# CUET UG Physical Education Sample Paper - 12

**Duration: 1 Hour** **Maximum Marks: 250**

## Instructions

- This paper contains a total of 50 Multiple Choice Questions.
- Each correct answer carries **+5 marks**.
- Each incorrect answer carries **-1 mark**.
- No negative marking for unattempted questions.

**Q1.** The 'National Health Policy 2017' targets the reduction of 'Occupational Injury' by what percentage by the year 2020 (as a precursor to the 2025 goals)?

(A) 25%

(B) 50%

(C) 35%

(D) 10%

**Q2.** Which specific sub-component of the NRHM is responsible for providing 'Specialized Obstetric Care' and 'Sick New Born Care Units' (SNCUs) at the District Hospital level?

(A) RMNCH+A

(B) ASHA program

(C) Mid-day Meal

(D) Khel India

**Q3.** In Jung's Psychological Types, an athlete who makes decisions based on objective data, logic, and standardized rules rather than personal feelings is classified as:

(A) Introverted Feeling type

(B) Extroverted Thinking type

(C) Introverted Intuitive type

(D) Extroverted Sensing type

**Q4.** According to the Big Five Model, an athlete who is constantly worried about their rank, easily discouraged by a single loss, and prone to mood swings would score high in:

(A) Openness

(B) Conscientiousness

(C) Neuroticism

(D) Agreeableness

**Q5.** Match List-I (Aggression Types) with List-II (Examples in Sports):

| **List-I** | **List-II** |
|---|---|
| (I) Hostile Aggression | (A) A retaliatory punch after a game ends |
| (II) Instrumental Aggression | (B) Tactical foul to stop a fast break |
| (III) Assertive Behavior | (C) A hard legal tackle to stop a goal |

(A) (I)-(A), (II)-(B), (III)-(C)

(B) (I)-(B), (II)-(C), (III)-(A)

(C) (I)-(C), (II)-(A), (III)-(B)

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

**Q6.** What is the official weight of the 'Discus' for Senior Men and Senior Women respectively in Athletics?

(A) 2.0 kg and 1.5 kg

(B) 2.0 kg and 1.0 kg

(C) 1.5 kg and 1.0 kg

(D) 2.5 kg and 2.0 kg

**Q7.** In the game of Hockey, the 'Penalty Spot' is located at what distance from the center of the goal line?

(A) 6.475 meters (7 yards)
(B) 9.15 meters (10 yards)
(C) 5.0 meters
(D) 7.0 meters

**Q8.** Which 'Shatkarma' kriya is specifically used to remove excess 'Bile' (Pitta) and toxins from the stomach using large quantities of saline water?

(A) Jala Neti
(B) Vaman Dhauti (Kunjal Kriya)
(C) Agnisara
(D) Basti

**Q9.** In 'Pranayama', the ratio of Puraka:Kumbhaka:Rechaka for a balanced practice is traditionally recommended as:

(A) 1 : 4 : 2
(B) 1 : 1 : 1
(C) 2 : 1 : 4
(D) 4 : 2 : 1

**Q10.** Identify the 'Postural Deformity' where there is an increased forward curve in the cervical region of the spine, often leading to a 'Forward Head Posture'.

(A) Kyphosis

(B) Lordosis

(C) Scoliosis

(D) Flat Back

**Q11.** Which specific 'Vitamin' is essential for the synthesis of 'Prothrombin', which is necessary for the blood clotting mechanism in injured athletes?

(A) Vitamin A

(B) Vitamin E

(C) Vitamin K

(D) Vitamin D

**Q12.** The 'Dhyan Chand Award for Lifetime Achievement' was instituted in 2002. It carries a cash prize of:

(A) ₹ 5 Lakh

(B) ₹ 10 Lakh

(C) ₹ 15 Lakh

(D) ₹ 25 Lakh

**Q13.** In fitness training, 'Isokinetic' exercises are those where:

(A) The speed of movement is constant throughout the range

(B) The muscle length remains the same

(C) The resistance remains constant

(D) There is no movement at the joint

**Q14.** The 'Flamingo Balance Test' is terminated and the clock is stopped if the subject:

(A) Closes their eyes

(B) Touches the floor with the non-supporting leg

(C) Breathes too heavily

(D) Completes 30 seconds

**Q15.** According to Biomechanical principles, 'Stability' of an athlete can be increased by:

(A) Raising the Center of Gravity

(B) Narrowing the base of support

(C) Lowering the Center of Gravity and widening the base

(D) Standing on one foot

**Q16.** Identify the postural deformity in the image where the ankles touch each other but the knees are significantly far apart.

(A) Genu Valgum

(B) Genu Varum

(C) Kyphosis

(D) Lordosis

**Q17.** Identify the stage of 'Mitosis' shown in the image where chromosomes align at the equatorial plate, crucial for understanding tissue repair.

(A) Prophase

(B) Metaphase

(C) Anaphase

(D) Telophase

**Q18.** Which training method involves alternating between 'High-Intensity' bouts and 'Active Recovery' periods to improve VO2 Max?

(A) Continuous Method

(B) Interval Training Method

(C) Fartlek Method

(D) Static Stretching

**Q19.** The 'Maulana Abul Kalam Azad (MAKA) Trophy' is awarded to:

(A) The best individual athlete

(B) The best sports coach

(C) The top-performing University in Inter-University tournaments

(D) The state with the most medals

**Q20.** Match List-I (Fracture Type) with List-II (Description):

| List-I | List-II |
|---|---|
| (I) Transverse | (A) Bone is broken into multiple small pieces |
| (II) Comminuted | (B) Bone is broken at a right angle to its axis |
| (III) Impacted | (C) Broken ends of bones are driven into each other |
| (IV) Oblique | (D) Bone is broken at an angle |

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

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

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

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

**Q21.** Which 'Law of Motion' explains why a heavier medicine ball requires more force to be thrown at the same speed as a lighter tennis ball?

(A) Law of Inertia

(B) Law of Acceleration

(C) Law of Reaction

(D) Law of Conservation of Energy

**Q22.** The 'Rockport One Mile Walk Test' is used to estimate an individual's:

(A) Explosive Power

(B) Aerobic Capacity (VO2 Max)

(C) Upper Body Strength

(D) Agility

**Q23.** In Kabaddi, a 'Super Tackle' is credited to the defending team if they catch a raider when they have how many defenders on the mat?

(A) 5 or less

(B) 3 or less

(C) 2 only

(D) 4 or less

**Q24.** Which 'Personality Theory' emphasizes the 'Big Five' traits and was developed by Paul Costa and Robert McCrae?

(A) Psychoanalytic Theory

(B) Trait Theory

(C) Type Theory

(D) Humanistic Theory

**Q25.** A diet 'High in Protein' but lacking 'Fats' may lead to a deficiency in which type of vitamins?

(A) Water-soluble (B C)
(B) Fat-soluble (A, D, E, K)
(C) Mineral-based
(D) Complex carbohydrates

**Q26.** Newton's Second Law is represented mathematically as:

(A) $F = m \times a$
(B) $E = mc^2$
(C) $P = mv$
(D) $v = u + at$

**Q27.** According to PM-POSHAN guidelines, 'Primary' school students (Class 1-5) must receive a minimum of how much protein per meal?

