

# MODEL SAMPLE PAPER

## PHYSICAL EDUCATION (048) CLASS 12

### SESSION 2023–24

#### ANSWERS

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#### Section A

1. b	2. b	3. a	4. c	5. c	6. a
7. d	8. b	9. d	10. c	11. c	12. b
13. d	14. c	15. a	16. d	17. a	18. c

#### Section B

19. Effect of Exercise on Cardiorespiratory System:

- a. Increase in the size of heart
- b. Decrease in resting heart rate.
- c. Stroke volume increases at rest.
- d. Increase in cardiac output.

20. Benefits of mental imagery:

- a. Mental image helps the players to visualise their problematic situations before, during and after the competitions and helps in advance to cope up with the problems.
- b. It brings confidence, awareness and helps the players to control their movements.
- c. Athletes or individuals can visualise the dreams or goals of their life and do the efforts to accomplish those goals.
- d. It is a kind of mental practice in which a player has to rehearse the skill in her/his mind before applying it in reality. Posturizing the perfect skill helps them to prepare to execute the skill.

21. Interval training depends on the following factors:

- a. speed of work
- b. interval of recovery
- c. duration of work
- d. mode of recovery

22. Contusion, strain, sprain, abrasion

23. **Purpose:** To measure explosive leg strength.

**Objective:** To perform horizontal jump as far as possible.

**OR**

Fats are a backup energy source and are called lipids also. These are composed of the elements carbon, oxygen and hydrogen in the ratio 76 : 12 : 12.

Weightlifter's diet includes lots of protein. It is because:

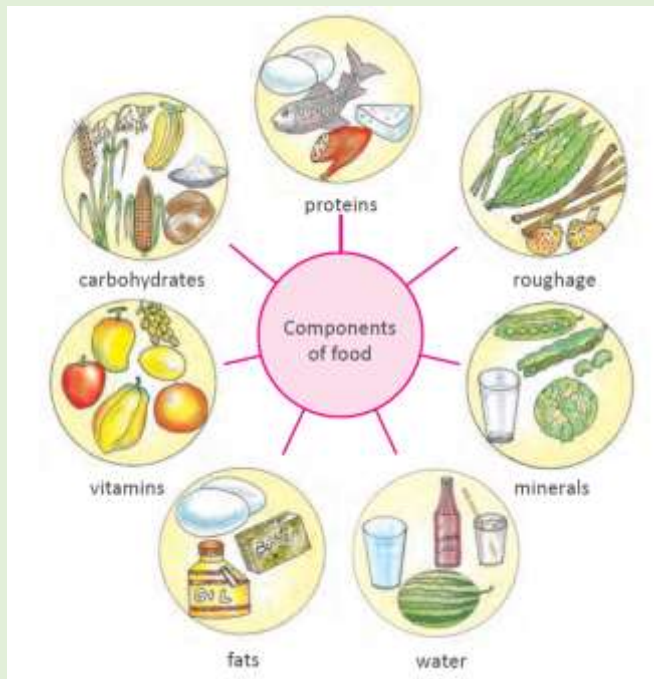
- Proteins help in forming new tissues and repairing the broken tissues.
- To maintain strong ligaments and tendons needed for muscle growth.

### Section C

**24.** The criteria of participating in Deaflympics are as follows:

- a. Participating athletes must have a hearing loss of at least 55 decibels in their 'better ear'.
- b. Hearing aids and cochlear implants are not allowed during the competition.
- c. The athletes cannot be guided by sounds, such as bullhorns, whistles and bells. Visual tactics such as waving flags, flashing lights, etc. are used for commencing and refereeing the games.

**25.**



**26.** (i) When the number of participating teams or players (N) is the power of two (i.e. 2, 4, 8, 16, 32, and so on), then number of rounds will be the number of 2's making up N. For instance, when N = 10, number of rounds will be  $2 \times 2 \times 2 \times 2 =$  three 4s = 4,  
(ii) N = 13, number of rounds will be  $2 \times 2 \times 2 \times 2 =$  four 2s = 4.  
When N is not the power of 2, the number of rounds will be based on the next highest power of 2.

