CUET UG Physical Education Sample Paper - 8

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. Which of the following describes the specific goal of the 'Janani Suraksha Yojana' under the National Rural Health Mission (NRHM) umbrella?

(A) Reducing adolescent obesity in urban schools

(B) Promoting institutional delivery to reduce maternal and neonatal mortality

(C) Providing free sports kits to rural primary health centers

(D) Eradicating non-communicable diseases in the elderly

Q2. The 'Integrated Child Development Services' (ICDS) provides a foundation for the Mid-Day Meal scheme by focusing on:

(A) Providing vocational training to school dropouts

(B) Supplementary nutrition and immunization for children under 6 years

(C) Organizing national level athletic meets for rural youth

(D) Distributing ₹ 5000 monthly to every girl child

Q3. A sprinter who remains calm and focused even after a false start, showing high emotional resilience, would likely score low on which Big Five personality dimension?

(A) Extraversion

(B) Openness to Experience

(C) Neuroticism

(D) Agreeableness

Q4. In the context of Sheldon's Somatotypes, a 'Mesomorph' athlete is most likely to excel in which of the following sporting activities?

(A) Long-distance marathon running

(B) High-intensity weightlifting and sprinting

(C) Chess and precision archery

(D) Yoga and flexibility-based gymnastics

Q5. Match List-I (Personality Type/Trait) with List-II (Key Characteristic) and select the correct option:

List-I (Trait)	**List-II (Characteristic)**
(I) Introversion	(A) Relaxed, patient, and easy-going
(II) Type A Personality	(B) Prefers solitary activities and reflection
(III) Type B Personality	(C) Competitive, time-urgent, and aggressive
(IV) Extroversion	(D) Seeks social stimulation and is talkative

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

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

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

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

Q6. What is the radius of the 'Center Circle' in a standard professional Football field?

(A) 7.32 Meters

(B) 9.15 Meters

(C) 11.00 Meters

(D) 5.50 Meters

Q7. In Hockey, when a defender commits a deliberate foul inside the '23-meter area' but outside the 'shooting circle', the umpire awards a:

(A) Penalty Corner

(B) Penalty Stroke

(C) Free Hit

(D) Long Corner

Q8. Identify the correct sequence of 'Kriyas' involved in the 'Shatkarma' process of purification in Yoga:

(A) Neti, Dhauti, Nauli, Basti, Kapalbhati, Trataka

(B) Pranayama, Asana, Dhyana, Samadhi, Yama, Niyama

(C) Tadasana, Vrikshasana, Padahastasana, Bhujangasana

(D) Dhauti, Neti, Nauli, Trataka, Basti, Kapalbhati

Q9. Which specific 'Asana' is often referred to as the 'Counter-pose' for Sarvangasana to balance the thyroid and stretch the neck?

(A) Halasana

(B) Matsyasana

(C) Chakrasana

(D) Gomukhasana

Q10. Assertion (A): Micro-nutrients like Vitamins and Minerals are required in small quantities but are essential for energy metabolism.
Reason (R): Carbohydrates and Fats provide the bulk of energy required for high-intensity sports.

(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.

Case Study 1

Read the following passage and answer the questions 11 to 15:

Physical Education in the 21st century has shifted from mere "drill" to a scientific study of human movement. Biomechanics plays a pivotal role in this, using Newton's laws to analyze how an athlete can maximize force and minimize injury. For instance, in a shot put throw, the 'Law of Inertia' dictates the initial effort needed to move the mass, while the 'Law of Acceleration' determines the final velocity. Furthermore, inclusion has become a core pillar. Strategies for Children with Special Needs (CWSN) are no longer about exclusion but about 'Adaptive Physical Education', where equipment like 'beeping balls' for the visually impaired or 'lower baskets' in wheelchair basketball are utilized to ensure every child has the right to play.

Q11. According to the passage, the 'Law of Acceleration' in sports like shot put is primarily responsible for:

(A) Keeping the shot put at rest before the throw

(B) Determining the distance based on the force applied to the mass

(C) Every action having an equal and opposite reaction

(D) Reducing the friction of the throwing circle

Q12. What is the primary objective of 'Adaptive Physical Education' as mentioned in the text?

(A) To provide high-intensity training for elite athletes

(B) To modify activities to suit the unique functional needs of CWSN

(C) To eliminate physical education from the school curriculum

(D) To focus only on the psychological health of students

Q13. The use of 'beeping balls' for visually impaired students is an example of:

(A) Bio-mechanical analysis

(B) Curricular modification

(C) Assistive technology in adaptive sports

(D) Psychological motivation

(E)

Q14. Which Newton's Law explains why a sprinter requires a starting block to push against to move forward rapidly?

(A) First Law (Inertia)

(B) Second Law (Acceleration)

(C) Third Law (Action-Reaction)

(D) Law of Gravitation

Q15. Based on the passage, 'Biomechanics' helps an athlete by:

(A) Improving only the nutritional intake

(B) Analyzing laws of physics to maximize performance and safety

(C) Promoting sports as a social science only

(D) Identifying the best career in sports journalism

Q16. The 'Flamingo Balance Test' is specifically designed to measure which component of physical fitness?

(A) Explosive Power

(B) Static Balance

(C) Cardiovascular Endurance

(D) Muscular Strength

Q17. Which of the following is a key strategy for making physical activities accessible for Children with Special Needs (CWSN)?

(A) Using standard heavy equipment to build extra strength

(B) Simplifying rules and providing assistive technology

(C) Increasing the duration of the match for better results

(D) Limiting participation to individual sports only

Q18. In a standard Handball court, the distance of the 'Penalty Line' (7-meter line) from the outer edge of the goal line is:

(A) 6 Meters

(B) 7 Meters

(C) 9 Meters

(D) 4 Meters

Q19. Identify the 'Asana' shown in the conceptual description: "The body is balanced on one leg, the other leg is folded with the foot placed on the inner thigh of the standing leg, and hands are joined in Namaste above the head."

(A) Tadasana

(B) Vrikshasana

(C) Bhujangasana

(D) Vajrasana

Q20. Which type of fracture is characterized by a bone bending and cracking partially, commonly seen in children due to their flexible bones?

(A) Stress Fracture

(B) Greenstick Fracture

(C) Comminuted Fracture

(D) Transverse Fracture

Q21. Match List-I (Sports Award) with List-II (Eligibility/Criteria) and select the correct option:

List-I (Award)	**List-II (Criteria)**
(I) Major Dhyan Chand Khel Ratna	(A) Outstanding performance over 4 years
(II) Dronacharya Award	(B) Highest Sporting Honor in India
(III) Arjuna Award	(C) Lifetime achievement in sports
(IV) Dhyan Chand Award	(D) For outstanding Coaches

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

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

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

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

Q22. Which training method involves alternating periods of high-intensity work with low-intensity recovery, where the heart rate fluctuates between 140–180 bpm?