(A) 12 grams
(B) 20 grams
(C) 15 grams
(D) 8 grams

**Q28.** The standard length of a 'Cricket Pitch' between the two sets of wickets is:

(A) 20.12 meters (22 yards)
(B) 22.12 meters
(C) 18.12 meters
(D) 24 meters

**Q29.** Which 'Fitness Test' is used for Senior Citizens to measure their 'Aerobic Endurance'?

(A) 6-Minute Walk Test

(B) Harvard Step Test

(C) 50m Sprint

(D) 400m Run

## Case Study 1

**Read the following passage and answer the questions 30 to 34:**

The 'Khel Ratna Award', officially known as the Major Dhyan Chand Khel Ratna Award, is the highest sporting honor of India. It was first awarded to Chess legend Viswanathan Anand. The award is given for the most spectacular and outstanding performance in the field of sports over a period of four years. The award includes a medallion, a certificate, and a cash prize of ₹ 25 Lakh. It is overseen by the Ministry of Youth Affairs and Sports. In recent years, the criteria have been expanded to include a wider range of sports and para-sports.

**Q30.** What is the current cash prize for the Khel Ratna Award?

(A) ₹ 15 Lakh

(B) ₹ 10 Lakh

(C) ₹ 25 Lakh

(D) ₹ 50 Lakh

**Q31.** Performance over what period is considered for the Khel Ratna Award?

(A) 1 Year

(B) 2 Years

(C) 4 Years

(D) 10 Years

**Q32.** Who was the first ever recipient of the Khel Ratna?

(A) Sachin Tendulkar

(B) Viswanathan Anand

(C) Geet Sethi

(D) Kapil Dev

**Q33.** Which organization is responsible for overseeing the selection for this award?

(A) Indian Olympic Association

(B) Ministry of Youth Affairs and Sports

(C) Sports Authority of India

(D) NITI Aayog

**Q34.** The 'Khel Ratna' is now named after which legendary sportsperson?

(A) Milkha Singh

(B) Major Dhyan Chand

(C) KD Jadhav

(D) Balbir Singh Sr.

## Case Study 2

**Read the following passage and answer the questions 35 to 39:**

Biomechanics plays a crucial role in analyzing sports techniques. The human body is a system of levers. A lever is a rigid bar that turns around a fixed point called a fulcrum. In a Second Class Lever, the resistance (load) is between the fulcrum and the effort. An example is the calf-raise exercise. In a Third Class Lever, the effort is between the fulcrum and the resistance. This is the most common lever in the human body, providing speed and range of motion. An example is the bicep curl. Newton's laws are also fundamental: the law of inertia, the law of acceleration ($F = ma$), and the law of action-reaction.

**Q35.** Which class of lever is most common in the human body?

(A) First Class

(B) Second Class

(C) Third Class

(D) Fourth Class

**Q36.** In a Second Class Lever, where is the Resistance (Load) located?

(A) At one end, with effort in the middle

(B) Between the fulcrum and the effort

(C) As the pivot point

(D) Outside the system

**Q37.** The 'Calf-Raise' exercise is an example of which lever class?

(A) First Class

(B) Second Class

(C) Third Class

(D) Zero Class

**Q38.** Newton's 'Law of Action and Reaction' is also known as:

(A) First Law

(B) Second Law

(C) Third Law

(D) Universal Law

**Q39.** What does 'F=ma' represent in Biomechanics?

(A) Law of Inertia

(B) Law of Acceleration

(C) Law of Gravity

(D) Law of Levers

**Q40.** What is the official height of the 'Net' at the center for a Men's Volleyball match?

(A) 2.24 meters

(B) 2.43 meters

(C) 2.50 meters

(D) 2.30 meters

**Q41.** Which 'Asana' is performed by lying on the stomach and lifting the chest like a cobra, beneficial for spinal flexibility?

(A) Shalabhasana

(B) Bhujangasana

(C) Dhanurasana

(D) Paschimottanasana

**Q42.** Assertion (A): PNF stretching is considered more effective than static stretching for increasing range of motion.
Reason (R): PNF stretching utilizes the 'Autogenic Inhibition' reflex by contracting the muscle before stretching it.

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

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

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

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

**Q43.** Which 'Macro-nutrient' provides approximately 9 kilocalories per gram of energy?

(A) Proteins

(B) Carbohydrates

(C) Fats

(D) Vitamins

**Q44.** A 'Sprain' specifically refers to an injury of the:

(A) Muscle

(B) Tendon

(C) Ligament

(D) Bone

**Q45.** The 'Sit-Up' test is primarily used to measure the endurance of which muscle group?

(A) Pectorals

(B) Abdominals

(C) Hamstrings

(D) Deltoids

**Q46.** Which training method is also known as 'Speed Play'?

(A) Interval Training

(B) Fartlek Training

(C) Circuit Training

(D) Plyometric Training

**Q47.** In 'Handball', a player is allowed to take a maximum of how many steps while holding the ball before dribbling or passing?

(A) 2 Steps

(B) 3 Steps

(C) 4 Steps

(D) 5 Steps

**Q48.** Which 'Kriya' involves the act of 'Nasal Cleansing' using a specially designed pot and saline water?

(A) Jala Neti

(B) Sutra Neti

(C) Trataka

(D) Basti

**Q49.** What is the official diameter of a 'Basketball' hoop (rim)?

(A) 35 cm

(B) 40 cm

(C) 45 cm

(D) 50 cm

**Q50.** The 'Flamingo Test' measures which component of fitness?

(A) Power

(B) Static Balance

(C) Dynamic Flexibility

(D) Reaction Time

## Detailed Solutions

**Q1.**

### Solution

**Concept:**

The National Health Policy (NHP) 2017 provides a comprehensive framework to strengthen the Indian health system. It sets specific, time-bound quantitative targets categorized under health status, health systems performance, and health coverage.

**Solution:**

1. One of the health system performance targets of NHP 2017 was focused on workplace safety. 2. The policy aimed to develop a national database on occupational diseases. 3. Specifically, it set a target to achieve a **relative reduction of 254. This target is part of a broader goal to ensure that the workforce remains healthy and productive, contributing to the nation's economic growth while minimizing healthcare costs associated with workplace accidents.

**Final Answer:** The target reduction for occupational injury is 25

**Answer: (A)**

**Q2.**

### Solution

**Concept:**

The National Rural Health Mission (NRHM) operates through several umbrella programs to address maternal and child health. The **RMNCH+A** (Reproductive, Maternal, Newborn, Child and Adolescent Health) framework is the strategic approach used to provide a continuum of care.

