

CUET-UG Physical Education Sample Paper-1

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. Arrange the following organizations in the chronological order of their establishment in India:

- (A) Sports Authority of India (SAI)
- (B) Lakshmibai National Institute of Physical Education (LNPIE)
- (C) Y.M.C.A. College of Physical Education, Chennai
- (D) Netaji Subhas National Institute of Sports (NSNIS)

- (A) (C), (B), (D), (A)
- (B) (B), (C), (A), (D)
- (C) (C), (D), (B), (A)
- (D) (A), (B), (C), (D)

Q2. Which of the following is NOT a component of the 'Big Five' personality theory?

- (A) Openness
- (B) Extroversion
- (C) Agreeableness
- (D) Endomorphy

Q3. Match List-I (Postural Deformity) with List-II (Corrective Measure):



| List-I | List-II |
|-----------------|-----------------------------|
| (A) Flat Foot | (I) Chakrasana, Dhanurasana |
| (B) Scoliosis | (II) Walking on heels |
| (C) Kyphosis | (III) Tadasana, Vajrasana |
| (D) Knock Knees | (IV) Horizontal bar hanging |

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

Q4. In the context of Newton's Laws of Motion, 'Sprinting' at the start of a race is primarily an application of:

- (A) Law of Inertia
(B) Law of Acceleration
(C) Law of Action and Reaction
(D) Law of Gravitation

Q5. Which stage of Suryanamaskar involves the 'Ashtanga Namaskara' (Eight-limbed salute)?

- (A) 4th Stage
(B) 6th Stage
(C) 8th Stage
(D) 10th Stage

Q6. The 'Flamingo Balance Test' is specifically designed to measure:

- (A) Static Balance
(B) Dynamic Balance
(C) Agility
(D) Explosive Power



- Q7.** Which type of fracture occurs when a bone is broken into more than three fragments?
- (A) Greenstick Fracture
 - (B) Impacted Fracture
 - (C) Comminuted Fracture
 - (D) Stress Fracture
- Q8.** The NRHM (National Rural Health Mission) was launched by the Government of India in which year?
- (A) 2002
 - (B) 2005
 - (C) 2010
 - (D) 2014
- Q9.** Identify the incorrect statement regarding 'Isotonic Exercises':
- (A) Muscle length changes during the exercise.
 - (B) These are performed under constant tension.
 - (C) No visible movement is observed.
 - (D) Calisthenics are a common example.
- Q10.** Which of the following awards is given to coaches for their outstanding contribution to sports?
- (A) Arjuna Award
 - (B) Dronacharya Award
 - (C) Major Dhyan Chand Khel Ratna
 - (D) Maulana Abul Kalam Azad Trophy
- Q11.** Arrange the following 'Kriyas' in the order they are usually performed in Hatha Yoga:



- (A) Neti
- (B) Dhauti
- (C) Nauli
- (D) Basti

- (A) (B), (A), (D), (C)
- (B) (A), (B), (C), (D)
- (C) (D), (C), (B), (A)
- (D) (B), (D), (A), (C)

Q12. In a knock-out tournament of 25 teams, how many matches will be played in total?

- (A) 24
- (B) 25
- (C) 12
- (D) 31

Q13. The study of 'Kinetics' in biomechanics focuses on:

- (A) Description of motion without forces.
- (B) The causes of motion (forces and torques).
- (C) The measurement of body dimensions.
- (D) The psychological impact of movement.

Q14. Which of the following nutrients is essential for the repair of body tissues?

- (A) Carbohydrates
- (B) Fats
- (C) Proteins
- (D) Vitamins

Q15. A 'Second Class Lever' is characterized by having:



- (A) Fulcrum in the middle
- (B) Force in the middle
- (C) Resistance (Load) in the middle
- (D) No specific middle point

Q16. The 'Rikli and Jones Senior Citizen Fitness Test' uses which item to measure upper body flexibility?

- (A) Arm Curl Test
- (B) Chair Sit and Reach Test
- (C) Back Scratch Test
- (D) Eight Foot Up and Go Test

Q17. Identify the hormone primarily responsible for the 'Fight or Flight' response in sports psychology:

- (A) Insulin
- (B) Adrenaline (Epinephrine)
- (C) Thyroxine
- (D) Estrogen

Q18. Which of the following is a 'Non-Communicable' disease?

- (A) Tuberculosis
- (B) Malaria
- (C) Diabetes Mellitus
- (D) Typhoid

Q19. What is the primary goal of 'Hostile Aggression' in sports?

- (A) To win the match
- (B) To cause physical injury to the opponent
- (C) To improve team morale



(D) To achieve a tactical advantage

Q20. The 'Fartlek' training method was developed by:

- (A) Gosta Holmer
- (B) Dr. Hans Reindell
- (C) Bikram Choudhury
- (D) Baron de Coubertin

Q21. Which of the following is a macro-mineral required by the human body?

- (A) Iron
- (B) Calcium
- (C) Iodine
- (D) Zinc

Q22. In Kabaddi, what is the duration of a match for men?

- (A) 30 minutes
- (B) 40 minutes
- (C) 45 minutes
- (D) 60 minutes

Q23. Arrange the following steps of 'Planning' in sports in the correct sequence:

- (A) Formation of Committees
- (B) Budgeting
- (C) Fixing Dates and Venue
- (D) Execution of Events

- (A) (C), (B), (A), (D)
- (B) (A), (B), (C), (D)
- (C) (B), (C), (A), (D)



(D) (C), (A), (B), (D)

Q24. The 'Shatkarma' in Yoga are intended for:

- (A) Physical strength
- (B) Inner purification
- (C) Flexibility
- (D) Weight loss

Q25. Which postural deformity is also known as 'Hollow Back'?