(A) Continuous Training

(B) Interval Training

(C) Fartlek Training

(D) PNF Stretching

Q23. The 'Rikli Jones Senior Citizen Fitness Test' uses which of the following to measure upper body strength?

(A) Push-ups test

(B) Arm Curl test

(C) Chair Sit and Reach test

(D) 6-Minute Walk test

Q24. A person with 'Knock Knees' (Genu Valgum) can benefit most from which of the following corrective measures?

(A) Walking on the inner edge of the feet

(B) Horse riding and keeping a pillow between knees while sleeping

(C) Skipping with a heavy rope

(D) Wearing high-heeled shoes

Q25. In the context of Biomechanics, a 'First Class Lever' is defined by which arrangement?

(A) Resistance is between Fulcrum and Effort

(B) Effort is between Fulcrum and Resistance

(C) Fulcrum is between Effort and Resistance

(D) Fulcrum and Effort are at the same point

Q26. Identify the postural deformity where the spine has an abnormal lateral (sideways) curvature.

(A) Kyphosis

(B) Lordosis

(C) Scoliosis

(D) Flat Foot

Q27. Look at the mechanism of a person standing on their toes (Calf Raise). Which class of lever is being utilized at the ankle joint?

(A) Class I Lever

(B) Class II Lever

(C) Class III Lever

(D) Class IV Lever

Q28. What is the total duration of a standard 'Kabaddi' match for men (excluding half-time break)?

(A) 30 Minutes

(B) 40 Minutes

(C) 50 Minutes

(D) 60 Minutes

Q29. Which of the following is a non-communicable disease often linked to a sedentary lifestyle and poor nutrition?

(A) Tuberculosis

(B) Malaria

(C) Type-2 Diabetes

(D) Cholera

Q30. The 'Fartlek Training' method is also known as:

(A) Speed Play

(B) Pressure Training

(C) Weight Training

(D) Circuit Training

Case Study 2

Read the following passage and answer the questions 31 to 35:

Yoga is a holistic science that integrates the body, mind, and spirit. For a modern athlete, Yoga serves as a powerful tool for recovery and mental fortitude. 'Pranayama', or the control of breath, helps in optimizing oxygen uptake and calming the nervous system. 'Suryanamaskar', a sequence of 12 postures, acts as a complete full-body workout that improves flexibility and strength simultaneously. Furthermore, the practice of 'Yama' and 'Niyama' provides an ethical framework for sportsmanship. Understanding the 'Kriyas' helps in internal detoxification, ensuring that the metabolic processes of an athlete remain efficient even under high stress.

Q31. How many distinct postures (steps) make up one complete round of 'Suryanamaskar'?

(A) 8

(B) 10

(C) 12

(D) 14

Q32. According to the passage, what is the primary physiological benefit of 'Pranayama' for an athlete?

(A) Building massive muscle bulk

(B) Optimizing oxygen uptake and calming the nervous system

(C) Increasing the height of the athlete

(D) Reducing the need for a balanced diet

Q33. Which component of the 'Eight-fold path' (Ashtanga Yoga) provides an ethical framework for sportsmanship, as mentioned in the text?

(A) Asana and Pranayama

(B) Yama and Niyama

(C) Dharana and Dhyana

(D) Pratyahara and Samadhi

Q34. 'Suryanamaskar' is described in the text as a 'complete full-body workout' because it improves:

(A) Only the sense of hearing

(B) Only the digestive system

(C) Flexibility and strength simultaneously

(D) Aggression and speed only

Q35. What is the purpose of 'Kriyas' in the context of an athlete's metabolic efficiency?

(A) To increase body weight rapidly

(B) Internal detoxification and efficient metabolic processes

(C) To replace the need for hydration

(D) To prevent any form of sweating during exercise

Q36. Which fitness test requires the subject to run between two lines 10 meters apart, four times, to measure agility?

(A) 600m Run/Walk

(B) 4x10m Shuttle Run

(C) Partial Curl Up

(D) Sit and Reach

Q37. The ability to overcome resistance with high speed is defined as:

(A) Maximum Strength

(B) Explosive Strength

(C) Strength Endurance

(D) Static Strength

Q38. Which of the following is considered a 'Macro-nutrient'?

(A) Vitamin A

(B) Iron

(C) Proteins

(D) Calcium

Q39. The study of human social behavior and its relationship with sports is known as:

(A) Sports Physiology

(B) Sports Sociology

(C) Sports Biomechanics

(D) Sports Psychology

Q40. Which of the following awards is given specifically to a 'Coach' for their outstanding contribution to sports?

(A) Arjuna Award

(B) Dronacharya Award

(C) Khel Ratna

(D) Dhyan Chand Award

Q41. The volume of air that can be breathed in over and above the normal tidal volume by maximum effort is called:

(A) Residual Volume

(B) Vital Capacity

(C) Inspiratory Reserve Volume

(D) Tidal Capacity

Q42. Which of the following describes the 'Isokinetic' exercise method?

(A) Exercise where muscle length remains constant

(B) Exercise performed against a constant speed throughout the range of motion

(C) Exercise involving rapid stretching and contracting of muscles

(D) Exercise where the resistance remains constant but speed varies

Q43. The 'Newton's First Law of Motion' is also widely known as the:

(A) Law of Acceleration

(B) Law of Action and Reaction

(C) Law of Inertia

(D) Law of Momentum

Q44. In the context of the cardiovascular system, 'Stroke Volume' refers to:

(A) The amount of blood pumped by the heart in one minute

(B) The amount of blood pumped by the left ventricle per beat

(C) The total volume of blood present in the body

(D) The speed at which blood flows through the arteries

Q45. The 'Push-Up' test for boys and 'Modified Push-Up' for girls are used to measure:

(A) Abdominal Strength

(B) Cardiovascular Endurance

(C) Upper Body Strength and Endurance

(D) Flexibility of the shoulder girdle

Q46. A 'Greenstick Fracture' is most commonly observed in children because:

(A) Their bones are very brittle and dry

(B) Their bones contain more calcium than adults

(C) Their bones are flexible and more cartilaginous

(D) They participate in more high-impact sports

Q47. Which of the following is a symptom of 'Kyphosis'?

(A) Sideways curvature of the spine

(B) Increased forward curve in the lumbar region

(C) Rounding of the upper back (Hunchback)

(D) Flattening of the arch of the foot

Q48. Match List-I (Yoga Kriya) with List-II (Target Organ/System) and select the correct option:

List-I (Kriya)	**List-II (Target)**
(I) Neti	(A) Eyes / Concentration
(II) Dhauti	(B) Nasal Passages
(III) Trataka	(C) Frontal Brain / Breathing
(IV) Kapalbhati	(D) Digestive Tract

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

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

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

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

Q49. The 'Harvard Step Test' is used to measure which of the following?

(A) Anaerobic Capacity

(B) Cardiovascular Fitness (Aerobic Capacity)

(C) Speed and Agility

(D) Explosive Leg Power

Q50. Which of the following career options in Physical Education focuses on the prevention and treatment of sports-related injuries?