**Solution:**

1. RMNCH+A focuses on the essential stages of life to reduce mortality and morbidity. 2. Under this strategy, the government established **Sick New Born Care Units (SNCUs)** and Newborn Stabilization Units at the district level. 3. These units provide specialized care for low-birth-weight babies and infants with medical complications. 4. While ASHA workers motivate mothers and Mid-day meals provide nutrition, it is the RMNCH+A framework that ensures the high-level medical infrastructure at District Hospitals.

**Final Answer:** RMNCH+A is responsible for SNCUs at the District Hospital level.

**Answer: (A)**

## Q3.

### Solution

**Concept:**

Carl Jung's theory of Psychological Types suggests that individuals have preferred ways of perceiving and judging the world. Decision-making is handled by the "Judging" functions: Thinking and Feeling.

**Solution:**

1. An **Extroverted Thinking (Te)** individual focuses on the external world and organizes it using logic, data, and empirical evidence. 2. In sports, a Te-type athlete or coach will rely on "standardized rules," "logic," and "objective data" (like performance stats) to make decisions. 3. They prioritize efficiency and factual correctness over personal emotions or group harmony (Feeling). 4. Introverted Thinking would focus more on internal logical consistency, whereas Extroverted Thinking focuses on external results and systems.

**Final Answer:** The athlete is classified as an Extroverted Thinking type.

**Answer: (B)**

## Q4.

### Solution

**Concept:**

The Big Five personality model identifies **Neuroticism** as the dimension representing emotional stability and sensitivity to stress.

**Solution:**

1. High scores in Neuroticism are characterized by emotional instability, anxiety, and a tendency to experience negative emotions. 2. An athlete who is "easily discouraged by a single loss" and "prone to mood swings" is exhibiting low resilience to stressors. 3. "Constantly worried about rank" is a sign of high trait anxiety, which is a core component of Neuroticism. 4. Athletes with high Neuroticism may struggle more with pre-competition anxiety compared to those with high emotional stability (low Neuroticism).

**Final Answer:** The athlete would score high in Neuroticism.

**Answer: (C)**

## Q5.

### Solution

**Concept:**

Sports psychology distinguishes between harmful aggression and productive assertiveness.

**Solution:**

1. **Hostile Aggression (I):** Behavior intended to harm an opponent, driven by anger. A **retaliatory punch** after a game (B) is a clear example of hostile aggression. 2. **Instrumental Aggression (II):** Behavior intended to harm or use force to achieve a goal (like winning). A **tactical foul** (C) to stop a break is instrumental because the primary goal is to prevent a score, not the injury itself. 3. **Assertive Behavior (III):** Using legitimate physical force or energy within the rules of the game. A **hard legal tackle** (A) is assertive as it is forceful but within the spirit and rules of the sport. 4. Matching: (I)-B, (II)-C, (III)-A.

**Final Answer:** The correct mapping is (I)-(B), (II)-(C), (III)-(A).

**Answer: (A)**

## Q6.

### Solution

**Concept:**

Athletics is governed by strict technical specifications for all implements to ensure standardized competition. The Discus is a circular plate, usually made of wood or synthetic material with a metal rim, and its weight is determined by the gender and age category of the athlete as per World Athletics rules.

**Solution:**

1. For Senior competitions (Level 1), the weight varies significantly between men and women to account for physiological differences in muscle mass and power. 2. The official weight of the Discus for **Senior Men** is exactly **2.0 kg**. 3. The official weight of the Discus for **Senior Women** is exactly **1.0 kg**. 4. In school-level competitions (like CUET-UG age groups), these weights are the standard benchmark for "Senior" categories. 5. Other implements follow a similar ratio, such as the Shot Put (7.26 kg for men and 4 kg for women).

**Final Answer:** The official weights are 2.0 kg for Men and 1.0 kg for Women.

**Answer: (B)**

## Q7.

### Solution

**Concept:**

Field measurements in Hockey are precise and dictated by the International Hockey Federation (FIH). The penalty spot is the location from which a 'Penalty Stroke' is taken, which is the most severe penalty in hockey, awarded when a certain goal is prevented by a foul.

**Solution:**

1. The penalty spot is a solid circle with a diameter of 150 mm. 2. It is placed on the field of play, directly in front of the center of each goal. 3. The distance from the inner edge of the goal line to the center of the spot is exactly **6.475 meters**. 4. In traditional imperial measurements used in many rulebooks, this is referred to as **7 yards**. 5. It should not be confused with the 5-meter or 10-meter marks used for penalty corners.

**Final Answer:** The penalty spot is located at a distance of 6.475 meters (7 yards).

**Answer: (A)**

## Q8.

### Solution

**Concept:**

In Hatha Yoga, the Shatkarmas are used to internalize the cleansing process. 'Dhauti' specifically refers to the cleansing of the digestive tract. Vaman Dhauti (or Kunjal Kriya) is the process of stomach washing.

**Solution:**

1. **Vaman Dhauti** involves the ingestion of lukewarm saline water to the point of satiety (usually 4–6 glasses). 2. The salt in the water prevents it from being absorbed by the kidneys, keeping it in the stomach. 3. The practitioner then induces vomiting (Vaman) to expel the water. 4. This action washes away excess **Bile (Pitta)** and acids from the stomach lining, which is why it is highly recommended for people with hyperacidity or biliary issues. 5. Jala Neti cleanses the nose, while Basti focuses on the colon (lower end).

**Final Answer:** Vaman Dhauti (Kunjal Kriya) is used to remove excess bile and toxins from the stomach.

**Answer: (B)**

## Q9.

### Solution

**Concept:**

Pranayama is more than just deep breathing; it is a mathematical regulation of the breath. The internal ratio determines the physiological effect on the nervous system. The standard ratio for a beginner-to-intermediate balanced practice is often cited in classical texts.

**Solution:**

1. The three parts are: **Puraka** (Inhalation), **Kumbhaka** (Retention), and **Rechaka** (Exhalation). 2. The most widely accepted traditional ratio for deep practice is **1:4:2**. 3. This means if the inhalation lasts for 1 unit of time, the breath should be held for 4 units, and the exhalation should last for 2 units. 4. The longer exhalation (2) ensures a thorough removal of $CO_2$ and activates the vagus nerve (calming the heart), while the long retention (4) increases internal pressure and oxygen absorption.

**Final Answer:** The traditionally recommended ratio is 1:4:2.

**Answer: (A)**

## Q10.

### Solution

**Concept:**

Spinal curvatures are natural, but when they exceed normal limits, they become deformities. Lordosis is characterized by an anterior (forward) convexity of the spine. While it is most famous in the lower back, it also occurs in the neck.

**Solution:**

1. **Cervical Lordosis** refers to the natural curve of the neck. When this curve increases abnormally, it causes the head to tilt forward. 2. This is commonly known as **'Forward Head Posture'**. 3. It creates excessive strain on the posterior neck muscles and can lead to chronic pain and headaches. 4. Kyphosis (Hunchback) is a deformity of the Thoracic region (outward curve), and Scoliosis is a side-to-side curve. 5. Lordosis in the lumbar region is known as 'Hollow Back'.

