Selection of test personnel is a part of .....
- (b) Ensuring proper demonstration is a part of .....
- (c) What are post test functions in sports?

(d) Why are students not allowed to repeat test items?

**Ans.** (a) Pre testing; (b) Test operations; (c) Test record, interpretation of result, preparation of reports, etc. (d) In order to achieve better scores

**B. Very Short Answer Type Questions**

1. Define test.

**Ans.** A test may be defined as a tool, a question or an examination which is used to measure a particular characteristic of an individual or a group of individuals.

2. Define measurement.

**Ans.** Measurement is an act or a process that involves the assignment of numerical values to whatever is being tested.

3. Define evaluation.

**Ans.** Evaluation is a process of analysing the measurements acquired based on test conducted.

4. Mention the three steps involved in evaluation process.

**Ans.** Objectives, learning experiences and behaviour modification.

5. How is TME procedure beneficial?

**Ans.** The TME procedure is beneficial for achievement, diagnosis, prescription, improvement, categorisation, grading, motivating purposes, and performance prediction.

6. In which year did the Fit India Mission develop Physical Fitness Test battery?

Which age group is it meant for?

**Ans.** The Fit India Mission developed the Physical Fitness Test battery in the year 2019. It is meant for Indian school children in the age group of 9-18 years.

7. Mention warm up protocol.

**Ans.** Warm-up protocol:

i. Warm-up for a duration of 5-10 minutes will be an integral part of the exercise protocol.

ii. Light stretching be undertaken as a part of the warm-up phase of exercise protocol which has a role in injury prevention.

**8.** Mention one guideline of Pre Test planning.

**Ans.** Arrange for assistants / volunteers, facility use and other special scheduling as needed.

**9.** Mention one guideline for Test operations.

**Ans.** Prepare students with adequate instruction and practice time in the techniques to properly perform the test items.

**10.** Mention one guideline of Post Test function.

**Ans.** All answer sheets or score sheets must be compiled in a safe place and raw scores should be converted into standard scores or may be compared with norms.

### **C. Short Answer Type-I Questions**

**1.** Define the term test with example.

**Ans.** In the context of assessment, a test refers to a method or tool used to measure a person's knowledge, skills, abilities, or other attributes. For example, a multiple-choice test in mathematics assesses a student's understanding of mathematical concepts by presenting questions with several answer choices to select from.

**2.** How are the concepts of test, measurement and evaluation interrelated?

**Ans.** The concepts of test, measurement and evaluation are closely interrelated. A test is a specific tool or method used to assess an individual's knowledge, skills, or attributes. Measurement involves the process of quantitatively determining the extent or value of something, often done through tests. Evaluation encompasses the broader process of collecting, analysing, and interpreting test results to make

judgments or assessments about the individual's performance or progress.

**3.** Define measurement and its types.

**Ans.** Measurement is the process of assigning numbers or values to quantify or describe a characteristic or attribute of an object or phenomenon. There are different types of measurement:

**i. Qualitative Measurement:** Describing or categorising characteristics without assigning numerical values.

**ii. Quantitative Measurement:** Assigning numerical values to measure the quantity or extent of a characteristic.

**4.** Write a brief note on evaluation.

**Ans.** Evaluation is a process of analysing the measurements acquired based on test conducted. Evaluation helps in grading the parameters and put them to various standards. It is the outcome of test and measurement and helps in interpreting and analysing the results obtained through various testing process and measurement techniques. The test results can only be justified through a proper evaluation process. So, we can conclude by saying that in physical education if we want to assess a learning process, performance, etc. test is used as a tool, measurement is used as a technique of assessment and evaluation is used as a criteria to analyse and appraise the final outcome. It is the process of evaluating data in order to quantify and make a professional value or worth judgement. Everyone wants to know the feedback or efficacy of the measures after the test, which may be obtained through assessment.

**5.** Write the names of any two physical education and sports test.

**Ans.** i. **Psychomotor tests** assess an individual's physical coordination, dexterity, and motor skills. These tests typically

involve tasks that require precise movements, fine motor control and hand-eye coordination. Examples of psychomotor tests include finger dexterity tests, hand-eye coordination tasks, and reaction time tests.

**ii. Anthropometric tests** measure various aspects of the human body's physical dimensions, such as height, weight, body composition, and body proportions. These measurements provide valuable information about an individual's growth, development, and overall physical characteristics. Anthropometric tests are often used in fields like sports science, ergonomics, and healthcare to assess body composition, track growth patterns, and evaluate physical fitness levels.

**6. What are the benefits of TME procedure?**

**Ans.** The TME procedure is beneficial for achievement, diagnosis, prescription, improvement, categorisation, grading, motivating purposes, and performance prediction.

**7. How would you classify tests on the basis of affective domain test?**

**Ans.** Affective domain tests include social behaviour tests, personality tests, tests that assess stress, emotional aspects, etc. These tests cover socio psychological area of a person that deals with human feelings and relationship behaviour. These tests measure behaviour and emotions.

**8. What are different types of cognitive domain tests?**

**Ans.** Cognitive Domain Test includes Knowledge Test, Application Ability Test, Analytical Skill Test and Creativity Test.

In the cognitive domain, tests assess different levels of cognitive abilities and

skills. Different types of tests within the cognitive domain are mentioned below:

**i. Knowledge Test:** Measures an individual's factual knowledge and understanding of specific information or concepts.

**ii. Application Ability Test:** Assesses an individual's ability to apply acquired knowledge and concepts to solve problems or address real-life situations.

**iii. Analytical Skill Test:** Evaluates an individual's critical thinking and analytical reasoning abilities, including the capacity to analyse and interpret information, identify patterns and make logical deductions.

**iv. Creativity Test:** Measures an individual's ability to generate novel ideas, think outside the box and come up with innovative solutions to problems.

#### **D. Short Answer Type-II Questions**

**1. Create a mind map on the classification of test.**

**Ans.** Refer to page 92 of the book.

**2. What are the environmental considerations in test administration guidelines in physical education and sports?**

**Ans.** Refer to page 94 of the book.

**3. Make a table on the test administration guidelines in physical education and sports.**

**Ans.** Refer to page 95 of the book.

#### **E. Long Answer Type Questions**

**1. Explain the concepts of test, measurement and evaluation in detail.**

**Ans.** Refer to pages 90-92 of the book.

**2. Write a note on the classification of test in physical education and sports.**

**Ans.** Refer to pages 92- 94 of the book.

3. What are the test administration guidelines in physical education and sports?

**Ans.** Refer to pages 94- 95 of the book.

4. What are the responsibilities of test administrations before and during testing? Make a table depicting this.

**Ans.** Refer to page 95 of the book.

5. Write about the responsibilities of test administrators in detail.

**Ans.** Refer to page 95 of the book.

#### **F. Value-Based Question**

The PE teacher of a school decided to conduct psychomotor tests of students. He wanted students to be physically fit so as to maximise their efficiency in sports as well as studies.