**27.** Personality is a complete unit in itself and are composed of:

- Physical dimension
- Mental dimension
- Social dimension and

- Emotional dimension.

(i) **Emotional dimension:** Every person has various emotions like pleasure, hope, hate, anger, lust, etc. If an individual does not have appropriate control over these emotions, he may become abnormal and uncontrollable. There are many situations in sports where sports persons show their emotional status. Emotional stability plays a very important part of one's personality. Therefore, sports and games do help in developing these emotions and tend to enable them to have proper control over these emotions.

(ii) **Mental dimension:** Sports and games provide ample opportunities for individual to participate in creative experience. There is no doubt that individuals learn to make judgements, utilize reflective and creative thinking and obtain knowledge about the rules and regulations of games and sports.

28. The three physiological determinants of endurance are:

- **Lactic acid tolerance:** This is an efficient predictor of endurance capacity. It is the ability to tolerate accumulation of lactic acid, especially during activities spanning 40 seconds or more. This accumulation is due to imbalance in formation and removal of lactic acid in the body. Endurance can be improved by enhancing lactic acid tolerance with proper training.
- **Movement economy:** Saving energy is always advantageous in endurance sports, to maintain the level of performance throughout the whole activity. Economical movements minimise energy consumption. This enables one to make precise movements and reduce unnecessary movements.
- **Muscle composition:** Muscles have two types of fibres, namely, fast-twitch and slow-twitch fibres. Slow-twitch fibres exert a small force and maintain it for a long time. That is why, higher percentage of slow-twitch fibres is ideal for endurance activities. However, this percentage is determined by genetic factors.

OR

The factors that can lead to osteoporosis are:

**a. Calcium Deficiency:** The recommended daily requirement of calcium in the body is 1000–1500 mg. Insufficient calcium in the body causes other organs, such as the heart, muscles, nerves, etc. to use up the calcium stored in the bones. Calcium deficiency can have lifelong consequences for bones. Proper care should be taken to prevent this, especially by women athletes because they are at higher risk of osteoporosis. One good measure is to include vitamin D in the diet because it helps in the absorption of calcium in the body.

**b. Amenorrhoea:** Our bones are constantly breaking down and rebuilding again to maintain their structure and strength. Oestrogen is essential to keep a balance between the two and helps absorption of calcium. Since amenorrhoeic women have decreased oestrogen levels in the body, it also disrupts the remodelling process in bones. Formation of abnormal bone structure and loss of calcium deposit take place. Bones become weak, porous and prone to fractures. Therefore, amenorrhoea can also cause osteoporosis in women.

**c. Eating Disorder:** Eating disorder is directly linked with low energy availability. If intake of calcium is insufficient, it can weaken the bones.

## Section D

29.

- a. Total number of matches played in this tournament = 20
- b. The formula to calculate the total number of matches is (N - 1)
- c. Total number of teams in fourth quarter is 5

d. Total number of rounds played in this tournament is 5

OR

d. The number of byes in the lower half is 6

30. a. When the batsman hits a ball in cricket, the change in speed depends on force  
b. Force = Mass x Acceleration  
c. Law of Acceleration is also known as Newton's second law of motion  
d. Newton's third law of motion

OR

d. Newton's Second law of motion

31. a. The Paralympic Movement  
b. Spirit in Motion  
c. International Paralympic Committee  
d. France

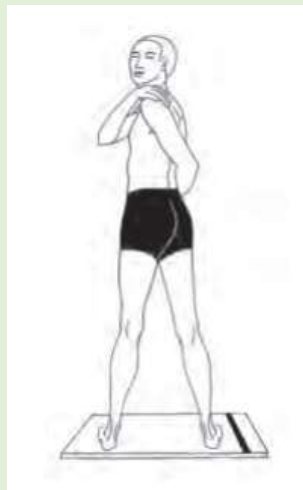
## Section E

32. List of asanas used for prevention of hypertension are as follows:

Tadasana, Katichakransana, Uttanpadasana, Ardha Halasana, Sarala Matyasana, Gomukhasana

### Katichakrasana

'Kati' in Sanskrit means 'waist' and 'Chakra' means 'wheel'. This asana is also called waist rotating pose or lumbar twist pose. It is a simple and basic-level yoga pose suitable for beginners.