**Final Answer:** An increased forward cervical curve is a form of Lordosis.

**Answer: (B)**

## Q11.

### Solution

**Concept:**

Vitamin K is a fat-soluble vitamin that exists in two main forms: K1 (phylloquinone, found in green leafy vegetables) and K2 (menaquinone, found in fermented foods). It serves as an essential co-factor for the enzyme gamma-glutamyl carboxylase, which is necessary for the protein synthesis involved in blood coagulation.

**Solution:**

1. When an athlete sustains a soft tissue injury or a deep cut, the body initiates the coagulation cascade to prevent excessive blood loss. 2. **Prothrombin** (Factor II) is a plasma protein produced by the liver that is converted into thrombin during this cascade. 3. Vitamin K is indispensable for the synthesis of Prothrombin and three other essential clotting factors (VII, IX, and X). 4. A deficiency in Vitamin K leads to a decrease in prothrombin levels, resulting in delayed clotting times and a higher risk of internal hemorrhaging or prolonged bleeding after an injury. 5. While Vitamin D supports bone health and Vitamin A supports vision, Vitamin K is the specific micronutrient responsible for the "clotting" mechanism.

**Final Answer:** Vitamin K is essential for the synthesis of prothrombin.

**Answer: (C)**

## Q12.

### Solution

**Concept:**

The Dhyan Chand Award for Lifetime Achievement is the highest award for lifetime contribution to sports development in India. It is named after the legendary Indian hockey player Major Dhyan Chand and was instituted to honor those who have contributed to sports both during their active career and after retirement.

**Solution:**

1. The award recognizes life-long dedication to sports, including the promotion of sports in various capacities after an athlete's playing days are over. 2. Similar to the Arjuna and Dronacharya awards, the cash prizes for this honor were revised upwards by the Ministry of Youth Affairs and Sports in 2020. 3. The current cash prize for the Dhyan Chand Award for Lifetime Achievement is **₹ 15 Lakh**. 4. It also includes a statuette of Major Dhyan Chand, a certificate, and ceremonial dress. 5. Note: This is separate from the "Major Dhyan Chand Khel Ratna," which is the highest individual honor and carries a prize of ₹ 25 Lakh.

**Final Answer:** The cash prize for the Dhyan Chand Award is ₹ 15 Lakh.

**Answer: (C)**

## Q13.

### Solution

**Concept:**

Muscle contractions and exercises are classified based on changes in muscle length and tension. Isokinetic exercises (derived from the Greek 'Iso' meaning same and 'Kinesis' meaning motion) are performed on specialized machines (like a Cybex or Biodex).

**Solution:**

1. In **Isokinetic** exercises, the equipment is set to a specific, **constant speed of movement** regardless of how much force the athlete applies. 2. This allows the muscle to experience maximum resistance throughout the entire range of motion, rather than just at the "sticking point" of a lift. 3. In contrast, 'Isotonic' exercises (like lifting free weights) have a constant resistance but varying speed, and 'Isometric' exercises (like a plank) involve no change in muscle length or joint angle. 4. Isokinetic training is highly favored in sports rehabilitation because it provides a safe way to strengthen muscles at specific speeds relevant to athletic performance.

**Final Answer:** In Isokinetic exercises, the speed of movement remains constant throughout the range.

**Answer: (A)**

## Q14.

### Solution

**Concept:**

The Flamingo Balance Test is a key component of the SAI (Sports Authority of India) Fitness Test battery, used to assess static balance. The test is highly sensitive and requires strict adherence to administrative protocols to ensure valid results.

**Solution:**

1. The subject stands on their preferred leg on a beam or flat ground, while the other leg is bent at the knee and held by the hand (the "flamingo" position). 2. The timer starts as soon as the subject takes the position and releases the support. 3. The test is **terminated/interrupted** every time the subject loses their balance, which is specifically defined as **touching the floor with the non-supporting leg** or letting go of the foot being held. 4. Each time this happens, the clock is stopped, the subject regains balance, and the test resumes until a total of one minute of "balancing time" is accumulated. The score is the number of falls/interruptions in that minute.

**Final Answer:** The test is stopped if the subject touches the floor with the non-supporting leg.

**Answer: (B)**

## Q15.

### Solution

**Concept:**

Stability in sports is the ability to maintain equilibrium and resist being moved or toppled. Biomechanical stability is determined by the relationship between the body's Center of Gravity (COG), the Base of Support (BOS), and the Line of Gravity (LOG).

**Solution:**

1. To increase stability, an athlete needs to make it harder for the Line of Gravity to fall outside the Base of Support. 2. **Lowering the Center of Gravity:** By bending the knees (crouching), the COG is closer to the ground, which increases stability (e.g., a wrestler's stance). 3. **Widening the Base of Support:** By spreading the feet further apart, the area of the base increases, making it much harder for an external force to push the athlete off balance. 4. High stability is essential in defensive positions in sports like Kabaddi, Judo, and Football, while low stability (high COG) is used when a quick start is needed, such as in sprinting.

**Final Answer:** Stability is increased by lowering the Center of Gravity and widening the base.

**Answer: (C)**

## Q16.

### Solution

**Concept:**

Postural deformities of the lower extremities are often identified by the alignment of the knees and ankles. Genu Varum, commonly known as 'Bow Legs', is a condition where the legs stay apart even when the ankles are joined together.

**Solution:**

1. In a normal skeletal alignment, when a person stands with their ankles touching, the knees should also be close to or touching each other. 2. In **Genu Varum (Bow Legs)**, there is an outward curvature of the long bones (femur and tibia), causing a wide gap between the knees while the **ankles remain in contact**.

3. This is often caused by a deficiency in Vitamin D (Rickets), early walking in heavy infants, or muscle imbalances. 4. Conversely, **Genu Valgum (Knock Knees)** is the opposite condition, where the knees touch but the ankles are far apart. 5. Identification through visual alignment is a key competency in Physical Education postural assessments.

**Final Answer:** The postural deformity described is Genu Varum (Bow Legs).

**Answer: (B)**

## Q17.

### Solution

**Concept:**

Mitosis is the process of cell division that results in two genetically identical daughter cells. In Physical Education and Sports Science, understanding mitosis is vital for comprehending how tissues repair themselves after an athletic injury.

**Solution:**

1. Mitosis consists of four primary stages: Prophase, Metaphase, Anaphase, and Telophase. 2. **Metaphase** is the specific stage characterized by the alignment of chromosomes.

3. During Metaphase, the nuclear envelope has completely disappeared, and the spindle fibers pull the chromosomes until they are perfectly aligned along the **equatorial plate** (the center of the cell). 4. This alignment ensures that when the cell eventually splits, each new daughter cell receives an exact duplicate of the genetic material. 5. This precision is what allows for the faithful regeneration of muscle and bone tissue during recovery from sports-related trauma.

**Final Answer:** The stage where chromosomes align at the equatorial plate is Metaphase.

**Answer: (B)**

## Q18.

### Solution

**Concept:**

The Interval Training Method is a highly structured form of cardiovascular conditioning. It is based on the relationship between high-intensity effort and controlled recovery periods to push the body's aerobic and anaerobic limits.