**Answer the following questions based on the above passage:**

1. What tests will he conduct for this purpose?
2. If he measured the skinfold/somatotype of students, then what is this test called?
3. What values are shown by the PE teacher?

#### **Answer.**

1. The PE teacher will conduct psychomotor tests to assess the students' physical coordination, dexterity and motor skills. These tests may include tasks that require precise movements, neuro- coordination and fine motor control.

2. If the PE teacher measured the skinfold/somatotype of students, the test is called an anthropometric test. It is a type of test that measures various aspects of the human body's physical dimensions, such as body composition, by assessing skinfold thickness at specific body locations.

3. The PE teacher is demonstrating values such as a focus on overall well-being, recognising the importance of physical fitness for both sports and academic performance, and a commitment to promoting the holistic development of students. The teacher values the connection between physical fitness and efficiency in sports as well as studies, emphasising the significance of a balanced and healthy lifestyle.

**CHAPTER 7**

**FUNDAMENTALS OF ANATOMY AND  
PHYSIOLOGY IN SPORTS**

**P. 111–115**

**A. Objective Type/ Multiple-Choice  
Questions**

**I. Multiple-Choice Questions:**

**1.** The study of the structure of living organisms is called .....

- (a) physiology
- (b) anatomy
- (c) sociology
- (d) psychology

**Ans. (b) anatomy**

**2.** The study of how living systems function is called .....

- (a) psychology
- (b) physiology
- (c) kinesiology
- (d) radiology

**Ans. (b) physiology**

**3.** The adult human body has ..... bones.

- (a) 96
- (b) 106
- (c) 206
- (d) 306

**Ans. (c) 206**

**4.** Which of these is not one of the classifications of bones based on shape and formation?

- (a) Flat bones
- (b) Regular bones
- (c) Sesamoid bones
- (d) Short bones

**Ans. (b) Regular bones**

**5.** What are immovable joints also called?

- (a) Synarthrosis
- (b) Amphiarthrosis
- (c) Synchrondrosis
- (d) Diarthrosis

**Ans. (a) Synarthrosis**

**6.** Which of these joints of the human body is an example of a hinge joint?

- (a) Wrist joint
- (b) Hip joint
- (c) Knee joint
- (d) Thumb joint

**Ans. (c) Knee joint**

**7.** The largest artery in the body is

.....

- (a) aorta
- (b) pulmonary artery
- (c) conducting artery
- (d) muscular artery

**Ans. (a) aorta**

**8.** Which part of the human body can cover the distance around the earth twice, if laid end to end two times?

- (a) Skin cells
- (b) Blood vessels
- (c) Epicardium
- (d) Atriums

**Ans. (b) Blood vessels**

**9.** Pharynx, larynx and diaphragm are a part of which system?

- (a) Skeletal system
- (b) Cardiovascular system
- (c) Respiratory system
- (d) Circulatory system

**Ans. (c) Respiratory system**

**10.** Which part of the human respiratory system is also known as the 'windpipe'?

- (a) Trachea
- (b) Larynx
- (c) Bronchi
- (d) Pharynx

**Ans. (a) Trachea**

**11.** Which of the following is not a function of respiration?



- (a) Enables inhalation and exhalation
- (b) Produces energy inside the body
- (c) Enables olfaction
- (d) Filters blood

**Ans. (d)** Filters blood

## II. Match the following:

**List I - Types of Bones      List II - Name**

- |                     |             |
|---------------------|-------------|
| (i) Long Bone       | (1) Tarsal  |
| (ii) Flat Bone      | (2) Sternum |
| (iii) Sesamoid Bone | (3) Femur   |
| (iv) Short Bone     | (4) Patella |

**Select the correct set of options:**

- (a) (i)–(4), (ii)–(1), (iii)–(3), (iv)–(2)
- (b) (i)–(2), (ii)–(3), (iii)–(1), (iv)–(4)
- (c) (i)–(3), (ii)–(2), (iii)–(4), (iv)–(1)
- (d) (i)–(4), (ii)–(3), (iii)–(2), (iv)–(1)

**Ans. (c)** (i)–(3), (ii)–(2), (iii)–(4), (iv)–(1)

## III. Assertion-Reason Type Questions:

**CBQ**

**Given below are the two statements labelled Assertion (A) and Reason (R).**

**A:** Anatomy and physiology are not really important in sports and physical education.

**R:** Using anatomy and physiology exercise methods and diet can be evaluated and altered for better performance and safety.

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

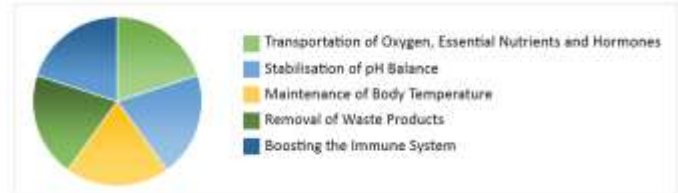
- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true.

**Ans. (b)** Both (A) and (R) are true but (R) is not the correct explanation of (A).

## IV. Data-Based Questions:

**CBQ**

**A class was being taught about the functions of circulatory system:**



**On the basis of the pie-chart given, answer the following questions:**

**1.** Which of the following gases does circulatory system throw out of our body?

- (a) CO
- (b) Hydrogen
- (c) CO<sub>2</sub>
- (d) Nitrogen

**2.** What is the ideal pH range in our blood plasma?

- (a) 4 to 6
- (b) 3.5 to 5.5
- (c) 5.5 to 7.5
- (d) 7.35 to 7.45

**3.** A rise in body temperature is controlled by the blood vessels close to the

- (a) body surface
- (b) heart
- (c) respiratory system
- (d) all of these

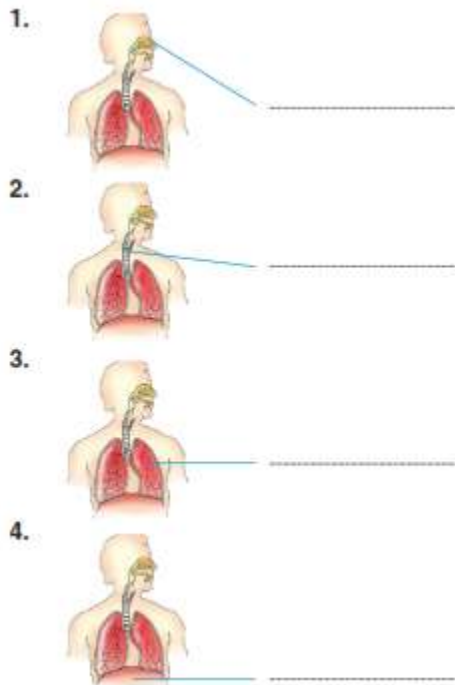
**Ans. 1.** (c) CO<sub>2</sub>;