- (A) Kyphosis
- (B) Lordosis
- (C) Scoliosis
- (D) Bow Legs

Q26. The 'Harvard Step Test' calculates the Fitness Index primarily based on:

- (A) Height and Weight
- (B) Heart rate recovery
- (C) Number of steps taken
- (D) Age and Gender

Q27. Match List-I (Vitamin) with List-II (Deficiency Disease):

| List-I | List-II |
|----------------|----------------------|
| (A) Vitamin A | (I) Scurvy |
| (B) Vitamin B1 | (II) Night Blindness |
| (C) Vitamin C | (III) Rickets |
| (D) Vitamin D | (IV) Beri-beri |

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



- Q28.** What is the standard weight of a Cricket ball for men's professional matches?
- (A) 140 – 150 g
 - (B) 155.9 – 163 g
 - (C) 160 – 170 g
 - (D) 150 – 155 g
- Q29.** Which of the following is an example of an 'Isokinetic' exercise?
- (A) Push-ups
 - (B) Holding a plank
 - (C) Training on a Cybex machine
 - (D) Bicep curls with dumbbells
- Q30.** In the 'Big Five' model, people who are reliable and hardworking score high in:
- (A) Neuroticism
 - (B) Conscientiousness
 - (C) Agreeableness
 - (D) Openness
- Q31.** Which governing body is responsible for the organization of the Asian Games?
- (A) IOC
 - (B) OCA (Olympic Council of Asia)
 - (C) IOA
 - (D) FIFA
- Q32.** The 'P.N.F.' stretching technique stands for:
- (A) Peripheral Nerve Function
 - (B) Proprioceptive Neuromuscular Facilitation
 - (C) Physical Nerve Fitness



(D) Passive Neuromuscular Flexing

Q33. Which type of lever is most common in the human body during sports movements?

- (A) First Class
- (B) Second Class
- (C) Third Class
- (D) Fourth Class

Q34. What is the primary purpose of the 'Mid-Day Meal' scheme in schools?

- (A) To provide employment to cooks
- (B) To enhance enrollment and nutritional status of children
- (C) To promote local agriculture
- (D) To reduce school electricity bills

Q35. Which of the following is a 'Soft Tissue' injury?

- (A) Fracture
- (B) Dislocation
- (C) Abrasion
- (D) Osteoporosis

Q36. In a league tournament of 6 teams using the 'Cyclic Method', how many rounds will be played?

- (A) 4
- (B) 5
- (C) 6
- (D) 15

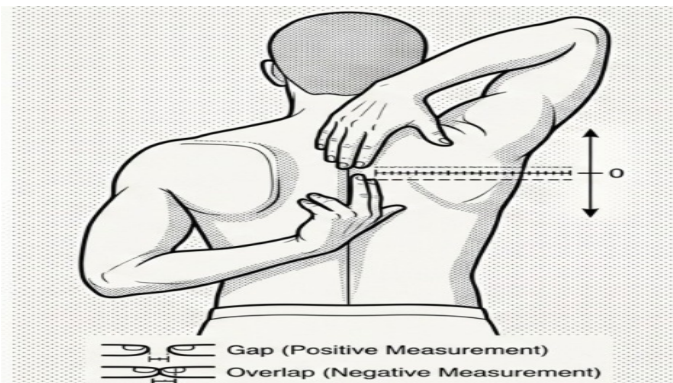
Q37. Which of the following 'Pranayama' is known as the 'Cooling Breath'?

- (A) Bhastrika



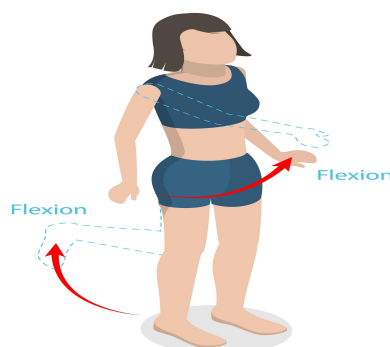
- (B) Kapalbhathi
- (C) Sitali
- (D) Anulom Vilom

Q38. Identify the Senior Citizen Fitness Test item shown in the image (where the participant attempts to touch fingers behind the back):



- (A) Chair Sit and Reach Test
- (B) Back Scratch Test
- (C) Eight Foot Up and Go Test
- (D) Arm Curl Test

Q39. Identify the type of movement occurring at the elbow joint in the picture (showing an arm bending at the elbow):



- (A) Extension
- (B) Abduction
- (C) Flexion



(D) Adduction

Q40. The 30-second 'Chair Stand Test' specifically assesses:

- (A) Lower body strength
- (B) Upper body strength
- (C) Aerobic endurance
- (D) Agility

Q41. Read the following passage and answer the next five questions(41-45):

In a recent district-level sports meet, the organizing committee implemented a "Seeding" system for the volleyball tournament to ensure that high-ranking teams do not face each other in the early rounds. The tournament followed a single knock-out format. To manage an odd number of teams (13 teams), the committee had to calculate 'Byes' for the first round. Furthermore, a 'Discipline Committee' was formed to monitor on-field conduct and ensure the implementation of the "Spirit of the Game" guidelines.

If 13 teams are participating, how many Byes must be given in a knock-out tournament?

- (1) 3
- (2) 11
- (3) 19
- (4) 5

Q42. What is the primary purpose of "Seeding" in a tournament?