(A) Sports Journalism

(B) Sports Medicine / Physiotherapy

(C) Sports Management

(D) Sports Sociology

Detailed Solutions

Q1.

Solution

Concept:

The National Rural Health Mission (NRHM), launched by the Government of India, aims to provide accessible, affordable, and quality health care to the rural population. A primary focus of this mission is the health of women and children, specifically addressing the risks associated with childbirth in rural areas. The 'Janani Suraksha Yojana' (JSY) is a safe motherhood intervention under the NRHM.

Solution:

1. The 'Janani Suraksha Yojana' (JSY) was specifically designed to reduce maternal and neonatal mortality. 2. It achieves this by promoting institutional delivery (delivering babies in medical facilities rather than at home) among poor pregnant women. 3. The scheme provides a cash incentive to mothers who deliver in government health facilities or accredited private hospitals. 4. By ensuring professional medical supervision during birth, the risks of complications that lead to death for both the mother and the newborn are significantly minimized. 5. Options like urban obesity or sports kits do not fall under the direct health objectives of the NRHM/JSY framework.

Final Answer: The primary goal of the Janani Suraksha Yojana is promoting institutional delivery to reduce maternal and neonatal mortality.

Answer: (B)

Q2.

Solution

Concept:

The Integrated Child Development Services (ICDS) and the Mid-Day Meal (MDM) scheme are interconnected government initiatives focusing on the nutritional and developmental needs of children. While MDM focuses on school-aged children, ICDS covers the foundational years starting from birth to age 6.

Solution:

1. ICDS is one of the world's largest programs for early childhood care and development. 2. It targets children in the age group of 0–6 years, pregnant women, and lactating mothers. 3. The scheme provides a package of six services: supplementary nutrition, pre-school non-formal education, nutrition and health education, immunization, health check-up, and referral services. 4. By providing supplementary nutrition and immunization early on, it prepares children for formal schooling, which is then supported by the Mid-Day Meal scheme. 5. Vocational training or monthly cash distributions of ₹ 5000 are not standard components of the ICDS service package.

Final Answer: The ICDS focuses on supplementary nutrition and immunization for children under 6 years.

Answer: (B)

Q3.

Solution

Concept:

The "Big Five" Personality Theory (OCEAN) categorizes personality into five broad dimensions: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Neuroticism refers to the degree of emotional stability and impulse control.

Solution:

1. Neuroticism is characterized by a tendency to experience negative emotions such as anxiety, depression, and vulnerability. 2. Individuals who score high on Neuroticism are often moody, tense, and easily upset by stressful events (like a false start in a race). 3. Conversely, individuals who score low on Neuroticism are emotionally resilient, calm, and stable. 4. In the given scenario, the sprinter remains calm and focused despite the pressure of a false start, demonstrating high emotional stability. 5. Therefore, this athlete would score low on the Neuroticism scale.

Final Answer: A calm and resilient athlete would score low on Neuroticism.

Answer: (C)

Q4.

Solution

Concept:

William Sheldon's somatotype theory classifies human physiques into three categories: Ectomorph, Mesomorph, and Endomorph. Each body type is associated with specific physical characteristics and suitability for different types of sports.

Solution:

1. A Mesomorph is characterized by a large bone structure, well-defined muscles, and an athletic physique. 2. They possess a natural ability to gain muscle and are typically strong and explosive. 3. Because of their high muscle-to-fat ratio and power, they are best suited for sports that require strength, speed, and agility. 4. Weightlifting and sprinting are classic examples of high-intensity activities where a mesomorphic body provides a mechanical advantage. 5. Ectomorphs (lean/thin) usually excel in long-distance running, while mesomorphs dominate power-based events.

Final Answer: A Mesomorph athlete is most likely to excel in high-intensity weightlifting and sprinting.

Answer: (B)

Q5.

Solution

Concept:

Personality psychology in Physical Education often categorizes individuals based on their social interactions (Introversion/Extroversion) and their behavioral patterns (Type A/Type B). Understanding these traits helps coaches tailor training and motivation strategies.

Solution:

1. Introversion (I) is associated with individuals who are quiet, reserved, and prefer solitary activities for reflection; thus, (I) matches with (B). 2. Type A Personality (II) is characterized by a high sense of time urgency, competitiveness, and sometimes aggression; thus, (II) matches with (C). 3. Type B Personality (III) is the opposite of Type A, characterized by a relaxed, patient, and easy-going nature; thus, (III) matches with (A). 4. Extroversion (IV) refers to individuals who are outgoing, talkative, and seek social stimulation; thus, (IV) matches with (D). 5. Combining these matches: (I)-(B), (II)-(C), (III)-(A), (IV)-(D).

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

Answer: (A)

Q6.

Solution

Concept:

Football pitch dimensions are regulated by FIFA and the International Football Association Board (IFAB). The field consists of several markings, including the touchlines, goal lines, penalty areas, and the center circle. The center circle is used to ensure that defending players remain at a minimum distance from the ball during the kick-off.

Solution:

1. The center of the field is marked with a "Center Mark" at the midpoint of the halfway line. 2. Around this mark, a circle is drawn to keep opposing players at a distance during the start of each half or after a goal is scored. 3. According to the Laws of the Game, the radius of this center circle must be exactly 9.15 meters (which is equivalent to 10 yards). 4. This same measurement (9.15m) is used as the radius for the "Penalty Arc" at the top of the penalty box to ensure distance during a penalty kick. 5. Other dimensions like 7.32 meters refer to the width of the goal post, not the center circle.

Final Answer: The radius of the Center Circle in a standard professional Football field is 9.15 Meters.

Answer: (B)

Q7.

Solution

Concept:

In Field Hockey, fouls are penalized based on their severity and the location on the pitch where they occur. The field is divided into specific zones, including the shooting circle (D), the 23-meter area (the space between the backline and the 23m line), and the rest of the pitch.

Solution:

1. If a defender commits a foul outside the 23-meter area, a simple Free Hit is awarded to the attacking team. 2. If a defender commits an unintentional foul inside the 23-meter area but outside the circle, a Free Hit is awarded. 3. However, if a defender commits a **deliberate** (intentional) foul inside the 23-meter area but outside the shooting circle, the rules of Hockey upgrade the penalty. 4. In this specific case, the umpire awards a Penalty Corner to the attacking team. 5. Penalty Strokes are only awarded for fouls inside the circle that prevent a probable goal, and Long Corners are awarded when the ball goes over the backline last touched by a defender.

Final Answer: A Penalty Corner is awarded for a deliberate foul by a defender inside the 23-meter area but outside the circle.

Answer: (A)

Q8.

Solution

Concept:

In Hatha Yoga, the 'Shatkarmas' or 'Shatkriyas' are a set of six purification techniques used to cleanse the internal organs and balance the 'doshas' (Vata, Pitta, Kapha) in the body before practicing advanced Pranayama or Asana.