**2.** (d) 7.35 to 7.45;

**3.** (a) body surface

**V. Picture-Based Questions:**  
Identify the following parts of the respiratory system:

**CBQ**



**Ans. 1.** Nasal Cavity; **2.** Trachea; **3.** Lungs;  
**4.** Diaphragm

**VI. Case-Based Questions:**

**CBQ**

**1.** Look at the given figure and answer the following questions.



- (a) The figure shows .....
- (b) What is the fluid between the adjoining bones called?
- (c) The adjacent ends of the bones are covered with ..... and the entire joint is surrounded by a capsule of .....
- (d) Give two examples of the above kind.

**Ans. (a)** Synovial Joint **(b)** Synovial fluid  
**(c)** hyaline cartilage, connective tissue  
**(d)** Knees and elbows

**2.** Look at the given figure and answer the following questions.



- (a)** The heart is divided into two sides by a partition known as .....
- (b)** How many chambers are there in the heart? What are these?
- (c)** The ..... are smaller in size and their walls are thinner and less muscular.
- (d)** How many layers are there in the wall of the heart? What are these?

**Ans. (a)** Interventricular septum; **(b)** Four chambers, atriums and ventricles;  
**(c)** atriums; **(d)** Three layers; epicardium, myocardium and endocardium

**B. Very Short Answer Type Questions**

**1.** Define anatomy.

**Ans.** Anatomy is the branch of biology that studies the structure and organisation of living organisms, including their organs, tissues and systems, through dissection, examination and observation.

**2.** Define physiology.

**Ans.** Physiology is the branch of biology that studies the functions and processes of living organisms and their parts, focusing on how organs, tissues and systems work together to maintain homeostasis and carry out various biological functions.

**3.** How many bones does an adult human body have?

**Ans.** An adult human body typically has 206 bones, including those in the axial skeleton (skull, vertebral column and ribcage) and the appendicular skeleton (limbs and their girdles).

**4.** How are RBCs and lymphocytes produced?

**Ans.** Some bones have bone marrow in the middle. This jelly-like part makes up 4% of total human body mass. It continuously produces red blood cells (RBCs) and lymphocytes.

**5.** How is the movement of body possible?

**Ans.** The skeleton is closely associated with skeletal muscles, which are attached to the skeleton by tendons and ligaments. Together they make movements of the body possible.

**6.** Give two examples of irregular bones.

**Ans.** Vertebra and hip bones.

**7.** What are joints?

**Ans.** Joints are the points where bones intersect. They hold the skeleton together and help it to carry out movements.

**8.** What are immovable joints also called?

**Ans.** Immovable joints are also known as *synarthrosis*.

**9.** Give one example of hinge joint.

**Ans.** Knee is the example of hinge joint.

**10.** Give one example of ball and socket joint.

**Ans.** Hip joint is the example of ball and socket joint.

**11.** How are arteries divided?

**Ans.** Arteries are divided into different categories based on their size and branching patterns. They are classified as conducting arteries, muscular arteries and arterioles, each with varying amounts of elastic fibres, smooth muscle and diameter.

**12.** Mention two functions of circulatory system.

**Ans. i.** The circulatory system's most important function is the non-stop transportation of oxygen, essential nutrients and hormones to the rest of the human body.

**ii.** By releasing hormones and WBCs at the injured sites, the circulatory system also boosts the resistance of our body and protects us from diseases.

**13.** What is voice box?

**Ans.** The larynx is responsible for the production of sound so, it is also known as 'voice box'.

**14.** What are the types of respiration?

**Ans.** The two types of respiration are external respiration and internal respiration. External respiration refers to the exchange of gases (oxygen and carbon dioxide) between the lungs and the external environment, while internal respiration involves the exchange of gases at the cellular level within body tissues.

**15.** Mention two functions of respiration.

**Ans.** Two functions of respiration are:

**i. Oxygenation:** Respiration enables the intake of oxygen into the body, which is essential for cellular metabolism and energy production.

**ii. Elimination of Carbon Dioxide:** Respiration facilitates the removal of carbon dioxide, a waste product of cellular metabolism, from the body.

### **C. Short Answer Type-I Questions**

**1.** What is anatomy? What are its different types?

**Ans.** Anatomy is the study of the structure of living organisms. It is divided into gross or macro and microscopic anatomy. Systemic, regional and surface anatomy are

subdivision of gross anatomy. Microscopic anatomy includes cytology and histology.

**2.** What is physiology? How is it divided?

**Ans.** Physiology is the study of how living systems function. Physiology is further divided into human physiology, cellular and systemic physiology.

**3.** What is the importance of anatomy and physiology in the selection of sports?

**Ans.** Sports should be chosen based on individual anatomical and physiological characteristics. Factors such as bone structure, organ placement and physical capabilities differ among individuals. For instance, sprinting suits tall athletes with fast twitch fibres, while weightlifting is more suitable for shorter individuals. Gymnastics requires flexibility rather than muscular build, attracting those with nimble bodies. Swimmers typically have long torsos and a slender physique. Therefore, considering these factors helps unleash the potential of athletes in their chosen sports.

**4.** What is the importance of anatomy and physiology in sports? Give two examples.

**Ans.** Anatomy and physiology play a crucial role in sports by providing a deeper understanding of the body's structure and function. This knowledge is vital for optimising performance, preventing injuries and designing effective training programs. For example, understanding the biomechanics of joint movements helps improve technique in sports like tennis or golf. Knowledge of energy systems and muscle physiology allows athletes to enhance endurance and optimise nutrition for events like marathons. Overall, anatomy and physiology provide the foundation for informed training, performance analysis and injury prevention in sports.

**5.** What are the different types of skeletal system?

**Ans.** The skeletal system can be classified into two main types: the axial skeleton and the appendicular skeleton. The axial skeleton consists of the skull, vertebral column and ribcage, providing support and protection for vital organs. The appendicular skeleton includes the bones of the upper limbs (arms), lower limbs (legs), pectoral girdle (shoulder) and pelvic girdle (hips), facilitating movement and locomotion. These two types of skeletal systems work together to maintain the body's structure, protect organs, and enable various physical activities.