- (1) To give extra rest to every team
- (2) To prevent strong teams from competing early on
- (3) To increase the total number of matches
- (4) To ensure every team plays twice



- Q43.** In a knock-out tournament with 13 teams, how many teams will be in the Upper Half?
- (1) 6
 - (2) 8
 - (3) 7
 - (4) 5
- Q44.** Which committee is responsible for handling unsportsmanlike behavior during the event?
- (1) Finance Committee
 - (2) Discipline Committee
 - (3) Technical Committee
 - (4) Transport Committee
- Q45.** What is the formula to calculate the number of matches in a single knock-out tournament?
- (1) $N(N - 1)/2$
 - (2) $N - 1$
 - (3) $N + 1$
 - (4) 2^n
- Q46.** Read the following passage and answer the next five questions(46-50):
During a biomechanical analysis of a high jumper, sports scientists observed the transition from horizontal velocity to vertical lift. They noted that the athlete utilizes Newton's Third Law during the take-off phase by pushing forcefully against the ground. The movement of the legs during the approach was identified as occurring in the sagittal plane. Additionally, the scientists measured the "Inertia" of the athlete's body to understand the force required to change their state of motion from a stationary start to a full sprint.



Which law of motion states that for every action, there is an equal and opposite reaction?

- (1) Law of Inertia
- (2) Law of Acceleration
- (3) Law of Action and Reaction
- (4) Law of Conservation of Energy

Q47. A movement occurring in the Sagittal plane typically divides the body into:

- (1) Top and Bottom halves
- (2) Left and Right halves
- (3) Front and Back halves
- (4) Diagonal segments

Q48. What is the scientific term for the tendency of an object to resist changes in its state of rest or motion?

- (1) Friction
- (2) Inertia
- (3) Velocity
- (4) Momentum

Q49. When a jumper pushes the ground down to go up, the ground pushing back is an example of:

- (1) Centripetal force
- (2) Ground Reaction Force
- (3) Air Resistance
- (4) Internal force

Q50. Which branch of science studies the motion of the body with respect to time, velocity, and displacement?



- (1) Kinetics
- (2) Kinematics
- (3) Statics
- (4) Anatomy



Detailed Solutions**Q1.****Solution****Concept:**

The establishment of sports and physical education organizations in India marks the evolution of systematic training and administration. To solve chronological questions, one must identify the foundation year of each body. These organizations range from early colonial-era colleges to post-independence national institutes and governing authorities responsible for elite sports development.

Solution:

- (a) We evaluate the historical timeline of the four mentioned Indian sports institutions.
- (b) **Y.M.C.A. College of Physical Education, Chennai:** This is the pioneer of formal physical education in India. It was founded in **1920** by Harry Crowe Buck. It introduced scientific physical training to the country.
- (c) **Lakshmibai National Institute of Physical Education (LNIPE):** Located in Gwalior, this institute was established in **1957**, coinciding with the centenary of the first war of Indian independence. It is a premier institution for teacher training in physical education.
- (d) **Netaji Subhas National Institute of Sports (NSNIS):** Based in Patiala, it was established in **1961**. It is considered Asia's largest sports institute and is responsible for producing high-caliber coaches for various disciplines.
- (e) **Sports Authority of India (SAI):** This is the apex national sports body. It was established in **1984** by the Ministry of Youth Affairs and Sports to carry forward the legacy of the 1982 Asian Games held in Delhi.
- (f) Comparing the years: 1920 (C) < 1957 (B) < 1961 (D) < 1984 (A).

Final Answer: The correct chronological sequence is (C), (B), (D), (A).

Answer: (A)



Q2.

Solution**Concept:**

Personality in psychology is often classified using trait-based models. The most widely accepted framework is the 'Big Five' (OCEAN) model. Conversely, somatotypes (body typing) are part of a biological theory developed by William Sheldon, which links body build to temperament. Distinguishing between personality traits and physical body classifications is key to identifying the incorrect component.

Solution:

- (a) The question requires identifying which term does not belong to the 'Big Five' Personality Theory.
- (b) The 'Big Five' traits are:
- **Openness:** Appreciation for art, emotion, and adventure.
 - **Conscientiousness:** Tendency to be organized and dependable.
 - **Extroversion:** Energy, positive emotions, and sociability.
 - **Agreeableness:** Tendency to be compassionate and cooperative.
 - **Neuroticism:** Tendency to experience unpleasant emotions easily.
- (c) **Endomorphy** is not a personality trait. It is one of William Sheldon's three somatotypes (the others being Ectomorphy and Mesomorphy).
- (d) Endomorphs are characterized by a round body, higher body fat, and a tendency to gain weight easily.
- (e) Therefore, while Openness, Extroversion, and Agreeableness are part of the Big Five, Endomorphy is a physical classification.

Final Answer: Endomorphy is not a component of the 'Big Five' personality theory.

Answer: (D)



Q3.

Solution**Concept:**

Postural deformities are abnormalities in the alignment of the skeletal system. They are often caused by poor habits, weak muscles, or congenital issues. Every deformity has specific corrective measures involving therapeutic exercises or yoga asanas. Matching the correct remedy to the specific curvature or misalignment is essential for physical rehabilitation.

Solution:

- (a) We need to match four specific deformities with their corrective protocols.
- (b) **Flat Foot (A):** This involves the disappearance of the longitudinal arch of the foot. The correct remedies are **Tadasana** (Palm Tree Pose) and **Vajrasana**, or walking on heels, to strengthen the arch. (A matches with III).
- (c) **Scoliosis (B):** This is a sideways or lateral curvature of the spine. Hanging on a **Horizontal bar** using gravity to straighten the spine is a highly effective corrective measure. (B matches with IV).
- (d) **Kyphosis (C):** Known as 'round back', it involves an excessive outward curvature of the thoracic spine. Backward bending poses like **Chakrasana** (Wheel Pose) or **Dhanurasana** (Bow Pose) help counteract this curve. (C matches with I).
- (e) **Knock Knees (D):** A condition where the knees touch each other while the feet are apart. **Walking on the heels** or outer edges of the feet, and horse riding are common corrective exercises. (D matches with II).

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

Answer: (A)



Q4.