**Solution:**

1. The core mechanism of **Interval Training** involves performing a bout of exercise at a high percentage of maximum heart rate (e.g., 85%–95%), followed by a period of lower-intensity 'Active Recovery'. 2. The 'Active Recovery' (like slow jogging or walking) allows the heart rate to drop slightly before the next high-intensity bout begins. 3. This method is considered superior for improving **VO2 Max** (the maximum amount of oxygen the body can utilize during exercise) because it allows the athlete to accumulate a higher total volume of high-intensity work than they could in a single continuous run. 4. Fartlek training is similar but is less structured and relies on terrain and "speed play," whereas Interval training uses fixed distances and times.

**Final Answer:** The Interval Training Method involves alternating between high-intensity bouts and active recovery.

**Answer: (B)**

## Q19.

### Solution

**Concept:**

The Maulana Abul Kalam Azad (MAKA) Trophy is the oldest National Sports Award in India, instituted in 1956-57. It is a "Rolling Trophy" that promotes a healthy sporting culture within the higher education system.

**Solution:**

1. While awards like the Arjuna or Khel Ratna focus on individual athletes, the **MAKA Trophy** is an institutional award. 2. It is awarded annually to the **Top-performing University** based on their overall performance in Inter-University tournaments and the contribution of their students to national and international teams. 3. The university that secures the first position receives the trophy and a cash prize of ₹ 15 Lakh. 4. This award encourages universities to invest in sports infrastructure, coaching, and talent identification, serving as a bridge between school-level sports and professional athletics.

**Final Answer:** The MAKA Trophy is awarded to the top-performing University in tournaments.

**Answer: (C)**

## Q20.

### Solution

**Concept:**

Fractures are categorized based on the direction of the break and the state of the bone fragments. Identifying these types is crucial for determining the correct first aid and rehabilitation protocol in sports medicine.

**Solution:**

1. **Transverse Fracture (I):** The break occurs at a **right angle** to the long axis of the bone (Matches with B). 2. **Comminuted Fracture (II):** This is a severe injury where the bone is **shattered into multiple small pieces** or fragments (Matches with A). 3. **Impacted Fracture (III):** This occurs when the force of the injury is so great that the **broken ends of the bones are driven into each other** (Matches with C). 4. **Oblique Fracture (IV):** The break occurs at an **angled or slanted** direction across the bone (Matches with D). 5. Matching these results in: (I)-B, (II)-A, (III)-C, (IV)-D.

**Final Answer:** The correct mapping is (I)-(B), (II)-(A), (III)-(C), (IV)-(D).

**Answer: (A)**

## Q21.

### Solution

**Concept:**

Newton's Second Law of Motion, also known as the Law of Acceleration, provides the mathematical relationship between force, mass, and acceleration. It states that the acceleration of an object is directly proportional to the net force acting on it and inversely proportional to its mass.

**Solution:**

1. The law is defined by the formula $F = ma$, where $F$ is Force, $m$ is Mass, and $a$ is Acceleration. 2. If we want to achieve the same acceleration (speed) for two different objects, the force required depends entirely on their mass. 3. A medicine ball has a significantly higher mass compared to a tennis ball. 4. Therefore, to overcome the greater inertia of the medicine ball and accelerate it to the same speed, a much larger force must be applied by the athlete. 5. This principle is fundamental in sports like Shot Put or Hammer Throw, where moving a heavy implement requires immense explosive force.

**Final Answer:** The Law of Acceleration explains why a heavier ball requires more force.

**Answer: (B)**

## Q22.

### Solution

**Concept:**

Aerobic capacity, or $VO_2$ Max, is the maximum amount of oxygen an individual can utilize during intense exercise. It is a primary indicator of cardiovascular fitness. The Rockport One Mile Walk Test is a "sub-maximal" field test used to estimate this value.

**Solution:**

1. The test requires the individual to walk one mile (1.6 km) as fast as possible without running. 2. Immediately upon completion, the heart rate is recorded. 3. The $VO_2$ Max is then calculated using a regression equation that includes the individual's weight, age, gender, the time taken to complete the walk, and the post-exercise heart rate. 4. This test is particularly useful for individuals with lower fitness levels or older adults for whom a maximal running test (like the Cooper 12-minute run) might be too strenuous.

**Final Answer:** The Rockport One Mile Walk Test is used to estimate Aerobic Capacity ($VO_2$ Max).

**Answer: (B)**

## Q23.

### Solution

**Concept:**

In Pro-Kabaddi and official AKFI rules, a 'Super Tackle' is a defensive play that rewards a team for successfully tackling a raider when the defending team is at a numerical disadvantage on the mat.

**Solution:**

1. Usually, a successful tackle results in 1 point for the defending team. 2. However, if the defending team has **3 or fewer defenders** remaining on the mat and they successfully tackle the raider, it is called a "Super Tackle." 3. In this scenario, the defending team is awarded **2 points** instead of the usual 1. 4. This rule was introduced to make the game more exciting and to give a struggling team a chance to stage a comeback even when most of their players are "out."

**Final Answer:** A Super Tackle occurs when there are 3 or less defenders on the mat.

**Answer: (B)**

## Q24.

### Solution

**Concept:**

Trait Theory in psychology suggests that personality is composed of broad, stable dispositions. The Five-Factor Model (FFM), popularly known as the "Big Five," is the most widely accepted trait theory in contemporary sports psychology.

**Solution:**

1. While researchers like Allport and Cattell laid the groundwork for trait theory, **Paul Costa and Robert McCrae** finalized and popularized the OCEAN model (Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism). 2. They developed the NEO-PI (NEO Personality Inventory) to measure these five dimensions. 3. Their research proved that these five traits are relatively stable across the lifespan and across different cultures, making it a reliable tool for analyzing athlete behavior and performance under pressure.

**Final Answer:** The Big Five theory was developed by Paul Costa and Robert McCrae.

**Answer: (B)**

## Q25.

### Solution

**Concept:**

Vitamins are classified into two categories based on their solubility: Water-soluble and Fat-soluble. Fat-soluble vitamins require dietary lipids (fats) for their absorption, transport, and storage in the body.

**Solution:**

1. The fat-soluble vitamins are **Vitamins A, D, E, and K**. 2. If an athlete consumes a diet that is extremely high in protein but almost zero in fat, these vitamins cannot be effectively absorbed by the small intestine. 3. Fats act as the carrier for these nutrients; without them, the vitamins are simply excreted, leading to deficiencies over time even if they are present in the food. 4. This can lead to serious issues for athletes, such as weakened bones (Vitamin D deficiency) or poor blood clotting (Vitamin K deficiency).

**Final Answer:** A diet lacking fats leads to a deficiency in Fat-soluble vitamins (A, D, E, K).

**Answer: (B)**

## Q26.

### Solution

**Concept:**

Newton's Second Law of Motion, also known as the Law of Acceleration, provides the mathematical relationship between force, mass, and acceleration ($F = ma$). In sports, this explains why the effort required to move an object changes based on its weight.