### Procedure

1. Stand straight with both legs 12 inches apart, keeping the arms sideways.
2. Now, bring your hands in front of the chest, with palms facing each other. Exhale and twist the body towards left.

3. While inhaling, take the hands slowly towards the left side of your body. Simultaneously, twist your body from the waist to the left side and take your arms back as far as possible. Turn the head towards the right side and look over the right shoulder.
4. While swinging towards the left side, keep the left arm straight and right arm bent. Look in the back. Inhale and come back to the original position.
5. Repeat towards the right side.

### Contraindications

1. People suffering from spinal problems should avoid this pose.
2. Pregnant women should not perform this pose.

33.

### Plate Tapping Test (Coordination)

**Purpose:** To test the speed and coordination of limb movement.

**Equipment:** Table (adjustable height), 2 yellow discs (10 cm radius), rectangle (30 × 20 cm), stopwatch



### Procedure:

1. Adjust the table height so that the student can stand comfortably in front of the discs. The two yellow discs are placed with their centres 60 cm apart on the table. The rectangle is placed equidistant between both discs.
2. The non-preferred hand is placed on the rectangle. The student should move her/his preferred hand back and forth between the discs over the hand in the middle as quickly as possible.
3. Repeat this action for 25 full cycles (50 taps).

### Scoring:

The teacher/coach records the time taken to complete 25 cycles.

34. Endurance is the ability to resist fatigue for a prolonged duration of time.

The types of endurance are:

- **Basic endurance:** It is an individual's ability to resist fatigue when applied to loads of medium intensity stimulus and aerobic muscular metabolism.
- **General endurance:** It is the ability to tolerate endurance exercise and resist fatigue caused by various kinds of activities.
- **Specific endurance:** It is the ability to resist fatigue caused by a specific or particular sports activity.

### Method to develop endurance

**a. Fartlek training:** It is the method used for developing endurance. In this method self-discipline plays a vital role. The duration of training depends upon the experience of athlete but it last as envisaged for 45 minutes but varies from aerobic walking to anaerobic sprinting. 'Fartlek' word is a

Swedish word which means 'speed play'. It is a training method that blends continuous training with interval training. It lays emphasis on both aerobic and anaerobic system. In this method pace or speed is not pre-planned and, therefore, it is left to the discretion of individual.

**b. Interval training:** The interval training method is executed with repeated efforts at a fast pace, with intervals of incomplete recovery in between. It involves a series of low-intensity workouts intercepted with rest or relief periods. The aim is to increase the heartbeat to 170–180 beats per minute. For this reason the heart rate is monitored and it is often referred to as training of the heart. Since, endurance is the ability to sustain an activity, therefore, the method of interval training is a well-designed method to develop the endurance. We know that the interval method is executed with repeated efforts so are the endurance.

**OR**

A body is said to be in equilibrium when all the forces acting on it are counterbalanced by equal and opposite forces and their sum becomes equal to zero.

A body's centre of gravity (COG) is the point at which its weight is evenly distributed and all sides of the body are in balance. It is an imaginary, still an important, point where the entire mass of the body can be located.

A state of equilibrium is also achieved when the body's centre of gravity is over its base of support and the line of gravity falls within the base. The size of the base of support should be directly proportional to that of the body surface. A sitting position would have a larger base of support than a standing position and a lying position would require a larger base of support than a sitting position.

Based on the position of COG, equilibrium is divided into:

- i. **Static Equilibrium:** Equilibrium is achieved when the COG is resting or in stable position, such as sitting, standing, etc.
- ii. **Dynamic Equilibrium:** Equilibrium is achieved when the COG is in motion, like running, doing cartwheels, and so on.