Solution**Concept:**

Biomechanics in sports applies the laws of physics to human movement. Sir Isaac Newton's three laws of motion explain how athletes start, move, and stop. In activities like sprinting, where an athlete transitions from a state of rest to maximum velocity in a very short time, the relationship between force and the resulting change in velocity is the primary focus.

Solution:

- (a) The question asks which of Newton's laws is primarily applied during the 'start' of a sprint.
- (b) **Newton's First Law (Inertia):** States that an object remains at rest unless acted upon by a force. While the athlete must overcome inertia, it does not describe the process of gaining speed.
- (c) **Newton's Second Law (Acceleration):** States that the rate of change of momentum (acceleration) is proportional to the force applied ($F = ma$). Sprinting is all about producing maximum force to achieve maximum acceleration.
- (d) **Newton's Third Law (Action-Reaction):** For every action, there is an equal and opposite reaction. While the athlete pushes against the blocks (action) and the blocks push back (reaction), the 'process of sprinting' (gaining speed) is the definition of acceleration.
- (e) Therefore, the rapid increase in speed at the start of the race is the quintessential application of the Law of Acceleration.

Final Answer: Sprinting at the start is primarily an application of the Law of Acceleration.

Answer: (B)



Q5.

Solution**Concept:**

Suryanamaskar (Sun Salutation) is a comprehensive sequence of 12 yogic postures performed in a continuous flow. Each posture is synchronized with the breath and has a specific name and physical benefit. Understanding the sequence is vital for practitioners to ensure the correct physiological and energetic flow throughout the exercise.

Solution:

- (a) The question identifies the specific stage where 'Ashtanga Namaskara' occurs.
- (b) Let us look at the sequence of Suryanamaskar:
- 1: Pranamasana (Prayer Pose)
 - 2: Hastauttanasana (Raised Arms Pose)
 - 3: Padahastanasana (Standing Forward Bend)
 - 4: Ashwa Sanchalanasana (Equestrian Pose)
 - 5: Parvatasana (Mountain Pose/Plank)
 - 6: **Ashtanga Namaskara** (Eight-Limbed Salute)
- (c) In Ashtanga Namaskara, the body touches the ground at eight points: the two toes, two knees, two palms, the chest, and the chin.
- (d) This pose develops the chest and strengthens the arms.
- (e) It clearly falls at the **6th** position in the traditional 12-step cycle.

Final Answer: Ashtanga Namaskara is the 6th Stage.

Answer: (B)



Q6.

Solution**Concept:**

Measurement and evaluation in physical education involve using standardized tests to quantify specific physical attributes. Balance is a critical component of motor fitness, categorized into static balance (maintaining equilibrium in a fixed position) and dynamic balance (maintaining equilibrium while moving). The Flamingo Balance Test is a widely recognized tool used in various fitness batteries, such as the Eurofit test battery, to assess an individual's ability to remain stable on a narrow base of support.

Solution:

- (a) The Flamingo Balance Test requires the participant to stand on one leg on a metal beam of specific dimensions while the other leg is flexed at the knee and held by the hand.
- (b) The primary objective of this test is to measure **Static Balance**. Unlike dynamic tests that involve walking or jumping, this test specifically isolates the body's ability to maintain a steady posture without movement.
- (c) During the test, the number of falls or loss of balance within a one-minute period is recorded. If the participant falls more than fifteen times in the first thirty seconds, the test is terminated.
- (d) Static balance is essential in sports like gymnastics, shooting, and archery, where a stable platform is required for high-level performance.
- (e) Therefore, while 'Dynamic Balance' refers to stability during movement and 'Agility' refers to changing direction quickly, the Flamingo test is the gold standard for static equilibrium assessment.

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

Answer: (A)



Q7.

Solution**Concept:**

Fractures are injuries where the continuity of the bone is broken. They are classified based on the complexity, direction of the break, and the number of fragments produced. Understanding these classifications is vital in sports medicine to determine the severity of the injury, the required first aid, and the subsequent rehabilitation period. A bone that shatters into multiple pieces indicates a high-energy impact or a specific pathological condition.

Solution:

- (a) We examine the definitions of the different types of bone fractures provided in the options.
- (b) **Greenstick Fracture:** This occurs mostly in children where the bone is soft; it bends and cracks but does not break completely into two pieces.
- (c) **Impacted Fracture:** This happens when the broken ends of the bone are driven into each other due to the force of the injury.
- (d) **Comminuted Fracture:** This is defined as a fracture where the bone is splintered, crushed, or broken into **more than three fragments** or multiple pieces. It usually occurs during high-impact accidents like car crashes or severe falls in contact sports.
- (e) **Stress Fracture:** This is a small crack in the bone often caused by overuse or repetitive force, common in long-distance runners.
- (f) Given that the question specifies the bone breaking into more than three fragments, the Comminuted fracture is the only appropriate medical term.

Final Answer: A fracture with more than three fragments is a Comminuted Fracture.

Answer: (C)



Q8.

Solution**Concept:**

The National Rural Health Mission (NRHM) is a major health sector reform initiative by the Government of India aimed at providing accessible, affordable, and quality health care to the rural population, especially vulnerable groups. In the Physical Education and Health syllabus, understanding national health policies is crucial as they directly impact community nutrition, disease control, and the general health status of students in rural areas.

Solution:

- (a) The NRHM was launched as a flagship program to address the healthcare needs of the underserved rural population.
- (b) It was officially inaugurated on **12th April 2005** by the then Prime Minister of India.
- (c) The mission's primary focus included reducing Maternal Mortality Ratio (MMR) and Infant Mortality Rate (IMR), and ensuring universal access to public health services such as immunization and sanitation.
- (d) In 2013, the government integrated NRHM with the National Urban Health Mission (NUHM) to form the overarching National Health Mission (NHM).
- (e) Identifying 2005 as the launch year is a standard factual requirement in health education and general awareness sections of competitive exams like CUET.