**6.** Mention any three functions of skeletal system.

**Ans.** Refer to page 102 of the book.

**7.** Classify bones on the basis of their shape and formation.

**Ans.** Refer to page 102 of the book.

**8.** Classify joints according to their range of motion.

**Ans.** Refer to pages 102- 103 of the book.

**9.** Give the structural classification of joints.

**Ans.** Joints can be classified structurally into three main types: fibrous joints, cartilaginous joints and synovial joints. Fibrous joints are characterised by dense connective tissue and allow little to no movement, such as the sutures in the skull. Cartilaginous joints have cartilage between the bones and allow limited movement, like the intervertebral discs. Synovial joints are the most common and complex, with a joint capsule, synovial fluid and articular cartilage, allowing a wide range of movements, such as the hinge joint of the elbow or the ball-and-socket joint of the hip.

**10.** How does pharynx serve as a part of digestive system too?

**Ans.** The pharynx serves as a part of the digestive system by facilitating the passage of food from the mouth to the esophagus. It plays a crucial role in the process of swallowing. When food is chewed and mixed with saliva in the mouth, it forms a bolus. The pharynx acts as a muscular tube that receives the bolus and propels it downward into the esophagus through a coordinated muscular movement called peristalsis. Thus, the pharynx acts as a conduit, allowing the passage of food from the oral cavity to the digestive tract.

**11.** Mention the different types of circulation.

**Ans.** The different types of circulation of blood include systemic circulation, pulmonary circulation and coronary circulation. Systemic circulation involves the circulation of oxygenated blood from the heart to the body tissues and the return of deoxygenated blood back to the heart. Pulmonary circulation is responsible for the exchange of oxygen and carbon dioxide between the heart and the lungs. Coronary circulation supplies oxygenated blood to the heart muscle itself. These circulatory pathways ensure the efficient delivery of oxygen, nutrients, and waste removal throughout the body and maintain proper functioning of vital organs.

**12.** Manish is an athlete. What condition of heart does he have?

**Ans.** Manish is an athlete. In general, athletes tend to have a larger heart with certain adaptations compared to non-athletes. This is known as athlete's heart or athletic heart syndrome. The left ventricle, responsible for pumping oxygenated blood to the body, is often enlarged. The increased size is a result of regular exercise

and training, which leads to improved cardiac output. Other adaptations may include increased thickness of the heart muscle and lower heart rate at rest. However, it's important to note that these changes are considered normal physiological adaptations to exercise in athletes rather than pathological conditions.

**13.** Mention briefly the mechanism of respiration.

**Ans.** Refer to pages 108-109 of the book.

**14.** Describe the structure of arteries.

**Ans.** Arteries have a distinct structure that allows them to withstand high pressure and efficiently transport oxygenated blood away from the heart. They consist of three main layers: the tunica intima (innermost layer), tunica media (middle layer) and tunica adventitia or externa (outer layer). The tunica intima is composed of a single layer of endothelial cells. The tunica media is predominantly made up of smooth muscle cells and elastic fibres, providing strength and elasticity. The tunica externa is composed of connective tissue that provides support and protection. Arteries also have a central lumen through which blood flows.

**15.** What are the different categories of arteries? What are their functions? Present in a tabular form.

**Ans.** Here's a tabular representation of different categories of arteries and their functions:

Artery Category	Description	Function
Elastic Arteries	Large arteries closest to the heart	Recoil and maintain blood pressure, propel

		blood forward
Muscular Arteries	Medium-sized arteries branching from elastic arteries	Distribute blood to specific organs and tissues
Arterioles	Smallest arteries branching from muscular arteries	Regulate blood flow and control blood pressure

**16.** Why is it better to breathe through the nose than through the mouth?

**Ans.** Breathing through the nose is generally considered better than breathing through the mouth for several reasons. The nose acts as a natural air filter, warming and humidifying the air while trapping particles and allergens. It also produces nitric oxide, which helps dilate blood vessels and improve oxygen uptake. Nasal breathing promotes slower and deeper breaths, enhancing the exchange of oxygen and carbon dioxide in the lungs. Additionally, it promotes better oral health by reducing dryness and bacterial growth in the mouth.

**17.** What are the functions of respiratory system?

**Ans.** The respiratory system performs vital functions necessary for the body's survival. Its primary functions include the exchange of gases (oxygen and carbon dioxide) between the air and blood, providing oxygen for cellular respiration and eliminating carbon dioxide waste. It helps regulate pH balance in the body by controlling the levels of carbon dioxide. The respiratory system also aids in vocalization and speech production. Additionally, it plays a role in immune defence by filtering

and removing harmful particles from the air and producing antibodies in the respiratory tract.

**18.** How do the circulatory and respiratory systems work together?

**Ans.** The circulatory and respiratory systems work closely together to ensure the efficient exchange of oxygen and carbon dioxide in the body. During respiration, the respiratory system brings in oxygen and removes carbon dioxide from the lungs. The circulatory system, specifically the pulmonary circulation, transports oxygen-depleted blood from the body to the lungs where it picks up oxygen and releases carbon dioxide. The oxygen-rich blood is then pumped by the heart into the systemic circulation, delivering oxygen to body tissues and organs while collecting carbon dioxide for elimination. This coordinated effort ensures the continuous supply of oxygen and removal of carbon dioxide throughout the body.

#### D. Short Answer Type-II Questions

**1.** How does anatomy differ from physiology?

**Ans.** The difference between the two can be enumerated as under:

- **Anatomy:** It is the study of the structure of living organisms. It is derived from two Greek words ana and tomia. Ana means up and tomia means cutting. Therefore, the word anatomy means cutting up, which implies that the focus of anatomy is not just the body that we see outside but the internal placement and arrangement of organs, tissues, bones, muscles, etc. of that body.

- **Physiology:** On the other hand, physiology is the study of how living systems function. 'Physiology' studies the nature while anatomy studies the physical aspects of body components, unravels the



function of those components and their interrelationship.

2. How is the skeletal system classified?

**Ans.** Skeletal system can be classified as under:

It is a combination of all bones in the body together with the structure that supports them.

The adult human body has 206 bones of various shapes and sizes joined together by tendons, ligaments and cartilage.

- **Axial skeleton:** It consists of the vertebral column, the rib cage and the skull. It is responsible for maintenance of upright posture carrying the weight from the head to the hip points. It has a total of 80 bones in the axial skeleton: skull 28, vertebral column 26, hyoid bone 1, sternum 1 and ribs 24.

- **Appendicular skeleton:** It consists of the upper and lower limbs and pectoral and pelvic girdles. Their functions are to make movements of the limbs possible in addition to protecting internal organs. They are a total of 126 bones – upper limbs 64 and lower limbs 62.