**Solution:**

1. According to the formula $F = ma$, to achieve the same acceleration ($a$), if the mass ($m$) increases, the force ($F$) must also increase. 2. A medicine ball has a significantly higher mass compared to a tennis ball. 3. Therefore, to throw both at the same speed, the athlete's muscles must generate much more force to overcome the higher inertia of the medicine ball. 4. This law is the mathematical foundation for strength and power training; athletes must increase their force production (strength) to move heavy implements faster.

**Final Answer:** The Law of Acceleration explains why a heavier ball requires more force.

**Answer: (B)**

## Q27.

### Solution

**Concept:**

The PM-POSHAN (formerly Mid-Day Meal) scheme has standardized nutritional norms to ensure school-age children receive adequate macronutrients. These requirements are divided into Primary and Upper Primary levels to match the developmental stages of the students.

**Solution:**

1. According to the official guidelines for the **Primary** category (Class I-V), the meal must provide 450 calories and 12 grams of protein. 2. For the **Upper Primary** category (Class VI-VIII), the requirement increases to 700 calories and 20 grams of protein. 3. These protein levels are essential for the repair of body tissues and muscle growth in young students, particularly those engaged in physical activities or sports. 4. The distribution of these nutrients helps in reducing "classroom hunger" and improving the cognitive attention spans of the students.

**Final Answer:** Primary school students must receive a minimum of 12 grams of protein per meal.

**Answer: (A)**

## Q28.

### Solution

**Concept:**

The dimensions of a cricket pitch are standardized worldwide by the Laws of Cricket. The pitch is the central strip of the cricket field between the two sets of wickets.

**Solution:**

1. The distance between the two sets of wickets (stumps) is exactly **22 yards**. 2. In the metric system, this distance converts to **20.12 meters**. 3. This specific length has been maintained for centuries to balance the challenge between the bowler's delivery speed and the batsman's reaction time. 4. The width of the pitch is 10 feet (3.05 meters), but the length between the wickets is the primary measurement for the game's official play.

**Final Answer:** The standard length of a cricket pitch is 20.12 meters (22 yards).

**Answer: (A)**

## Q29.

### Solution

**Concept:**

Senior citizens require specific fitness tests that are safe and relevant to their daily functional needs. The Rikli and Jones Senior Citizen Fitness Test includes the '6-Minute Walk Test' to evaluate aerobic endurance.

**Solution:**

1. The **6-Minute Walk Test** involves measuring the maximum distance an individual can walk on a flat, rectangular course in six minutes. 2. This test is an excellent indicator of **Aerobic Endurance**, as it reflects the efficiency of the heart, lungs, and circulatory system in delivering oxygen to working muscles over a sustained period. 3. It mimics a common daily activity (walking) and is used to assess the functional capacity of the elderly to perform tasks like grocery shopping or walking in a park. 4. Other tests in the battery, like the "Arm Curl" or "Chair Stand," measure strength rather than endurance.

**Final Answer:** The 6-Minute Walk Test measures Aerobic Endurance in senior citizens.

**Answer: (A)**

## Q30.

### Solution

**Concept:**

The Major Dhyan Chand Khel Ratna Award is the highest sporting honor of India. The rewards and criteria are periodically updated by the Ministry of Youth Affairs and Sports to match international standards and provide financial security to elite athletes.

**Solution:**

1. The award includes a medallion, a certificate, and a significant cash incentive. 2. In the recent revision of the National Sports Awards (2020), the cash prize for the Khel Ratna was increased from ₹ 7.5 Lakh to **₹ 25 Lakh**. 3. This is currently the highest cash prize awarded by the Indian government for an individual sporting achievement. 4. The award recognizes "spectacular and most outstanding performance" by a sportsperson over a period of four years.

**Final Answer:** The current cash prize for the Khel Ratna Award is ₹ 25 Lakh.

**Answer: (C)**

## Q31.

### Solution

**Concept:**

The Major Dhyan Chand Khel Ratna Award is the pinnacle of sporting honors in India. It is designed to recognize and reward the most spectacular and outstanding performance by a sportsperson at the international level over a sustained period.

**Solution:**

1. As stated in the passage, the primary criterion for the Khel Ratna is the performance of the athlete over a period of **four years** immediately preceding the year in which the award is to be given. 2. This four-year window ensures that the award recognizes consistency and sustained excellence rather than a single "fluke" performance. 3. During this period, achievements in events like the Olympic Games, Paralympic Games, Asian Games, and Commonwealth Games are given the highest weightage. 4. The Ministry of Youth Affairs and Sports uses a point-based system to evaluate these four years of data to ensure a transparent selection process.

**Final Answer:** Performance over 4 years is considered for the Khel Ratna Award.

**Answer: (C)**

## Q32.

### Solution

**Concept:**

The Khel Ratna Award was established in 1991-92. Identifying the first recipient is a common "General Awareness" question within the Physical Education syllabus, highlighting the historical excellence of Indian athletes in global sports.

**Solution:**

1. The first-ever recipient of the Khel Ratna was the chess Grandmaster **Viswanathan Anand**. 2. He was honored for his remarkable rise in the world of international chess, which eventually led to him becoming the undisputed World Chess Champion. 3. Sachin Tendulkar (Cricket) received it later in 1997-98, and Geet Sethi (Billiards) in 1992-93. 4. Anand's recognition marked the beginning of India's highest sporting honor, emphasizing intellectual sports alongside physical ones.

**Final Answer:** Viswanathan Anand was the first recipient of the Khel Ratna.

**Answer: (B)**

## Q33.

### Solution

**Concept:**

The administration of national sports awards in India is a centralized process managed by the union government to ensure that the awards carry official national prestige.

**Solution:**

1. The **Ministry of Youth Affairs and Sports** (Government of India) is the nodal agency for all national sports awards. 2. The Ministry invites nominations, constitutes a Selection Committee (usually headed by a retired High Court or Supreme Court Judge), and finalizes the names after a rigorous vetting process. 3. While the Sports Authority of India (SAI) assists in data collection and the Indian Olympic Association (IOA) may send nominations, the ultimate administrative and financial responsibility lies with the Ministry.

**Final Answer:** The Ministry of Youth Affairs and Sports oversees the selection.

**Answer: (B)**

## Q34.

### Solution

**Concept:**

In 2021, the Government of India decided to rename the highest sporting award to honor one of India's greatest sporting icons, reflecting the deep-rooted history of hockey in the country.

**Solution:**

1. The award was previously known as the "Rajiv Gandhi Khel Ratna Award." 2. It was renamed the **Major Dhyan Chand Khel Ratna Award**. 3. Major Dhyan Chand, known as "The Wizard" of hockey, led India to three Olympic gold medals (1928, 1932, and 1936) and is considered the greatest hockey player of all time. 4. This renaming was done to align the award more closely with India's sporting heritage.

**Final Answer:** The Khel Ratna is now named after Major Dhyan Chand.

**Answer: (B)**

## Q35.

### Solution

**Concept:**

The human body operates as a complex machine where bones act as levers, joints as fulcrums, and muscle contractions as the effort (force). Levers are classified into three classes based on the relative position of these components.