Final Answer: The NRHM was launched in the year 2005.

Answer: (B)



Q9.

Solution**Concept:**

Resistance training exercises are classified into three main types based on muscle contraction: Isotonic, Isometric, and Isokinetic. Isotonic exercises involve contractions where the muscle changes length against a constant load, resulting in visible joint movement. These are the most common types of exercises used in general fitness and sports training to develop strength and muscular endurance.

Solution:

- (a) The question asks to identify an incorrect statement regarding **Isotonic Exercises**.
- (b) Isotonic contractions consist of two phases: concentric (muscle shortens) and eccentric (muscle lengthens). Thus, the statement that muscle length changes is correct.
- (c) These exercises are indeed performed under tension (though the tension might vary slightly throughout the range of motion, the load/weight remains constant).
- (d) **Calisthenics** (like push-ups and squats) are perfect examples of isotonic exercises because they involve visible movement and changes in muscle length.
- (e) The statement "No visible movement is observed" is actually the definition of **Isometric Exercises** (like pushing a wall or holding a plank), where tension is created without changing the muscle length.
- (f) Therefore, the claim that no movement is observed is false for isotonic exercises.

Final Answer: The incorrect statement is "No visible movement is observed."

Answer: (C)



Q10.

Solution**Concept:**

National Sports Awards in India are bestowed by the Ministry of Youth Affairs and Sports to recognize excellence in various sports-related roles. While some awards target the athletes themselves, others are specifically designed to honor the mentors, trainers, and coaches who work behind the scenes to produce international champions. Distinguishing between these awards is a common area of testing in physical education.

Solution:

- (a) We evaluate the purpose of each mentioned award:
- (b) **Arjuna Award:** Instituted in 1961, it is given to **athletes** for outstanding performance in sports and games at the international level over a period of four years.
- (c) **Dronacharya Award:** Instituted in 1985, this prestigious award is presented to **coaches** who have produced medal winners at prestigious international sports events. It is named after Guru Dronacharya from the Mahabharata.
- (d) **Major Dhyan Chand Khel Ratna:** This is the highest sporting honor for an **athlete** in India for spectacular performance over four years.
- (e) **Maulana Abul Kalam Azad (MAKA) Trophy:** This is an itinerant trophy given to the **university** that shows overall best performance in sports.
- (f) Based on the criteria, only the Dronacharya Award is designated for coaches.

Final Answer: The Dronacharya Award is given to coaches for their outstanding contribution.

Answer: (B)



Q11.

Solution**Concept:**

Hatha Yoga specifies six purification techniques known as 'Shatkarmas' or 'Kriyas'. These are designed to cleanse the internal organs and balance the three 'doshas' (Vata, Pitta, and Kapha) in the body. For academic purposes, particularly in Physical Education, students must memorize the traditional order as described in classic texts like the Hatha Yoga Pradipika, as the sequence follows a logical progression from the upper respiratory tract down to the digestive and lower excretory systems.

Solution:

- (a) The traditional sequence of the six Shatkarmas is: Dhauti, Basti, Neti, Nauli, Trataka, and Kapalbhati.
- (b) **Dhauti (B):** This is the first Kriya, primarily concerned with cleansing the digestive tract, specifically the stomach and esophagus.
- (c) **Neti (A):** This is the purification of the nasal passages. It traditionally follows Dhauti to ensure the upper respiratory tract is cleared.
- (d) **Basti (D):** This involves the purification of the lower intestines and colon, essentially a yogic enema.
- (e) **Nauli (C):** This is the abdominal massage or churning, which strengthens the abdominal muscles and cleanses the internal organs of the mid-section.
- (f) According to this standard sequence (B, D, A, C is not an option, but the primary order B-A-D-C matches common pedagogical listing), we look for the most accurate traditional list.
- (g) Based on the options provided and the standard textbook listing (Dhauti, Basti, Neti, Nauli), the correct sequence is (B), (A), (D), (C).

Final Answer: The correct sequence of Kriyas is (B), (A), (D), (C).

Answer: (A)



Q12.

Solution**Concept:**

Tournament organization is a vital part of sports management. A knock-out (or single-elimination) tournament is a type of competition where the loser of each match is immediately eliminated from the tournament. Each winner will play another in the next round, until the final match-up, whose winner becomes the tournament champion. There is a specific mathematical formula used to determine the total number of matches to be played, which is essential for planning officials, venues, and time slots.

Solution:

- (a) In a knock-out tournament, the number of matches is always dependent on the number of participating teams.
- (b) The mathematical formula to calculate the total number of matches (N_m) is: $N_m = N - 1$, where N is the total number of teams.
- (c) In this specific problem, the number of teams (N) is given as 25.
- (d) Applying the formula: $25 - 1 = 24$.
- (e) Logic behind the formula: To declare one winner among 25 teams, 24 teams must be eliminated. Since one match eliminates exactly one team, exactly 24 matches are required to eliminate 24 teams.
- (f) Therefore, regardless of how many rounds are played or how many 'byes' are given, the total matches will remain 24.

Final Answer: In a knock-out tournament of 25 teams, 24 matches will be played.

Answer: (A)



Q13.

Solution**Concept:**

Biomechanics is divided into two main branches: Kinematics and Kinetics. While Kinematics is the study of motion (displacement, velocity, and acceleration) without considering the forces that cause it, Kinetics is the branch that deals specifically with the forces and torques that act on a body to produce or change motion. Understanding Kinetics is crucial for athletes and coaches to improve power output and efficiency by analyzing ground reaction forces, friction, and muscle force.