3. What are the functions of the skeletal system?

**Ans.** The functions of the skeletal system are:

- **Locomotion:** It is closely associated with skeletal muscles which are attached to them by tendons and ligament. Together they make movement of the body possible.

- **Support:** It lends support to the whole body.

- **Protection:** Bones like the skull and pelvis protect vital organs.

- **Calcium storage:** Bones and teeth store most of the calcium supply of the body.

- **Acting as levers:** Our bones are the levers of our body.

- **Endocrine regulation:** The bones cells release a hormone called osteocalcin. It controls regulation of glucose and fat deposition.

4. How are bones classified?

**Ans.** Bones can be classified on the basis of their shape and formation as under:

- **Long bones:** These bones are found mainly in the upper and lower limbs. They have a long shaft and two expanded ends on each side. The shafts have a cavity here bone marrows can be found.

- **Short bones:** These bones are found in the wrist and ankle. They are short and have geometrical shapes.

- **Flat bones:** These are protective bones which resemble shallow plates.

- **Sesamoid bones:** These bones are small and independent which take the form of nodules attached to tendons and joint capsules.

- **Irregular bones:** These bones like vertebra, hip and at the base of the skull do not have well defined shapes and are known as irregular bones.

5. How would you differentiate between the skeletal system and bones?

**Ans.** The skeletal and bones can be differentiated as under:

The skeletal system is a combination of all the bones in the body together with the structures that support them. The adult human body has 206 bones of various shapes and sizes. They are joined together by tendons, ligaments and cartilage. This system is further divided into two more types like axial skeleton consisting of the

vertebral column, the ribs cage and the skull.

It is responsible for the maintenance of upright posture, consisting of the upper and lower limbs, and pectoral and pelvic girdles. Their functions are to make movements of the limbs possible. We can say that bones jointly form the skeletal system.

**6.** Create a mind map on joints and their types.

**Ans.** Refer to pages 103-104 of the book.

**7.** How do muscles regulate body temperature?

**Ans.** Skeletal muscles help our body to retain its internal temperature when exposed to condition that might lower it. When it gets suddenly cold, our body starts shivering. This is a sign of skeletal muscles contracting to produce heat inside the body. Smooth vessels of the blood vessels restrict supply of blood to the skin so that loss of body heat on the surface is limited. In the opposite situation, these muscles relax to increase blood flow and loss of heat through the surface.

**8.** Briefly describe the heart.

**Ans.** Refer to pages 104-105 of the book.

**9.** How do arteries differ from veins?

**Ans.** Arteries and veins are two types of blood vessels with distinct characteristics. Arteries carry oxygenated blood away from the heart, while veins transport de-oxygenated blood back to the heart. Arteries have thicker walls, with a prominent tunica media comprising smooth muscle and elastic fibres, allowing them to withstand high pressure. Veins have thinner walls, larger lumens, and contain valves to prevent backflow. Arteries typically have a pulsatile flow due to the pumping action of the heart, while veins have a steady, non-

pulsatile flow aided by skeletal muscle contractions.

**10.** What are the different types of capillaries?

**Ans.** Refer to page 107 of the book.

**11.** Write a short note on the lymphatic system.

**Ans.** Refer to page 107 of the book.

**12.** Write down the functions of the circulatory system.

**Ans.** Refer to pages 107-108 of the book.

**13.** Discuss the three types of circulation performed by the heart.

**Ans.** Refer to pages 105-106 of the book.

### **E. Long Answer Type Questions**

**1.** Briefly discuss the importance of anatomy and physiology in sports and physical education.

**Ans.** The importance of anatomy and physiology in sports and physical education are:

- It gives the knowledge of human body.
- It helps in the selection of sports.
- It helps in the prevention of sports injuries.
- Augmenting rehabilitation and first aid.
- Preparation of training programmes.
- Understanding the differences between male and female.
- Correct sports massage therapy.
- Proper physical fitness development.
- Cultivating a culture of knowledge.

**2.** Explain the classification of the skeletal system and bones.

**Ans.** The classification of the skeletal system and bones are:

- **Axial skeleton:** This system consists of the rib cage and the skull. It is responsible for maintenance of upright posture, carrying the weight from the head to the hip joint.

- **Appendicular skeleton:** It consists of the upper and lower limbs, and pectoral and pelvic girdles.

### The classification of the bones:

- **Long bones:** These type of bones are found in the upper and lower limbs. They act as levers and execute movement. They have a long shaft and two expanded ends on each side.
- **Short bones:** These are found in the wrist and ankle. They are short and have geometrical shapes.
- **Flat bones:** These are protective bones which resemble shallow plates.
- **Sesamoid bones:** These are small and independent bones which take the form of nodules attached to tendon and joint capsules.
- **Irregular bones:** Bones such as vertebra, hip, bones and bones at the base of the skull. These do not have defined shape and are known as irregular bones.

3. Describe the classification of joints.

**Ans.** Joints are classified into three groups. They are:

- **Immovable joints:** These joints are known as synarthrosis joints also. These include skull sutures, facial bones except the mandible and the joint between the first pair of ribs and the sternum. They are sometimes called fibrous joints as they are connected by fibrous tissues.
- **Slightly movable joints:** These joints unite bones with cartilage which give them another name cartilaginous joints. They are further divided into two types: Symphysis which connects two long bones with a broad, flat. Synchrondrosis which are found in the epiphyseal plates of growing bones in children.

- **Freely movable joints:** These joints are freely movable as they have a cavity filled with synovial fluid between the adjoining bones. These bones are further divided into joints like: gliding joints, hinge joints, condyloid joints, saddle joints, ball and socket joints and pivot joints.

4. Discuss the circulatory system and its components.

**Ans.** The circulatory system is a vital network of organs and vessels that work together to transport blood, nutrients, hormones, oxygen, antibodies and lymph throughout the body. By continuously supplying these substances and removing waste products such as carbon dioxide, it maintains homeostasis and fights diseases. The components of circulatory system are:

- Heart
- The three vessels
- Lymph system

Refer to pages 105-107 for more details.

5. What are the functions of circulatory system?

**Ans.** Refer to pages 107-109 of the book.

6. Write a note on the various parts of the respiratory system.

**Ans.** Refer to pages 107-108 of the book.

7. Make a table on the mechanism of respiration.

**Ans.** Refer to pages 109-110 of the book.

8. Discuss the two types of respiration.

**Ans.** Refer to page 110 of the book.

### F. Value-Based Question

Nitya wants to be a sprinter. But her PE teacher suggests her to be a gymnast instead as he says that she will excel in gymnastics.