Solution:

1. The six classical Shatkarmas are: Dhauti, Basti, Neti, Nauli, Trataka, and Kapalbhati. 2. **Dhauti** involves cleansing the digestive tract. 3. **Basti** involves cleansing the lower intestine (colon). 4. **Neti** is the purification of the nasal passages. 5. **Nauli** is the abdominal massaging technique. 6. **Trataka** is focused blinking-less gazing for eye and mind purification. 7. **Kapalbhati** is the "skull shining" breathing technique for respiratory cleansing. 8. Looking at the standard sequence found in Hatha Yoga Pradipika, Option D correctly identifies these six specific kriyas.

Final Answer: The correct sequence of Shatkarmas is Dhauti, Neti, Nauli, Trataka, Basti, Kapalbhati.

Answer: (D)

Q9.

Solution

Concept:

In Yoga, a 'Counter-pose' (Pratyasana) is a posture that stretches the body in the opposite direction of the previous pose to ensure structural balance, prevent strain, and normalize blood flow.

Solution:

1. Sarvangasana (Shoulder Stand) is an inversion that places significant pressure on the cervical spine (neck) and deeply compresses the throat/thyroid area. 2. To balance this, a counter-pose must involve a "back-bend" or a neck extension to open up the throat and stretch the spine in the opposite direction. 3. **Matsyasana** (Fish Pose) involves arching the back and resting the crown of the head on the floor, which perfectly counter-stretches the neck and expands the chest after Sarvangasana. 4. Halasana is a continuation of the forward compression, not a counter-pose. 5. Chakrasana is a deep back-bend but is not specifically the traditional clinical counter-pose for the thyroid benefits of Sarvangasana.

Final Answer: Matsyasana is the official counter-pose for Sarvangasana.

Answer: (B)

Q10.

Solution

Concept:

Nutrition is categorized into Macro-nutrients (required in large amounts) and Micro-nutrients (required in trace amounts). While their quantities differ, both are essential for athletic performance.

Solution:

1. **Assertion (A):** Micro-nutrients include vitamins and minerals. Even though they don't provide calories (energy) directly, they act as essential co-factors in energy metabolism (like B-vitamins) and muscle contraction (like Calcium). Thus, Assertion (A) is true. 2. **Reason (R):** Carbohydrates and Fats are Macro-nutrients that serve as the primary fuel sources for the body during physical activity. Thus, Reason (R) is true. 3. **Analysis:** While both statements are scientifically correct, the fact that carbs/fats provide bulk energy does not explain "why" micro-nutrients are essential for metabolism. The necessity of micro-nutrients is due to their role in biochemical catalysts, not because macro-nutrients provide energy. 4. Therefore, both are true, but R is not the logical explanation for A.

Final Answer: Both (A) and (R) are true, but (R) is NOT the correct explanation of (A).

Answer: (B)

Q11.

Solution

Concept:

Newton's Second Law of Motion, also known as the Law of Acceleration, describes the relationship between an object's mass, the force applied to it, and the resulting acceleration. In sports like shot put, this law is fundamental to achieving maximum distance.

Solution:

1. The passage states that the 'Law of Acceleration' determines the final velocity of the shot put. 2. According to the formula $F = ma$ (Force = mass $\times$ acceleration), the acceleration produced in an object is directly proportional to the force applied and inversely proportional to its mass. 3. In the context of a throw, once the mass of the shot put is constant, the athlete must apply maximum force to increase acceleration. 4. Increased acceleration leads to a higher release velocity, which is the primary factor in determining how far the shot put will travel. 5. Therefore, the law is responsible for determining the distance based on the force applied to the mass.

Final Answer: The Law of Acceleration is responsible for determining the distance based on the force applied to the mass.

Answer: (B)

Q12.

Solution

Concept:

Adaptive Physical Education (APE) is a sub-discipline of Physical Education that focuses on providing safe, personally satisfying, and successful physical activity experiences for individuals with disabilities or functional limitations.

Solution:

1. The passage explicitly links "inclusion" to "Adaptive Physical Education." 2. It mentions that APE is about ensuring every child, regardless of their physical or sensory challenges, has the "right to play." 3. This is achieved by modifying rules, equipment, and environments to suit the unique functional needs of Children with Special Needs (CWSN). 4. Examples provided in the text, such as lower baskets and beeping balls, are direct evidence of these modifications. 5. It is not meant to exclude students or focus solely on elite athletes, but to make sports accessible to all.

Final Answer: The primary objective is to modify activities to suit the unique functional needs of CWSN.

Answer: (B)

Q13.

Solution

Concept:

Assistive technology in sports refers to any device or equipment that is used to increase, maintain, or improve the functional capabilities of an athlete with a disability.

Solution:

1. A standard ball is visually tracked; however, a visually impaired student cannot track it this way. 2. A 'beeping ball' emits a sound, allowing the student to use their sense of hearing to locate the ball's position and movement. 3. This device serves as a technological "assistance" to overcome a sensory barrier. 4. While this is part of a curricular modification, the specific use of a specialized electronic device makes it a prime example of assistive technology in adaptive sports. 5. It ensures that the student can participate effectively in the game alongside their peers.

Final Answer: The use of beeping balls is an example of assistive technology in adaptive sports.

Answer: (C)

Q14.

Solution

Concept:

Newton's Third Law of Motion states: "For every action, there is an equal and opposite reaction." This law explains how propulsion is generated in many sports movements.

Solution:

1. When a sprinter is at the start, they place their feet against the starting blocks. 2. The sprinter exerts a forceful push backward against the blocks (the 'Action'). 3. According to the Third Law, the blocks exert an equal and opposite force forward against the sprinter's feet (the 'Reaction'). 4. It is this forward reaction force from the blocks that allows the sprinter to accelerate out of the "set" position much faster than pushing off flat ground. 5. While inertia (First Law) must be overcome, the physical mechanism of moving forward by pushing against an object is specifically defined by the Action-Reaction principle.

Final Answer: Newton's Third Law (Action-Reaction) explains the use of starting blocks.

Answer: (C)

Q15.

Solution

Concept:

Biomechanics is the study of the structure and function of biological systems by means of the methods of mechanics. In sports, it bridges the gap between pure physics and human performance.

Solution:

1. The passage defines biomechanics as the "scientific study of human movement" using "laws of physics." 2. It mentions that biomechanics analyzes how to "maximize force and minimize injury." 3. By understanding how forces like gravity, friction, and internal muscle tension interact, athletes and coaches can optimize technique. 4. This scientific approach ensures that the movement is efficient (high performance) and safe (reduced injury risk). 5. It is not limited to nutrition, social science, or career planning, but is fundamentally about applied physics in a sporting context.

Final Answer: Biomechanics helps by analyzing laws of physics to maximize performance and safety.

Answer: (B)

Q16.

Solution

Concept:

Physical fitness testing involves various protocols to measure specific components like strength, speed, agility, and balance. The Flamingo Balance Test is a widely recognized clinical and field test used to assess a person's ability to maintain equilibrium while standing on a narrow base.