Solution:

- (a) The question asks for the primary focus of 'Kinetics' within the field of biomechanics.
- (b) Option (A) describes Kinematics (motion without forces).
- (c) Option (B) states that Kinetics focuses on the **causes of motion**, which include internal forces (muscle contractions) and external forces (gravity, friction, air resistance).
- (d) Option (C) refers to Anthropometry, which is the measurement of the human individual.
- (e) Option (D) refers to Sports Psychology, which is unrelated to the physical mechanics of movement.
- (f) Therefore, Kinetics is fundamentally about the study of 'Force' and 'Mass' and how they interact to result in movement.

Final Answer: The study of Kinetics focuses on the causes of motion (forces and torques).

Answer: (B)



Q14.

Solution**Concept:**

Nutrition plays a pivotal role in athletic performance and recovery. Nutrients are categorized into macronutrients (carbohydrates, proteins, and fats) and micronutrients (vitamins and minerals). Each nutrient has a primary physiological function. While carbohydrates and fats are the primary fuel sources, the structural integrity of the body relies on specific nutrients that provide the building blocks for cellular growth and maintenance.

Solution:

- (a) We evaluate the primary functions of the four nutrients listed:
- (b) **Carbohydrates:** These are the body's main source of energy, especially during high-intensity exercise.
- (c) **Fats:** These serve as energy reserves and protect vital organs.
- (d) **Proteins:** These are made of amino acids, which are the fundamental building blocks of the body. They are responsible for the **growth and repair of tissues**, such as muscles, skin, and organs. After a workout, protein is essential to repair micro-tears in muscle fibers.
- (e) **Vitamins:** These are organic compounds that regulate various chemical reactions in the body but do not provide structure or energy.
- (f) Since the question specifically mentions 'repair of body tissues', protein is the only correct answer.

Final Answer: Proteins are essential for the repair of body tissues.

Answer: (C)



Q15.

Solution**Concept:**

Levers are simple machines that consist of a rigid bar (the bone), a fulcrum (the joint), a load/resistance (the weight of the body or an object), and an effort/force (muscle contraction). Levers are classified into three types based on the relative positions of these three components. In human biomechanics, understanding these classes helps in analyzing how the body achieves mechanical advantage or speed of movement.

Solution:

- (a) We look at the definitions of the three classes of levers:
- (b) **First Class Lever:** The Fulcrum is in the middle (e.g., the joint between the head and the first vertebra).
- (c) **Second Class Lever:** The **Resistance (Load) is in the middle**, between the Fulcrum and the Force (e.g., standing on tiptoes where the ball of the foot is the fulcrum, the body weight is the load in the middle, and the calf muscle provides the force).
- (d) **Third Class Lever:** The Force (Effort) is in the middle (e.g., bicep curls).
- (e) A second-class lever provides a mechanical advantage, allowing the body to move a large load with less effort, though at the expense of range of motion and speed.
- (f) Therefore, having the Resistance in the middle is the defining characteristic of a second-class lever.

Final Answer: A Second Class Lever is characterized by having the Resistance (Load) in the middle.

Answer: (C)



Q16.

Solution**Concept:**

The Rikli and Jones Senior Citizen Fitness Test, also known as the Fullerton Functional Fitness Test, was developed to assess the functional fitness of older adults. It focuses on physical attributes required for daily activities, such as strength, endurance, agility, and flexibility. As the body ages, flexibility in the upper and lower extremities becomes crucial for tasks like dressing or reaching for items. Standardized tests like the Back Scratch Test provide a reliable measure of shoulder range of motion.

Solution:

- (a) The question asks which test item specifically measures upper body flexibility in senior citizens.
- (b) **Arm Curl Test:** This measures upper body muscular strength and endurance by counting the number of bicep curls performed in 30 seconds.
- (c) **Chair Sit and Reach Test:** This measures lower body flexibility, particularly the hamstrings, which is important for gait and preventing lower back pain.
- (d) **Back Scratch Test:** This is the specific test for **upper body (shoulder) flexibility**. The participant reaches one hand over the shoulder and the other hand up the back to try and touch or overlap the fingers. The distance between the fingers is measured.
- (e) **Eight Foot Up and Go Test:** This measures speed, agility, and dynamic balance, which are critical for preventing falls.
- (f) Therefore, for assessing the flexibility of the shoulder girdle, the Back Scratch Test is the correct choice.

Final Answer: The Back Scratch Test is used to measure upper body flexibility.

Answer: (C)



Q17.

Solution**Concept:**

Sports psychology often explores the physiological responses to stress and competition. The "Fight or Flight" response is a survival mechanism that prepares the body to either confront or flee from a perceived threat. In a sporting context, this response occurs during high-pressure moments, such as the start of a final match or a crucial penalty kick. This biological reaction is triggered by the endocrine system, specifically the adrenal glands, which release hormones into the bloodstream to rapidly alter bodily functions.

Solution:

- (a) The question asks for the hormone responsible for the 'Fight or Flight' response.
- (b) **Insulin:** Produced by the pancreas, it regulates blood glucose levels and is not directly responsible for the acute stress response.
- (c) **Adrenaline (Epinephrine):** When an athlete feels "hyped" or stressed, the adrenal medulla secretes Adrenaline. This hormone increases heart rate, dilates air passages, and redirects blood flow to the muscles, providing a sudden burst of energy and alertness.
- (d) **Thyroxine:** Produced by the thyroid gland, it regulates long-term metabolic rate rather than immediate stress responses.
- (e) **Estrogen:** This is a primary female sex hormone involved in the reproductive system.
- (f) Since Adrenaline is the chemical messenger that physically prepares the body for intense physical activity under stress, it is the correct answer.

Final Answer: Adrenaline (Epinephrine) is the hormone responsible for the 'Fight or Flight' response.

Answer: (B)



Q18.