**Answer the following questions based on the above passage:**

1. What type of anatomy is required to be a gymnast?

2. What should be our criteria while choosing a sport?

3. What values does Nitya's PE teacher show?

**Ans.** 1. To excel in gymnastics, an individual typically requires a flexible and nimble body. This includes qualities like good joint mobility, balance, coordination, and strength-to-weight ratio. Additionally, having a lean and toned physique with good agility and body control is beneficial for performing various gymnastic movements.

2. When choosing a sport, criteria should include considering individual physical capabilities, and personal preferences. Factors like body type, natural strengths,

coordination, flexibility, and anatomy, muscular attributes should be taken into account. Additionally, interests, passion, and enjoyment in a particular sport should be considered, as they can enhance motivation and long-term commitment.

3. Nitya's PE teacher demonstrates values such as assessing individual abilities, providing guidance based on their potential, and suggesting a sport where Nitya might excel. This shows a focus on helping students find their strengths and potential, and guiding them towards activities where they can thrive and maximize their abilities. It also showcases an understanding of the specific requirements and demands of different sports.

## CHAPTER 8

### FUNDAMENTALS OF KINESIOLOGY AND BIOMECHANICS IN SPORTS

P. 122–126

#### A. Objective Type/ Multiple-Choice Questions

##### I. Multiple-Choice Questions:

1. Kinesiology is the study of .....

- (a) kinetics
- (b) movement
- (c) health
- (d) psychology

**Ans. (b)** movement

2. Neuroplasticity is the ..... change in the brain which occurs as per our changing interactions with our environment.

- (a) physiological
- (b) neurological
- (c) psychological
- (d) anatomical

**Ans. (a)** physiological

3. Which of the following outlines the importance of biomechanics in sports?

- (a) Improvement of training
- (b) Understanding of the human body
- (c) Development of new methods
- (d) All of these

**Ans. (d)** All of these

4. Biomechanics helps in which of the following?

- (a) In improving technique
  - (b) In improving designs of sports equipment
  - (c) In improving performance
  - (d) All of these
- (CBSE 2020)

**Ans. (d)** All of these

5. Which one of the following is a correct term for flexion?

- (a) Turning
- (b) Twisting
- (c) Bending
- (d) Straightening

**Ans. (c)** Bending

6. A decrease in the angle between the femur and the tibia because of the movement of the knee is an example of which type of movement?

- (a) Flexion
- (b) Extension
- (c) Abduction
- (d) Adduction

**Ans. (a)** Flexion

7. .... increases the angle between two body parts.

- (a) Flexion
- (b) Abduction
- (c) Extension
- (d) Adduction

**Ans. (c)** Extension

8. Circumduction is a ..... movement of a body part

- (a) vertical
- (b) conical
- (c) horizontal
- (d) none of these

**Ans. (b)** conical

9. This axis is perpendicular to the coronal plane.

- (a) Frontal axis
- (b) Sagittal axis
- (c) Vertical axis
- (d) None of these.

**Ans. (b)** Sagittal axis

10. What is the name of the plane which divides the body into left and right parts?

- (a) Vertical plane
- (b) Coronal plane
- (c) Sagittal plane
- (d) Transverse plane

**Ans. (c)** Sagittal plane

11. Which of the following planes passes through the human body?

- (a) Sagittal
- (b) Coronal/frontal
- (c) Transverse or horizontal
- (d) All of these

**Ans. (d)** All of these

## II. Match the following:

**List I - Motion**      **List II - Gross Movements**

- (i) Flexion                      (1) Throwing  
(ii) Abduction                (2) Star Jump  
(iii) Internal Rotation      (3) Walking  
(iv) Horizontal Flexion      (4) Baseball Swing

**Select the correct set of options:**

- (a) (i)–(3), (ii)–(4), (iii)–(2), (iv)–(1)  
(b) (i)–(2), (ii)–(1), (iii)–(3), (iv)–(4)  
(c) (i)–(1), (ii)–(3), (iii)–(4), (iv)–(2)  
(d) (i)–(3), (ii)–(2), (iii)–(1), (iv)–(4)

**Ans. (c)** (i)–(1), (ii)–(3), (iii)–(4), (iv)–(2)

## III. Assertion-Reason Type Questions:

**CBQ**

**Given below are the two statements labelled Assertion (A) and Reason (R).**

**A:** In sports, biomechanics has a crucial role both in injury prevention and enhancement of performance.

**R:** The laws of mechanics are applied to understand the activities and techniques of the players and the implications that mechanics have for human movements using quantitative data for its analysis, obtained through mathematical modelling, measurement, computer simulation, etc.

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

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).  
(b) Both (A) and (R) are true but (R) is not the correct explanation of (A).  
(c) (A) is true, but (R) is false.  
(d) (A) is false, but (R) is true.

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

## IV. Data-Based Questions:

**CBQ**

**Biomechanics has proved useful in the development of the equipment in the following areas.**



**On the basis of the pie-chart given above, answer the following questions:**

**1.** Which of the following equipment can be classified as personal?

- (a) Shoes                      (b) Gears  
(c) Helmets                  (d) All of these

**2.** Which of the following equipment is not technical?

- (a) Bats                        (b) Pen  
(c) Wickets                  (d) Racing cars

**3.** Equipment like heart rate monitor, accelerometer and stopwatch are .....

**Ans. 1.** (d) All of these

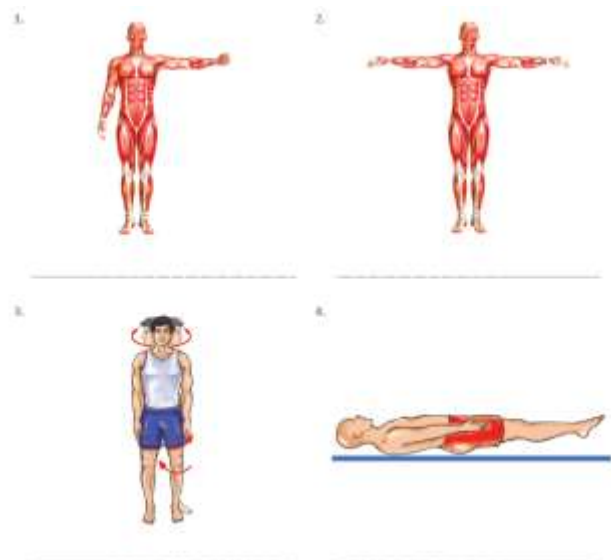
**2.** (b) Pen

**3.** (a) Instruments

## V. Picture-Based Questions:

**CBQ**

**Identify the following parts of the respiratory system:**





**Ans. 1.** Extension **2.** Abduction **3.** Rotation  
**4.** Supination

**VI. Case-Based Questions:** **CBQ**

**1.** Every sportsperson does at least one of the six types of body movements at a time when she/he engages in a game.

On the basis of the situation given, answer the following questions:

**(a)** Which body part falls in the exception zone of flexion?

**(b)** When the sportsperson squats, which movements will she/he be performing?

**(c)** If a sportsperson flaps her/his arms to warm up, she/he performing .....

**(d)** If a sportsperson flexes her/his elbow, she/he is performing .....

**Ans. (a)** Thumb **(b)** flexion **(c)** Abduction and adduction of the arms. **(d)** Flexion at the elbow joint.

**2.** Look at the figures and answer the following questions.



(Figure A)



(Figure B)

**(a)** Figure A depicts ..... position.

**(b)** Figure B depicts ..... position.

**(c)** Describe pronation and supination of the forearm.

**(d)** Describe pronation and supination of the foot.

**Ans. (a)** Pronation **(b)** Supination

**(c)** Pronation at the forearm is a rotational movement wherein the hand and upper arm are turned inwards. Supination of the

foot refers to turning of the sole of the foot inwards, shifting weight to the lateral edge.

**(d)** Pronation of the foot refers to turning of the sole outwards, so that the weight is borne on the medial part of the foot.

Supination of the foot refers to turning of the sole of the foot inwards, shifting weight to the lateral edge.

**B. Very Short Answer Type Questions**

**1.** What is the study of movements called?

**Ans.** The study of movements is called as kinesiology.

**2.** Mention one scope for the practice of Kinesiology as per CKA.

**Ans.** One scope for the practice of Kinesiology as per CKA is enhancing occupational performance and promoting workplace health through the application of ergonomic principles.

**3.** Mention any two importance of Kinesiology in sports and physical education.

**Ans. i.** Kinesiology is an inclusive subject that covers personal, public and environmental health. A lot can be learned about the nature of motor functions through familiarisation with this subject.

**ii.** Kinesiology involves application of biomechanics, anatomy, physiology and psychology to examine how the human body responds to physical activity.

**4.** What are the two crucial roles of biomechanics in sports?

**Ans.** The two crucial roles of biomechanics in sports are:

**i. Enhancing performance:** Biomechanics helps optimise technique, efficiency and movement patterns to maximise performance and minimise the risk of injuries.

**ii. Injury prevention and rehabilitation:** Biomechanical analysis helps identify injury

mechanisms, design interventions and aid in the rehabilitation process for athletes.

**5.** Mention one broad aim of biomechanics in sports.

**Ans.** One broad aim of biomechanics in sports is to understand and improve the mechanical aspects of human movement to enhance athletic performance, prevent injuries and optimise training and technique.

**6.** Mention any two main principles of biomechanics.

**Ans. i. Principle of Force–Motion:** This principle says that an unbalanced forces (and the subsequent torques they induce) create or tend to modify the motion. For example, standing still–forces acting on a person are equal and because of this there is no movement.

**ii. Principle of Force–Time:** According to this principle, modification of movement depends on the time period of force application ( $\text{Impulse} = \text{Force} \times \text{Time}$ ). For example, using the sweep shot in hockey wherein more force and time are applied giving it much more power than a hit.

**7.** What are the different types of body movement?

**Ans.** The different types of body movement include flexion (bending), extension (straightening), abduction (moving away from the body), adduction (moving towards the body), rotation (turning) and circumduction (circular movement).

**8.** What are the three kinds of axis?

**Ans.** The three kinds of axis in human body movement are the sagittal axis (divides the body into left and right halves), the frontal axis (divides the body into front and back halves) and the longitudinal axis (divides the body into top and bottom halves).

**9.** What are the three planes that pass through the human body?

**Ans.** The three planes that pass through the human body are the sagittal plane (divides the body into left and right halves), the frontal plane (divides the body into front and back halves), and the transverse plane (divides the body into upper and lower halves).

### C. Short Answer Type-I Questions

**1.** Define Kinesiology.

**Ans.** Kinesiology is the study of movements, whether of the human body or of non-human animals. It is a multifaceted subject which covers an array of sub-disciplines, such as psychology of physical activity, biomechanics, exercise physiology, history of physical activity, measurement of physical activity, motor development, motor learning and control, philosophy of physical activity, physical activity and public health, physical education pedagogy, etc.

**2.** What are the three main scopes of practice of Kinesiology?

**Ans.** The three main scopes of practice of Kinesiology are:

**i. Adaptation through Exercise:** Use of exercises to improve overall health and physical fitness of individuals.

**ii. Neuroplasticity:** Neuroplasticity is the physiological change in the brain which occurs as per our changing interactions with our environment. The neural network of the brain expands with the addition of new experiences. This aspect of brain function is a salient part of kinesiology, since we not only learn but also need to remember and adjust our motor skills.

**iii. Motor Redundancy:** According to this concept, any physical task which can be performed by the human body can be done so in unlimited number of ways.

**3.** Write any four importance of Kinesiology in sports and physical education.

**Ans.** Four important aspects of Kinesiology in sports and physical education are:

**i. Performance enhancement:** Kinesiology helps optimise technique, movement efficiency and training methods to enhance athletic performance.

**ii. Injury prevention:** By understanding biomechanics and movement patterns, Kinesiology aids in identifying injury risks and implementing strategies to minimize them.

**iii. Rehabilitation:** Kinesiology techniques are used in the rehabilitation of injuries, helping individuals regain mobility and strength.

**iv. Movement analysis:** Kinesiology provides a scientific basis for analysing and improving movement skills in sports and physical education settings.

**4.** Define biomechanics.

**Ans.** The word 'biomechanics' is an amalgamation of two Greek words: 'bio' for 'life' or 'living things', and 'mechane' for 'machine'. It has been defined as the science that deals with the study of the effects produced by internal and external forces when they act on a biological system.

**5.** Write any four importance of biomechanics in sports and physical education.

**Ans.** Refer to page 118 of the book.

**6.** Write any four main principles of biomechanics.

**Ans.** Refer to pages 118-119 of the book.

**7.** Rubina was warming-up for the exercise and extended her elbow till the angle between ulna and humerus increased until it reached 180° and arm became straight. What is this body movement?

**Ans.** The body movement described in the scenario is extension of the elbow joint.

When Rubina extended her elbow, increasing the angle between the ulna (forearm bone) and humerus (upper arm bone) until it reached 180°, her arm became straight. Extension refers to the movement that increases the angle between two body parts, in this case, straightening the arm at the elbow joint.