Solution:

1. The test requires the subject to stand on one leg on a metal beam (or flat ground in modified versions) while the other leg is flexed at the knee and held by the hand. 2. The objective is to stay balanced for as long as possible or to count how many times the person falls in a one-minute interval. 3. Since the subject is not moving across a distance but is maintaining a fixed posture, it measures "Static Balance." 4. Balance is a core component of motor fitness, essential for sports like gymnastics, skating, and even daily movements for senior citizens. 5. It does not measure power or endurance, which involve repetitive or explosive muscle actions.

Final Answer: The Flamingo Balance Test is designed to measure Static Balance.

Answer: (B)

Q17.

Solution

Concept:

Inclusion in sports ensures that individuals with disabilities (CWSN) have equal opportunities to participate. This requires "Adaptive Physical Education," which involves intentional changes to the environment, equipment, or rules.

Solution:

1. Making activities accessible means removing barriers that prevent participation. 2. Simplifying rules (e.g., allowing a second bounce in wheelchair tennis) makes the game achievable and less frustrating for CWSN. 3. Assistive technology (e.g., brightly colored balls for low vision or lighter rackets for muscle weakness) ensures the equipment matches the user's ability. 4. Using "standard heavy equipment" would likely be a barrier rather than a help. 5. Limiting participation to individual sports goes against the principle of social inclusion.

Final Answer: Simplifying rules and providing assistive technology are key strategies for accessibility.

Answer: (B)

Q18.

Solution

Concept:

Handball court dimensions are strictly defined by the International Handball Federation (IHF). The court features several semi-circles and lines that dictate where players can stand and where penalties are taken.

Solution:

1. The 'Goal Area Line' is at 6 meters; no player except the goalkeeper is allowed inside this area. 2. The 'Free Throw Line' (dashed line) is at 9 meters. 3. The 'Penalty Line' is a 1-meter long line placed directly in front of the goal. 4. This line is exactly 7 meters away from the outer edge of the goal line. 5. When a clear chance of scoring is illegally frustrated anywhere on the court, a 7-meter throw (penalty) is awarded.

Final Answer: The distance of the Penalty Line from the goal line is 7 Meters.

Answer: (B)

Q19.

Solution

Concept:

Yoga asanas are often named after nature or objects. Recognizing the posture based on its physical description is a key requirement in CUET-level Physical Education.

Solution:

1. The description mentions "balancing on one leg," which indicates a balance-based standing posture. 2. Placing the foot on the "inner thigh" of the opposite leg creates a shape resembling a tree trunk and its branches. 3. "Vriksha" in Sanskrit means "Tree," and "Asana" means "Pose." 4. Tadasana is simply standing straight (Mountain Pose), while Bhujangasana is the Cobra Pose (performed lying down). 5. Therefore, Vrikshasana (Tree Pose) is the correct match for the description provided.

Final Answer: The asana described is Vrikshasana.

Answer: (B)

Q20.

Solution

Concept:

Fractures are classified based on the nature of the break in the bone. Children have bones that are more "calcified" but also more "cartilaginous" and flexible than adults, leading to unique injury patterns.

Solution:

1. A Greenstick fracture is an incomplete fracture where the bone bends and cracks, rather than breaking completely into separate pieces. 2. This is named after a "green" (young/moist) branch of a tree, which bends and splinters on one side when you try to break it, but stays connected. 3. Children's bones are soft and flexible, making this type of injury very common in pediatric sports. 4. A Comminuted fracture involves the bone breaking into several fragments, while a Stress fracture is a tiny crack caused by repetitive force. 5. Therefore, the bending and partial cracking described is a Greenstick fracture.

Final Answer: The fracture characterized by bending and partial cracking is a Greenstick Fracture.

Answer: (B)

Q21.

Solution

Concept:

National Sports Awards in India are prestigious honors conferred by the Ministry of Youth Affairs and Sports. Each award has a distinct purpose, ranging from recognizing active athletes to honoring the coaches who train them and those who have dedicated their lives to sports.

Solution:

1. **Major Dhyan Chand Khel Ratna (I):** This is the highest sporting honor in India, awarded for the most spectacular and outstanding performance by a sportsperson over a period of four years. Thus, (I) matches with (B). 2. **Dronacharya Award (II):** This is named after the legendary coach Dronacharya and is given specifically to outstanding coaches who have produced medal winners at international events. Thus, (II) matches with (D). 3. **Arjuna Award (III):** This is awarded to athletes for consistent outstanding performance over a period of four years, combined with qualities of leadership and discipline. Thus, (III) matches with (A). 4. **Dhyan Chand Award (IV):** This is different from the Khel Ratna; it is specifically for "Lifetime Achievement" in sports development. Thus, (IV) matches with (C). 5. The correct combination is (I)-(B), (II)-(D), (III)-(A), (IV)-(C).

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

Answer: (A)

Q22.

Solution

Concept:

Interval Training is a method of physical conditioning that employs alternating periods of work and rest. It is highly effective for improving both aerobic and anaerobic capacity by pushing the heart rate to specific zones.

Solution:

1. The defining characteristic of Interval Training is the "interval" or recovery phase between high-intensity bursts. 2. During the high-intensity work period, the heart rate typically climbs to 170–180 bpm. 3. During the recovery or low-intensity period, the heart rate is allowed to drop to about 120–140 bpm before the next set begins. 4. This fluctuation allows the athlete to perform a higher total volume of high-intensity work than they could during a continuous run. 5. Fartlek training also involves speed variations, but it is "unstructured" (determined by the athlete's feeling and terrain), whereas Interval Training is strictly timed and structured.

Final Answer: Interval Training involves alternating high-intensity work with low-intensity recovery.

Answer: (B)

Q23.

Solution

Concept:

The Rikli Jones Senior Citizen Fitness Test (also known as the Fullerton Functional Fitness Test) is designed to assess the functional fitness of older adults. It includes various items to measure strength, flexibility, and endurance.

Solution:

1. For senior citizens, traditional tests like push-ups are often too strenuous or risky for the joints. 2. The **Arm Curl Test** is used to assess upper body strength and endurance specifically. 3. In this test, the participant sits on a chair and performs as many bicep curls as possible in 30 seconds using a dumbbell (5 lbs for women, 8 lbs for men). 4. The Chair Sit and Reach test measures lower body flexibility, and the 6-Minute Walk test measures aerobic endurance. 5. Therefore, the Arm Curl test is the correct clinical measure for upper body strength in this population.

Final Answer: The Rikli Jones test uses the Arm Curl test to measure upper body strength.

Answer: (B)

Q24.

Solution

Concept:

Postural deformities are deviations in the alignment of the skeletal system. Knock Knees (Genu Valgum) is a condition where the knees angle in and touch each other when the legs are straightened.