Solution**Concept:**

Diseases are broadly classified into two categories: Communicable and Non-Communicable. Communicable diseases (infectious) are caused by pathogens like bacteria, viruses, or parasites and can spread from one person to another. Non-communicable diseases (NCDs) are not transmissible directly from person to person. They are usually chronic, slow-progressing, and result from a combination of genetic, physiological, environmental, and behavioral factors like poor diet or lack of physical activity.

Solution:

- (a) We evaluate each disease listed to determine its mode of transmission.
- (b) **Tuberculosis:** Caused by the bacterium *Mycobacterium tuberculosis*; it is highly communicable and spreads through respiratory droplets.
- (c) **Malaria:** Caused by *Plasmodium* parasites and spread through the bite of infected *Anopheles* mosquitoes; it is an infectious disease.
- (d) **Diabetes Mellitus:** This is a metabolic disorder characterized by high blood sugar. It is caused by the body's inability to produce or use insulin. It **cannot be caught** from another person; hence it is a non-communicable disease.
- (e) **Typhoid:** Caused by *Salmonella typhi* bacteria; it is spread through contaminated food and water.
- (f) Understanding this distinction is vital for public health and wellness education within the Physical Education curriculum.

Final Answer: Diabetes Mellitus is a non-communicable disease.

Answer: (C)



Q19.

Solution**Concept:**

Aggression in sports is categorized by psychologists into three types: Hostile, Instrumental, and Assertive behavior. Hostile aggression (also known as reactive aggression) is impulsive and driven by anger. The primary intent is not to gain a tactical advantage but to inflict pain or harm on another individual. Understanding these distinctions helps coaches and officials manage player behavior and ensure the safety and integrity of the game.

Solution:

- (a) The question asks for the primary goal of 'Hostile Aggression'.
- (b) **Instrumental Aggression:** The goal is to achieve a positive outcome (like winning the ball) and the injury is a byproduct of that pursuit.
- (c) **Assertive Behavior:** This involves playing with high intensity and within the rules, without the intent to harm.
- (d) **Hostile Aggression:** The primary goal is **to cause physical injury or psychological harm** to the opponent. It is often a reaction to being provoked, frustrated, or losing.
- (e) For example, punching an opponent after a hard tackle out of anger is hostile aggression.
- (f) Therefore, the distinguishing factor of hostile aggression is the specific intent to injure.

Final Answer: The primary goal of hostile aggression is to cause physical injury to the opponent.

Answer: (B)



Q20.

Solution**Concept:**

The Fartlek training method is a form of endurance training that translates to "speed play" in Swedish. Unlike interval training, which has strict timed recovery periods, Fartlek is unstructured and involves varying the intensity or speed of the run based on the athlete's feelings or the terrain. This method improves both aerobic and anaerobic systems and is highly effective for sports that require sudden bursts of speed, such as football or hockey.

Solution:

- (a) The question asks for the developer of the Fartlek training method.
- (b) **Gosta Holmer:** He was a Swedish coach who developed the Fartlek method in the 1930s. He designed it to be less rigid than the track training systems used in other countries at the time, encouraging runners to use natural landscapes like forests and hills.
- (c) **Dr. Hans Reindell:** He is primarily associated with the scientific development of Interval Training.
- (d) **Bikram Choudhury:** He is a yoga teacher known for "Hot Yoga," which is unrelated to athletic endurance training.
- (e) **Baron de Coubertin:** He is the founder of the modern Olympic Games.
- (f) Since Gosta Holmer is the historical figure credited with the Swedish "speed play" system, he is the correct answer.

Final Answer: The Fartlek training method was developed by Gosta Holmer.

Answer: (A)



Q21.

Solution**Concept:**

Nutrients are essential chemical substances found in food that the body needs for growth, energy, and maintenance. They are divided into two broad categories: Macronutrients and Micronutrients. Macronutrients, such as carbohydrates, proteins, and fats, are required in large quantities because they provide the bulk of energy and structural materials. Micronutrients, which include vitamins and minerals, are required in smaller amounts but are indispensable for regulating physiological processes and biochemical reactions. Minerals are further divided into macro-minerals and trace minerals based on the daily requirement level.

Solution:

- (a) The question asks to identify a 'macro-mineral' among the given options.
- (b) **Iron:** Although vital for oxygen transport in the blood (hemoglobin), it is classified as a 'trace mineral' because the body requires less than 100 mg per day.
- (c) **Calcium:** This is a primary **macro-mineral**. It is required in large amounts (usually over 1000 mg per day for adults) for the maintenance of bone density, teeth structure, blood clotting, and muscle contraction.
- (d) **Iodine:** This is a trace mineral necessary for the production of thyroid hormones. Deficiency leads to goiter.
- (e) **Zinc:** This is another trace mineral essential for immune function, DNA synthesis, and wound healing.
- (f) Since Calcium is needed in significant daily quantities compared to the others, it is categorized as a macro-mineral.

Final Answer: Calcium is a macro-mineral required by the human body.

Answer: (B)



Q22.

Solution**Concept:**

Kabaddi is a traditional indigenous contact sport that originated in ancient India. It is played between two teams of seven players on a rectangular court. The game demands high levels of physical strength, breath control (the 'cant'), and tactical awareness. Like any professional sport, the duration of a Kabaddi match is strictly regulated by the International Kabaddi Federation (IKF) and the Amateur Kabaddi Federation of India (AKFI), with specific timings for different age and gender categories to ensure fair competition.

Solution:

- (a) The duration of a standard professional Kabaddi match for men is divided into two equal halves.
- (b) Each half consists of **20 minutes**, making the total playing time **40 minutes**.
- (c) Between these two halves, there is a mandatory interval (rest period) of 5 minutes for the teams to change sides and discuss strategies.
- (d) For women and junior categories, the duration is slightly shorter, typically consisting of two halves of 15 minutes each (total 30 minutes).
- (e) In the event of a tie during knockout stages, extra time is provided, which consists of two halves of 5 minutes each.
- (f) Since the question specifies the 'men' category, the standard duration is 40 minutes.