**Solution:**

1. In the human body, the **Third Class Lever** is the most common. 2. In a third-class lever, the **Effort** (muscle insertion) is located between the **Fulcrum** (joint) and the **Resistance** (the weight being moved). 3. Although third-class levers are mechanically inefficient (requiring more force than the weight of the load), they are biologically advantageous because they provide an increased **range of motion and speed**. 4. An example is the bicep curl: the elbow is the fulcrum, the bicep muscle attaches to the forearm (effort) between the elbow and the hand (resistance).

**Final Answer:** The Third Class Lever is the most common in the human body.

**Answer: (C)**

## Q36.

### Solution

**Concept:**

Levers are categorized by the relative positions of the Fulcrum, Resistance, and Effort. In a Second Class Lever, the Resistance (the weight or load) is located between the pivot point (Fulcrum) and the source of the force (Effort). This arrangement always provides a mechanical advantage, allowing the body to move heavy loads with less force.

**Solution:**

1. A lever system is defined by the middle component:

- First Class: Fulcrum in the middle.
- Second Class: **Resistance (Load)** in the middle.
- Third Class: Effort in the middle.

2. In a Second Class Lever, the effort arm is always longer than the resistance arm. 3. This is scientifically known as a "Force Multiplier" system. 4. In the human body, when you stand on your tiptoes, the ball of your foot is the Fulcrum, the weight of your body is the Resistance in the middle, and your calf muscles provide the Effort at the heel.

**Final Answer:** In a Second Class Lever, the Resistance is located between the fulcrum and the effort.

**Answer: (B)**

## Q37.

### Solution

**Concept:**

To identify a lever class in a specific exercise, we must map the anatomical structures to mechanical components. In a calf-raise, the body acts as a rigid bar rotating around the toe joints.

**Solution:**

1. **Fulcrum:** The point of rotation is the balls of the feet (metatarsophalangeal joints). 2. **Resistance:** The entire weight of the body acts downwards through the ankle joint (talus), which is located in the middle of the foot. 3. **Effort:** The gastrocnemius (calf muscle) pulls the heel (calcaneus) upward via the Achilles tendon at the rear. 4. Since the **Resistance (Body Weight)** is situated between the **Fulcrum (Toes)** and the **Effort (Heel)**, it is a classic **Second Class Lever**.

**Final Answer:** The 'Calf-Raise' exercise is an example of a Second Class Lever.

**Answer: (B)**

## Q38.

### Solution

**Concept:**

Linear motion in sports is governed by three fundamental laws formulated by Sir Isaac Newton. These laws explain how athletes interact with their environment to produce movement.

**Solution:**

1. Newton's First Law is the Law of Inertia (an object resists change). 2. Newton's Second Law is the Law of Acceleration (Force equals mass times acceleration). 3. **Newton's Third Law** states that for every action, there is an equal and opposite reaction. 4. This is officially titled the **Law of Action and Reaction**. In sports, this is seen when a swimmer pushes against the water; the water pushes back on the swimmer with equal force, resulting in forward motion.

**Final Answer:** Newton's Third Law is known as the Law of Action and Reaction.

**Answer: (C)**

## Q39.

### Solution

**Concept:**

The equation $F = ma$ is the mathematical backbone of kinematics. It describes how the velocity of an object changes (accelerates) when an external force is applied to its mass.

**Solution:**

1. $F$ stands for Force, $m$ for Mass, and $a$ for Acceleration. 2. This formula defines Newton's Second Law, known as the **Law of Acceleration**. 3. It indicates that the acceleration of an athlete or an implement (like a shot put) is directly proportional to the force applied and inversely proportional to the mass. 4. To throw a heavy implement as fast as a light one, an athlete must generate significantly more force.

**Final Answer:** $F = ma$ represents the Law of Acceleration.

**Answer: (B)**

## Q40.

### Solution

**Concept:**

Official game dimensions are standardized by international federations (FIVB for Volleyball). The height of the net is different for male and female categories due to biological differences in average height and vertical jump capacity.

**Solution:**

1. The net is placed vertically over the center line of the court. 2. For the **Men's** category, the official height of the net at the center is **2.43 meters**. 3. For the **Women's** category, the height is lower, at **2.24 meters**. 4. The height is measured from the center of the playing court; the height of the net over the two sidelines must be exactly the same and must not exceed the official height by more than 2 cm.

**Final Answer:** The official height of the net for Men is 2.43 meters.

**Answer: (B)**

## Q41.

### Solution

**Concept:**

Yoga asanas are often categorized by their starting positions: standing, sitting, prone (on stomach), and supine (on back). Prone asanas are particularly effective for strengthening the posterior chain muscles and improving the flexibility of the vertebral column.

**Solution:**

1. **Bhujangasana (Cobra Pose)** is performed from a prone position. The practitioner lies flat on the stomach with palms near the chest. 2. By applying pressure on the palms and using the spinal muscles, the upper body (head, neck, and chest) is lifted upward, resembling a cobra with a raised hood.

3. Physiologically, this asana creates a deep stretch in the thoracic and lumbar regions, which improves the elasticity of the spine and strengthens the deep back muscles. 4. It also provides a gentle massage to the abdominal organs, aiding digestion and relieving constipation. 5. Shalabhasana (Locust) involves lifting the legs, and Dhanurasana (Bow) involves lifting both ends of the body.

**Final Answer:** The asana described is Bhujangasana.

**Answer: (B)**

## Q42.

### Solution

**Concept:**

Proprioceptive Neuromuscular Facilitation (PNF) is an advanced form of flexibility training that involves both the stretching and contraction of the muscle group being targeted. It relies on neurological responses to achieve greater gains in range of motion.

**Solution:**

1. **Assertion (A):** PNF stretching is widely recognized in sports science as more effective than static or ballistic stretching for increasing the Range of Motion (ROM) because it bypasses certain inhibitory barriers. Thus, (A) is true. 2. **Reason (R):** PNF works through a principle called **Autogenic Inhibition**. When a muscle is contracted isometrically before being stretched, the tension stimulates the 'Golgi Tendon Organs' (GTOs). 3. The GTOs send a signal to the spinal cord to inhibit the contraction and relax the muscle. This reflexive relaxation allows the muscle to be stretched further than it could normally. Thus, (R) is true. 4. Since the physiological mechanism of autogenic inhibition (Reason) is the scientific basis for why PNF is more effective (Assertion), the Reason is the correct explanation.

**Final Answer:** Both (A) and (R) are true, and (R) is the correct explanation.

**Answer: (A)**

## Q43.

### Solution

**Concept:**

The energy content of food is measured in kilocalories (kcal). Macronutrients—carbohydrates, proteins, and fats—provide varying amounts of energy based on their chemical structure and carbon-hydrogen bonds.