Solution:

1. In 'Knock Knees', the gap between the ankles is wide when the knees are touching. 2. Corrective measures focus on strengthening the outer thigh muscles and stretching the inner thigh muscles to pull the knees outward. 3. **Horse riding** is an excellent corrective exercise because the posture of sitting on a horse forces the knees apart and strengthens the hip abductors. 4. Keeping a **pillow between the knees** while sleeping helps in maintaining a neutral alignment and preventing the knees from collapsing inward during rest. 5. Walking on the inner edge of the feet would actually worsen the condition; walking on the outer edge is recommended.

Final Answer: Horse riding and using a pillow between the knees are effective corrective measures for Knock Knees.

Answer: (B)

Q25.

Solution

Concept:

In Biomechanics, a lever is a rigid bar (bone) that turns around a fixed point called a fulcrum (joint). Levers are classified into three classes based on the relative positions of the Fulcrum (F), Effort (E), and Resistance/Load (R).

Solution:

1. A **First Class Lever** is characterized by having the **Fulcrum located between the Effort and the Resistance**. 2. A common example in the human body is the movement of the head on the first cervical vertebra (atlanto-occipital joint) when nodding. 3. Memory tip: Use the acronym **F-R-E** (1-2-3). * Class 1: **F**ulcrum is in the middle. * Class 2: **R**esistance is in the middle. * Class 3: **E**ffort is in the middle.

4. Therefore, the arrangement for a first-class lever is the Fulcrum between the Effort and Resistance.

Final Answer: A First Class Lever has the Fulcrum between the Effort and Resistance.

Answer: (C)

Q26.

Solution

Concept:

Postural deformities of the spine involve abnormal curvatures that can affect balance and health. Scoliosis is a specific condition where the spine curves to the side, creating a "C" or "S" shape when viewed from the back.

Solution:

1. Kyphosis refers to an exaggerated forward rounding of the upper back (hunchback). 2. Lordosis is an excessive inward curve of the lower back (swayback). 3. **Scoliosis** is the lateral or sideways curvature of the vertebral column. 4. It can be identified by uneven shoulders, one hip being higher than the other, or a protruding shoulder blade. 5. In severe cases, it can reduce the space within the chest, making it difficult for lungs to function properly.

Final Answer: The postural deformity with a lateral curvature is Scoliosis.

Answer: (C)

Q27.

Solution

Concept:

The human body uses levers to produce movement. In a Class II lever, the Resistance (Load) is located between the Fulcrum (Pivot) and the Effort (Force). This class of lever provides a mechanical advantage, allowing a person to lift heavy loads with less force.

Solution:

1. When standing on toes (Calf Raise), the ball of the foot acts as the **Fulcrum**. 2. The weight of the entire body, which pushes down through the ankle, acts as the **Resistance**. 3. The contraction of the gastrocnemius (calf muscle) pulling up on the heel provides the **Effort**. 4. Since the Resistance (body weight) is in the middle, between the Fulcrum (toes) and the Effort (heel), it is a **Class II Lever**. 5. This is one of the few examples of a second-class lever in the human body.

Final Answer: Standing on toes utilizes a Class II Lever.

Answer: (B)

Q28.

Solution

Concept:

Kabaddi is a traditional Indian contact sport. The duration of matches is standardized by the International Kabaddi Federation (IKF) to ensure consistency in competitive play.

Solution:

1. A standard Kabaddi match for men consists of two halves. 2. Each half is exactly 20 minutes long. 3. Therefore, the total playing time (excluding the 5-minute break at half-time) is 20 + 20 = 40 minutes. 4. For women and juniors, the halves are usually 15 minutes each, totaling 30 minutes. 5. In case of a tie in knockout matches, extra time (two halves of 5 minutes each) may be played, but the "standard" duration remains 40 minutes.

Final Answer: The total duration of a standard men's Kabaddi match is 40 Minutes.

Answer: (B)

Q29.

Solution

Concept:

Diseases are categorized as Communicable (infectious) or Non-Communicable (chronic/lifestyle-related). Non-communicable diseases (NCDs) are not passed from person to person but are developed over time due to various risk factors.

Solution:

1. Tuberculosis, Malaria, and Cholera are all communicable diseases caused by bacteria, parasites, and contaminated water respectively. 2. **Type-2 Diabetes** is a metabolic disorder characterized by high blood sugar levels. 3. It is primarily driven by "lifestyle factors" such as a lack of physical activity (sedentary lifestyle), obesity, and the consumption of high-calorie, poor-nutrition diets. 4. Because it is a long-term health condition that cannot be "caught" like a cold, it is classified as a non-communicable disease.

Final Answer: Type-2 Diabetes is a non-communicable disease linked to lifestyle.

Answer: (C)

Q30.

Solution

Concept:

Fartlek training was developed in Sweden by Gösta Holmér. The word "Fartlek" literally translates from Swedish to English as "Speed Play."

Solution:

1. It is a form of continuous training that blends aerobic and anaerobic exercise. 2. Unlike interval training, it is unstructured; the athlete changes their pace spontaneously based on the terrain or how they feel. 3. Because the essence of the workout is "playing" with different speeds (sprinting, jogging, walking), it is called **Speed Play**. 4. This method is excellent for psychological variety and improving cardiovascular endurance in sports like football and cross-country running.

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

Answer: (A)

Q31.

Solution

Concept:

Suryanamaskar, or Sun Salutation, is a foundational yogic practice consisting of a specific sequence of flowing movements. Each movement is synchronized with a specific breathing pattern (inhalation or exhalation) and a corresponding mantra.

Solution:

1. As stated in the passage, Suryanamaskar is a "sequence of 12 postures." 2. These 12 steps involve a variety of movements including forward bends, back bends, and stretches that target the entire body. 3. The sequence starts and ends with 'Pranamasana' (Prayer Pose). 4. Although there are variations in some traditions, the standard classical Suryanamaskar practiced in educational and competitive Physical Education contexts consists of exactly 12 distinct steps. 5. This makes it a comprehensive warm-up or a standalone workout.

Final Answer: There are 12 distinct postures in one complete round of Suryanamaskar.

Answer: (C)

Q32.

Solution

Concept:

Pranayama is the fourth limb of Ashtanga Yoga. It involves the regulation of 'Prana' (life force) through controlled breathing techniques such as Puraka (inhalation), Rechaka (exhalation), and Kumbhaka (retention).

Solution:

1. The passage identifies Pranayama as the "control of breath." 2. Its primary role for an athlete is to enhance the efficiency of the respiratory system. 3. By practicing deep and rhythmic breathing, an athlete can optimize their oxygen uptake, which is crucial for energy production during physical exertion. 4. Additionally, Pranayama has a direct effect on the autonomic nervous system, helping to "calm the nervous system" and reduce pre-competition anxiety. 5. It does not replace a balanced diet or influence physical height, but improves internal physiological efficiency.

Final Answer: The primary benefit of Pranayama is optimizing oxygen uptake and calming the nervous system.

Answer: (B)

Q33.

Solution

Concept:

The Eight-fold path of Yoga (Ashtanga Yoga) by Maharishi Patanjali provides a comprehensive guide for personal growth and social conduct. The first two limbs are specifically dedicated to moral and personal disciplines.