**8.** What is circumduction?

**Ans.** Circumduction is a conical movement of a body part, such as a ball and socket joint or the eye. This body movement is a combination of flexion, extension, adduction and abduction.

**9.** What is supination?

**Ans.** When a person is laying face-up on a surface, it is supination. Supination is a rotational movement of the forearm or foot that turns the palm or sole upward or forward, respectively. In the context of the forearm, supination involves the rotation of the radius bone so that the palm faces upward or forward. This movement is commonly observed when turning a doorknob or holding a cup with the palm facing upward.

**10.** Define axis.

**Ans.** An axis is an imaginary straight line about which a body rotates. Movement at the joint takes place in a plane about an axis.

**11.** Define plane.

**Ans.** In the context of biomechanics and anatomy, a plane is an imaginary two-dimensional surface or flat area that is used as a reference for describing movements or dividing the body into sections. The three main planes in human anatomy are the sagittal plane, frontal plane and transverse plane. These planes are used to analyse and describe the various motions and positions of body parts in relation to each other.

#### D. Short Answer Type-II Questions

1. What is Kinesiology? What is the importance of Kinesiology in sports and physical education?

**Ans.** Refer to pages 116-117 of the book.

2. What is biomechanics? What is the importance of biomechanics in sports and physical education?

**Ans.** Refer to pages 117-118 of the book.

3. Discuss the principles of biomechanics.

**Ans.** Refer to pages 118-119 of the book.

4. Make a table and differentiate between flexion and extension, and abduction and adduction.

**Ans.** Table differentiating between flexion and extension, and abduction and adduction:

Movement	Definition	Example	Body Part
Flexion	Decreasing angle between body segments	Bending the elbow joint	Elbow joint, knee joint
Extension	Increasing angle between body segments	Straightening the elbow joint	Elbow joint, knee joint
Abduction	Moving away from the midline of the body	Moving the arm to the side	Shoulder joint, hip joint

Adduction	Moving towards the midline of the body	Bringing the arm back towards the body	Shoulder joint, hip joint
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5. Create a mind map on the concept of axis and plane and their application in body movements.

**Ans.** Refer to page 121 of the book.

#### E. Long Answer Type Questions

1. Discuss the concept and application of Kinesiology.

**Ans.** Kinesiology is the study of movements, whether of the human body or that of non-human animals. The word is a combination of the Greek word for 'movement' (Kinesis) and study (logos).

It is a multifaceted subject which covers an array of sub-disciplines such as, psychology of physical activity, biomechanics, exercise physiology, history of physical activity, and measurement of physical activity. Motor development, motor learning and control, philosophy of physical activity, physical activity and public health, physical education pedagogy, etc. Kinesiology is applied in strength training, sports conditioning, physical and occupational therapy and occupational health and safety.

2. Discuss in detail the importance of biomechanics in sports.

**Ans.** Refer to page 118 of the book.

3. Discuss in detail the principles of biomechanics.

**Ans.** Refer to pages 118-119 of the book.

4. Discuss any four major movements accomplished by the human body.

**Ans.** Refer to pages 119-120 of the book.

**5.** Make a table to differentiate between pronation and supination.

**Ans.** Table differentiating between pronation and supination:

Movement	Definition	Example	Body Part
Pronation	Rotational movement of the forearm/foot inward or downward, resulting in the palm/sole facing downward or backward	Rotating the forearm medially, palm facing backward	Forearm, Foot
Supination	Rotational movement of the forearm/foot outward or upward, resulting in the palm/sole facing upward or forward	Rotating the forearm laterally, palm facing upward	Forearm, Foot

**6.** What is axis? Discuss its various types.

**Ans.** In the context of biomechanics and anatomy, an axis refers to an imaginary line around which a body or body part rotates or moves. It serves as a reference point for describing the direction and plane of movement. There are three main types of axes:

i. **Sagittal Axis** : This axis runs horizontally from front to back and is perpendicular to the frontal plane. Movements occurring around this axis include flexion and

extension, where the body or body part bends or straightens along the sagittal plane. For example, bending and extending the elbow or knee.

ii. **Frontal Axis:** This axis runs horizontally from side to side and is perpendicular to the sagittal plane. Movements occurring around this axis include abduction and adduction, where the body or body part moves away from or towards the midline along the frontal plane. For example, moving the arm out to the side (abduction) or bringing it back towards the body (adduction).

iii. **Vertical or Longitudinal Axis:** This axis runs vertically from top to bottom and is perpendicular to the transverse plane. Movements occurring around this axis include rotation, where the body or body part turns or twists along the transverse plane. For example, rotating the head, trunk, or torso.

Understanding these axes helps in describing and analysing the movements of the human body in different planes and directions. They provide a useful framework for studying biomechanics, assessing movement patterns and designing effective exercise and rehabilitation programs.

**7.** What is plane? Discuss its various types.

**Ans.** In biomechanics and anatomy, a plane refers to an imaginary two-dimensional surface or flat area that is used as a reference for describing movements or dividing the body into sections. There are three main types of planes:

i. **Sagittal Plane:** The sagittal plane divides the body into left and right halves. Movements occurring within this plane are primarily forward and backward. Examples

of movements in the sagittal plane include flexion (bending), extension (straightening), and plantar flexion of the foot.

**ii. Frontal Plane:** The frontal plane divides the body into front and back halves. Movements occurring within this plane are primarily side-to-side or lateral movements. Examples of movements in the frontal plane include abduction (moving away from the midline) and adduction (moving towards the midline).

**iii. Transverse Plane:** The transverse plane divides the body into upper and lower halves. Movements occurring within this plane are primarily rotational or twisting movements. Examples of movements in the transverse plane include rotation of the head, trunk or limbs.

#### **F. Value-Based Question**

The PE teacher of a school organised a camp to evaluate the biomechanics, anatomy, physiology and psychology of students to assign specific physical education training to them and see how they respond to these.

**Answer the following questions based on the above passage:**

**1.** What is the branch that deals with the above-mentioned parameters called?

**2.** Mention any two importance of this branch.

**3.** What values of PE teacher are depicted here?

**Ans.**

**1.** The branch that deals with the above-mentioned parameters is called Kinesiology. It encompasses the study of biomechanics, anatomy, physiology, and psychology as they relate to human movement, exercise and sports performance.

**2.** Two important aspects of this branch are:

**i.** Kinesiology improves the area of rehabilitation due to sport-related injuries as well as therapeutic application of physical exercises.

**ii.** With the use of kinesiology, exercise methods

**3.** The values of the PE teacher depicted here include comprehensive approach and evidence-based practice.