**Solution:**

1. **Carbohydrates** provide approximately 4 kcal/g. 2. **Proteins** also provide approximately 4 kcal/g. 3. **Fats (Lipids)** are the most energy-dense macronutrient, providing approximately **9 kcal/g**. 4. Because of this high energy density, fats serve as the body's primary long-term energy storage. 5. For endurance athletes, fat metabolism is crucial for sustained activity after carbohydrate (glycogen) stores are depleted. 6. Vitamins and minerals are micronutrients and provide zero calories of energy.

**Final Answer:** Fats provide approximately 9 kilocalories per gram.

**Answer: (C)**

## Q44.

### Solution

**Concept:**

In sports medicine, it is critical to distinguish between injuries to different connective tissues. While the symptoms (pain, swelling) may look similar, the underlying structure affected determines the rehabilitation time.

**Solution:**

1. A **Sprain** is a stretching or tearing of a **Ligament**. Ligaments are the tough bands of fibrous tissue that connect two bones together in your joints. 2. Common examples include an ankle sprain (twisting the ankle) or an ACL sprain in the knee. 3. A **Strain** is an injury to a **Muscle or a Tendon** (the tissue that connects muscle to bone). 4. A fracture refers to a bone break, and a contusion is a bruise. 5. Sprains are often graded (Grade I, II, or III) depending on whether the ligament is merely stretched or completely ruptured.

**Final Answer:** A Sprain refers to an injury of the Ligament.

**Answer: (C)**

## Q45.

### Solution

**Concept:**

Fitness testing batteries like the SAI (Sports Authority of India) test or the President's Challenge use specific exercises to isolate and measure the endurance or strength of particular muscle groups.

**Solution:**

1. The **Sit-Up Test** (often timed for 60 seconds or performed as "Partial Curls") requires the repetitive contraction of the core muscles. 2. The primary muscle group targeted during this movement is the **Abdominals** (Rectus Abdominis and Obliques). 3. The test measures 'Muscular Endurance', which is the ability of the abdominal muscles to perform repeated contractions over a period of time without fatiguing. 4. Strong abdominal endurance is essential for maintaining core stability and proper posture during sports performance, and it helps in preventing lower back injuries.

**Final Answer:** The Sit-Up test measures the endurance of the Abdominal muscles.

**Answer: (B)**

## Q46.

### Solution

**Concept:**

Training methods are categorized by their intensity and structure. The Fartlek method, developed in Sweden, translates to "speed play." It is a unique blend of continuous training and interval training.

**Solution:**

1. **Fartlek Training** is also known as **'Speed Play'**. 2. Unlike the rigid structure of interval training (where distances and recovery times are fixed), Fartlek training is informal and depends on the terrain and the athlete's internal feeling. 3. The athlete varies their pace—sprinting up a hill, jogging on a flat, or walking to recover—based on landmarks (like trees or lampposts). 4. This method is excellent for developing both the aerobic and anaerobic systems and is highly effective for team sports where pace changes are unpredictable.

**Final Answer:** Fartlek Training is also known as 'Speed Play'.

**Answer: (B)**

## Q47.

### Solution

**Concept:**

Handball is a fast-paced Olympic sport with specific rules regarding ball possession to prevent stalling. These rules, governed by the International Handball Federation (IHF), encourage quick transitions and continuous play.

**Solution:**

1. In Handball, a player is allowed to hold the ball for a maximum of 3 seconds. 2. Regarding movement, a player is allowed to take a maximum of **3 steps** while holding the ball. 3. After taking 3 steps, the player must either pass the ball, shoot, or start a dribble. 4. If the player dribbles and then catches the ball again, they are entitled to another 3 steps (the "3-dribble-3" rule). 5. Exceeding these steps results in a "walking" turnover, and the opposing team is awarded a free throw.

**Final Answer:** A player in Handball is allowed to take a maximum of 3 steps.

**Answer: (B)**

## Q48.

### Solution

**Concept:**

The Shatkarmas are purification techniques in Hatha Yoga. 'Neti' is the first of these six kriyas, designed specifically to cleanse the upper respiratory tract and the nasal passages.

**Solution:**

1. **Jala Neti** is the practice of **nasal cleansing** using a "Neti Pot." 2. The pot is filled with lukewarm isotonic saline water (saltwater). The practitioner tilts their head and pours the water into one nostril, allowing it to flow out through the other. 3. Physiologically, it washes away dirt, bacteria, and excess mucus from the nasal lining. 4. It is highly beneficial for athletes as it improves respiratory efficiency and reduces the sensitivity of the nose to allergens. 5. Sutra Neti is a similar cleansing performed using a cotton thread or rubber catheter.

**Final Answer:** Jala Neti is the kriya used for nasal cleansing.

**Answer: (A)**

## Q49.

### Solution

**Concept:**

Basketball equipment must meet the rigorous standards set by FIBA (International Basketball Federation). The height, diameter, and material of the rim are standardized for all official competitions.

**Solution:**

1. The basketball hoop (the ring or rim) is made of solid steel. 2. The official **internal diameter** of the rim is exactly **45 cm** (or 18 inches). 3. The rim is positioned exactly 3.05 meters (10 feet) above the floor. 4. The thickness of the metal of the ring must be between 16 mm and 20 mm. 5. Ensuring the diameter is exactly 45 cm is critical as the standard Size 7 basketball has a diameter of roughly 24 cm, allowing for a specific margin of error for successful shots.

**Final Answer:** The official diameter of a Basketball hoop is 45 cm.

**Answer: (C)**

## Q50.

### Solution

**Concept:**

Fitness is divided into Health-Related and Skill-Related components. Balance is a skill-related component. The Flamingo Test is a widely recognized tool for assessing balance in both youth and athletic populations.

**Solution:**

1. The **Flamingo Balance Test** requires the subject to stand on one leg on a beam or flat surface while holding the other foot behind them (like a flamingo). 2. This test specifically measures **Static Balance**, which is the ability to maintain the body's center of gravity over its base of support while stationary. 3. It is used to assess the integration of the visual, vestibular (ear), and proprioceptive systems. 4. High levels of static balance are fundamental for sports like Gymnastics, Archery, and Shooting, and serve as a foundation for dynamic balance in team sports.

**Final Answer:** The Flamingo Test measures Static Balance.

**Answer: (B)**

# Answer Key

| Q | Ans | Q | Ans | Q | Ans | Q | Ans | Q | Ans |
|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 2 | A | 3 | B | 4 | C | 5 | A |
| 6 | B | 7 | A | 8 | B | 9 | A | 10 | B |
| 11 | C | 12 | C | 13 | A | 14 | B | 15 | C |
| 16 | B | 17 | B | 18 | B | 19 | C | 20 | A |
| 21 | B | 22 | B | 23 | B | 24 | B | 25 | B |
| 26 | B | 27 | A | 28 | A | 29 | A | 30 | C |
| 31 | C | 32 | B | 33 | B | 34 | B | 35 | C |
| 36 | B | 37 | B | 38 | C | 39 | B | 40 | B |
| 41 | B | 42 | A | 43 | C | 44 | C | 45 | B |
| 46 | B | 47 | B | 48 | A | 49 | C | 50 | B |