Solution:

1. **Yama** refers to universal moral commandments or social ethics (such as Non-violence and Truthfulness). 2. **Niyama** refers to personal rules of conduct or self-discipline (such as Purity and Contentment). 3. The passage explicitly states that the practice of 'Yama' and 'Niyama' provides an "ethical framework for sportsmanship." 4. In sports, this translates to fair play, respecting opponents, and maintaining personal integrity. 5. While Asanas and Pranayama focus on the body and energy, Yama and Niyama focus on character and behavior.

Final Answer: Yama and Niyama provide the ethical framework for sportsmanship.

Answer: (B)

Q34.

Solution

Concept:

A "full-body workout" is one that engages multiple muscle groups and improves various physical fitness components simultaneously rather than focusing on a single isolated area.

Solution:

1. Suryanamaskar involves a series of transitions that require significant muscular effort (building strength). 2. The deep stretches in poses like 'Padahastasana' and 'Ashwa Sanchalanasana' target the hamstrings, spine, and hip flexors (improving flexibility). 3. Because the sequence alternates between stretching and strengthening movements for the upper and lower body, it is a holistic exercise. 4. The passage confirms it "improves flexibility and strength simultaneously." 5. It is far more comprehensive than just focusing on digestion or specific senses.

Final Answer: Suryanamaskar is a full-body workout because it improves flexibility and strength simultaneously.

Answer: (C)

Q35.

Solution

Concept:

Shatkarmas (Kriyas) are the cleansing techniques in Yoga. For an athlete, maintaining a clean internal environment is essential for peak performance and recovery.

Solution:

1. The passage mentions that understanding the 'Kriyas' helps in "internal detoxification." 2. Detoxification involves the removal of toxins and waste products from the body's systems (digestive, respiratory, etc.). 3. By removing these impurities, the "metabolic processes" (how the body converts food/oxygen into energy) become more efficient. 4. An efficient metabolism allows an athlete to recover faster and maintain high energy levels even under the "high stress" of competition. 5. Kriyas are about biological hygiene and efficiency, not about gaining weight or replacing hydration.

Final Answer: The purpose of Kriyas is internal detoxification and ensuring efficient metabolic processes.

Answer: (B)

Q36.

Solution

Concept:

Agility is the ability to change direction quickly and effectively while maintaining control. In Physical Education, the Shuttle Run is the standard field test used to measure this component.

Solution:

1. The 4x10m Shuttle Run involves placing two lines 10 meters apart. 2. The subject starts at one line, runs to the other, picks up a block (or touches the line), and runs back. 3. This process is repeated until the subject has covered the 10-meter distance four times. 4. The test requires rapid deceleration, a change of direction, and rapid acceleration. 5. While a 600m run measures endurance and Sit and Reach measures flexibility, the Shuttle Run is the specific protocol for assessing agility.

Final Answer: The 4x10m Shuttle Run measures agility.

Answer: (B)

Q37.

Solution

Concept:

Strength is the ability of the muscles to overcome resistance. It is classified into different types based on the speed of contraction and the duration of the effort.

Solution:

1. **Explosive Strength** is the ability to overcome resistance with high speed. 2. It is a combination of strength and speed (Power). 3. This type of strength is critical in activities like jumping (long jump/high jump), sprinting starts, and throwing events in athletics. 4. Maximum strength is the ability to lift the heaviest possible load regardless of speed, while strength endurance is the ability to sustain force over time. 5. Therefore, the specific definition provided matches Explosive Strength.

Final Answer: The ability to overcome resistance with high speed is Explosive Strength.

Answer: (B)

Q38.

Solution

Concept:

Nutrients are substances that provide nourishment essential for growth and the maintenance of life. They are divided into Macro-nutrients (needed in large amounts) and Micro-nutrients (needed in small amounts).

Solution:

1. Macro-nutrients include Carbohydrates, Fats, **Proteins**, and Water. These provide the energy and structural building blocks for the body. 2. Micro-nutrients include Vitamins (like Vitamin A) and Minerals (like Iron and Calcium). 3. Proteins are essential for the growth and repair of muscle tissues, which is why they are consumed in larger quantities by athletes. 4. Since Proteins are required in grams per day while minerals/vitamins are required in milligrams or micrograms, Proteins are classified as a Macro-nutrient.

Final Answer: Proteins are considered a Macro-nutrient.

Answer: (C)

Q39.

Solution

Concept:

Sports Science is an interdisciplinary field. Each sub-discipline focuses on a different aspect of human performance and the environment surrounding it.

Solution:

1. Physiology focuses on the biological functions of the body. 2. Psychology focuses on the individual's mind and behavior. 3. Biomechanics focuses on the physics and mechanics of movement. 4. **Sports Sociology** is the study of how sports are influenced by society, how social groups behave within the sporting context, and the impact of sports on social structures. 5. This includes studying teamwork, social class in sports, and the cultural impact of games.

Final Answer: The study of human social behavior in sports is Sports Sociology.

Answer: (B)

Q40.

Solution

Concept:

National Sports Awards serve different recognition purposes. Coaches play a vital role in an athlete's journey, and the government has a specific award to honor their excellence.

Solution:

1. The Arjuna Award and Khel Ratna are primarily for the athletes (the players). 2. The Dhyan Chand Award is for lifetime achievement in the promotion of sports. 3. The **Dronacharya Award** is named after Guru Dronacharya, the legendary teacher of archery. 4. It is awarded to coaches who have shown excellence in training athletes and helping them achieve outstanding results at international competitions. 5. Therefore, it is the only award in the list designated specifically for a "Coach."

Final Answer: The Dronacharya Award is given specifically to a Coach.

Answer: (B)

Q41.

Solution

Concept:

Lung volumes and capacities are used to measure the efficiency of the respiratory system. Tidal Volume (TV) is the amount of air breathed in or out during normal, relaxed breathing. However, the lungs have the capacity to hold much more air than this.

Solution:

1. Beyond normal breathing, we can force ourselves to take a much deeper breath. 2. The extra volume of air that can be inhaled forcibly after a normal inhalation is called the **Inspiratory Reserve Volume (IRV)**. 3. In a healthy adult, the IRV is typically between 2500 ml to 3000 ml. 4. Residual Volume is the air that remains in the lungs even after maximum exhalation, and Vital Capacity is the total usable volume of the lungs. 5. Therefore, the air taken in "over and above" normal tidal volume is IRV.

Final Answer: The volume of air breathed in over and above tidal volume is Inspiratory Reserve Volume.

Answer: (C)

Q42.

Solution

Concept:

Resistance training methods are classified into Isometric, Isotonic, and Isokinetic. Isokinetic exercises are unique because they require specialized equipment (isokinetic dynamometers) to control the mechanics of the movement.

Solution:

1. The term 'Isokinetic' comes from "Iso" (same) and "Kinetic" (motion/speed). 2. In **Isokinetic exercises**, the speed of the movement is kept constant throughout the entire range of motion, regardless of how much force the athlete applies. 3. If the athlete pushes harder, the machine increases the resistance rather than the speed. 4. This allows for maximum muscle contraction at every angle of the joint movement. 5. This is different from Isotonic exercises (where weight is constant but speed varies) and Isometric (where there is no movement at all).

Final Answer: Isokinetic exercise is performed against a constant speed throughout the range of motion.

Answer: (B)

Q43.

Solution

Concept:

Sir Isaac Newton formulated three laws of motion that govern the movement of all objects, including athletes in sports. The First Law describes the behavior of objects when no external force is acting upon them.

Solution:

1. Newton's First Law states that an object at rest will remain at rest, and an object in motion will remain in motion at a constant velocity unless acted upon by an external force. 2. The inherent property of an object to resist any change in its state of rest or motion is called **Inertia**. 3. Because the First Law is entirely based on this property, it is widely known as the **Law of Inertia**. 4. In sports, this explains why a heavy medicine ball is harder to start moving (or stop) than a light tennis ball.

Final Answer: Newton's First Law of Motion is also known as the Law of Inertia.

Answer: (C)

Q44.

Solution

Concept:

The cardiovascular system adapts to exercise by changing the way blood is pumped. Understanding the difference between Stroke Volume and Cardiac Output is essential for sports physiology.

Solution:

1. **Stroke Volume (SV)** is the specific volume of blood pumped out of the left ventricle of the heart during a single contraction (one beat). 2. It is measured in milliliters per beat (ml/beat). 3. **Cardiac Output**, on the other hand, is the volume of blood pumped in one minute (Stroke Volume $\times$ Heart Rate). 4. Athletes typically have a higher Stroke Volume than sedentary individuals, allowing their hearts to pump more blood with fewer beats (a lower resting heart rate).

Final Answer: Stroke Volume refers to the amount of blood pumped by the left ventricle per beat.

Answer: (B)

Q45.

Solution

Concept:

Field tests are used to evaluate specific muscle groups. The push-up protocol is a standard measure used in fitness batteries like the AAPHERD or the Khelo India Fitness Assessment.

Solution:

1. Push-ups require the subject to support their body weight and move it repeatedly against gravity. 2. This action primarily engages the Pectoralis major (chest), Deltoids (shoulders), and Triceps (back of the arm). 3. Because the test involves repeating the movement until exhaustion, it measures both the raw strength of these muscles and their ability to sustain effort over time (**Endurance**). 4. Boys perform standard push-ups, while girls perform modified (knee) push-ups to account for physiological differences in upper body muscle mass. 5. It is not a measure of abdominal strength (which uses curl-ups) or cardiovascular fitness (which uses running tests).

Final Answer: Push-ups are used to measure Upper Body Strength and Endurance.

Answer: (C)

Q46.

Solution

Concept:

Bone composition changes significantly from childhood to adulthood. In children, bones are less mineralized and contain a higher proportion of collagen and cartilage, which affects how they respond to mechanical stress.

Solution:

1. Because children's bones are more flexible and "soft" compared to the brittle, highly calcified bones of adults, they often do not snap completely under pressure. 2. When a force is applied, the bone tends to bend. If the force exceeds the limit, the bone cracks on one side (the outer side of the bend) but remains intact on the other. 3. This is scientifically described as being more **cartilaginous**. 4. This specific property is what leads to the "Greenstick" name, as it mimics the behavior of a young, living tree branch. 5. Brittle bones (Option A) would lead to complete fractures, which is more common in the elderly (osteoporosis).

Final Answer: Greenstick fractures occur in children because their bones are flexible and more cartilaginous.

Answer: (C)

Q47.

Solution

Concept:

Kyphosis is a common postural deformity involving the vertebral column. It is often caused by poor sitting habits, weak back muscles, or carrying heavy loads improperly.

Solution:

1. Kyphosis specifically affects the **thoracic region** (upper back) of the spine. 2. It is characterized by an excessive posterior (backward) curvature, which results in a "rounding" of the shoulders and back. 3. This condition is commonly known as **Hunchback**. 4. In contrast, Lordosis is an inward curve of the lower back, and Scoliosis is a sideways curve. 5. Symptoms include a visible hump, rounded shoulders, and sometimes chest pain due to the compression of the thoracic cavity.

Final Answer: A symptom of Kyphosis is the rounding of the upper back (Hunchback).

Answer: (C)

Q48.

Solution

Concept:

The Shatkarmas (Yogic Cleansing) are designed to purify specific physiological systems. Each kriya targets a particular "portal" or internal organ to maintain homeostasis.

Solution:

1. **Neti (I):** This involves the use of water (Jala Neti) or thread (Sutra Neti) to cleanse the **nasal passages** and sinuses. Thus, (I) matches with (B). 2. **Dhauti (II):** This involves various techniques (like Vaman Dhauti) to cleanse the upper **digestive tract**, specifically the stomach. Thus, (II) matches with (D). 3. **Trataka (III):** This involves steady gazing at a fixed point (like a candle flame) to improve **concentration and eye health**. Thus, (III) matches with (A). 4. **Kapalbhati (IV):** This involves forceful exhalations that cleanse the **respiratory system** and stimulate the frontal brain. Thus, (IV) matches with (C). 5. The correct sequence is (I)-(B), (II)-(D), (III)-(A), (IV)-(C).

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

Answer: (A)

Q49.

Solution

Concept:

The Harvard Step Test is a classic sub-maximal cardiovascular fitness test. It was developed by Brouha et al. to measure the ability of the heart and lungs to recover after a period of intense exercise.

Solution:

1. The test requires the participant to step up and down on a gym bench (approx. 20 inches high for men, 16 inches for women) for 5 minutes at a steady pace. 2. After the exercise, the heart rate is measured during specific recovery intervals. 3. The calculation of the 'Fitness Index' provides a score that represents the subject's **Cardiovascular Fitness** (Aerobic Capacity). 4. A higher score indicates that the heart recovers more quickly, signifying better aerobic health. 5. It is not designed for speed, agility, or pure anaerobic power.

Final Answer: The Harvard Step Test is used to measure Cardiovascular Fitness.

Answer: (B)

Q50.

Solution

Concept:

The field of Physical Education offers various specialized career paths beyond teaching or coaching. Sports Medicine is a branch of healthcare that deals specifically with physical fitness and the treatment/prevention of injuries.

Solution:

1. While Sports Journalism covers events and Management handles logistics, neither deals with clinical care. 2. **Sports Medicine and Physiotherapy** focus on the biological and mechanical aspects of recovery. 3. Professionals in this field use exercises, massages, and medical treatments to help athletes recover from fractures, sprains, and muscle tears. 4. They also design "pre-habilitation" programs to strengthen vulnerable areas to **prevent** injuries from occurring in the first place. 5. This is the most technically focused medical career within the sports industry.

Final Answer: Sports Medicine / Physiotherapy focuses on the prevention and treatment of sports injuries.

Answer: (B)

Answer Key

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