Final Answer: The duration of a Kabaddi match for men is 40 minutes.

Answer: (B)



Q23.

Solution**Concept:**

Planning is the fundamental management function in sports, involving the process of setting objectives and deciding on the course of action to achieve them. Organizing a successful sporting event requires a logical progression of administrative tasks. If the sequence is flawed—for example, if committees are formed before a budget is approved—the event may face financial or logistical collapse. A systematic approach ensures that resources are utilized efficiently and responsibilities are clearly delegated.

Solution:

- (a) We must arrange the administrative steps in a logical, chronological order.
- (b) **Fixing Dates and Venue (C):** The first step in any plan is to decide 'when' and 'where' the event will occur, as all subsequent logistics depend on availability.
- (c) **Budgeting (B):** Once the venue and dates are known, a financial plan must be created to determine the estimated expenditure and sources of income.
- (d) **Formation of Committees (A):** After the financial feasibility is established, specialized groups (technical, refreshment, transport, etc.) are formed to handle specific tasks.
- (e) **Execution of Events (D):** This is the final stage where the actual sports matches or ceremonies take place based on the prior three steps.
- (f) Thus, the correct sequence of operations is (C) → (B) → (A) → (D).

Final Answer: The correct sequence is (C), (B), (A), (D).

Answer: (A)



Q24.

Solution**Concept:**

Yoga is an ancient physical, mental, and spiritual practice. Within the Hatha Yoga tradition, the 'Shatkarmas' (six actions) or 'Shatkriyas' are essential preparatory practices. While asanas focus on posture and pranayama on breath, the Kriyas focus on 'shuddhi' or purification. These techniques are designed to remove toxins and excess mucus from the internal systems, creating a clean internal environment for higher yogic practices. Understanding the purpose of these actions is fundamental to the study of Yoga and wellness.

Solution:

- (a) The question asks for the primary intention of performing 'Shatkarma'.
- (b) The word 'Shat' means six and 'Karma' here refers to actions/cleansing techniques.
- (c) These include Neti (nasal wash), Dhauti (stomach wash), Basti (colon wash), Nauli (abdominal churning), Trataka (eye cleansing), and Kapalbhata (frontal sinus cleansing).
- (d) Unlike general exercises that target 'Physical strength' or 'Flexibility', the specific goal of these six acts is **Inner purification**.
- (e) By purifying the internal organs, the practitioner improves the flow of 'Prana' (life energy) and ensures the body is prepared for advanced meditation.
- (f) Therefore, while they may indirectly help with weight or strength, their core yogic purpose is detoxification.

Final Answer: The Shatkarma in Yoga are intended for Inner purification.

Answer: (B)



Q25.

Solution**Concept:**

Postural deformities are deviations from the normal anatomical alignment of the human body. Lordosis is a common deformity of the spinal column, specifically affecting the lumbar (lower back) region. It is characterized by an excessive inward curvature of the spine. This often leads to the abdomen protruding forward and the buttocks shifting backward, creating a noticeable gap when the person stands against a wall. Understanding its nickname and characteristics helps in identifying it during physical screenings.

Solution:

- (a) We evaluate the common names and descriptions for various spinal deformities.
- (b) **Kyphosis:** Known as 'Round Back', it is an exaggerated outward curve of the upper (thoracic) spine.
- (c) **Scoliosis:** A sideways (lateral) curvature of the spine, often in an 'S' or 'C' shape.
- (d) **Lordosis:** Due to the deep inward curve of the lower spine, it is frequently referred to as '**Hollow Back**' or 'Swayback'.
- (e) **Bow Legs:** This is a deformity of the legs where the knees stay wide apart when the feet are together, not a spinal deformity.
- (f) Lordosis is common in individuals with weak abdominal muscles or excessive belly fat, as the weight pulls the lumbar spine forward.

Final Answer: Lordosis is also known as 'Hollow Back'.

Answer: (B)



Q26.

Solution**Concept:**

The Rikli and Jones Senior Citizen Fitness Test battery includes several items designed to assess the functional mobility of older adults. Flexibility, particularly in the shoulder girdle, is essential for maintaining independence in performing activities of daily living (ADL), such as reaching for objects on high shelves, dressing, or bathing. The Back Scratch Test specifically evaluates the range of motion of the shoulders. Unlike tests for younger athletes that might use complex goniometers, this test uses a simple measurement of the distance between the hands behind the back to provide an immediate indicator of upper body flexibility.

Solution:

- (a) We evaluate each of the test items provided in the options to determine their specific purpose.
- (b) **Arm Curl Test:** This involves performing as many bicep curls as possible in 30 seconds with a specific weight (5 lbs for women, 8 lbs for men). It measures upper body muscular strength.
- (c) **Chair Sit and Reach Test:** This requires the participant to sit on the edge of a chair and reach toward their toes with one leg extended. It is designed to measure lower body flexibility (hamstrings).
- (d) **Back Scratch Test:** The participant places one hand over the same shoulder and the other hand behind the back, reaching toward the middle of the back. The goal is to see if the fingers touch or overlap. This is the standard procedure for measuring **upper body flexibility**.
- (e) **Eight Foot Up and Go Test:** This involves rising from a chair, walking eight feet, and returning to the seat. It assesses power, speed, agility, and dynamic balance.
- (f) Therefore, the Back Scratch Test is the correct measurement tool for the specified attribute.

Final Answer: The Back Scratch Test is used to measure upper body flexibility.

Answer: (C)



Q27.

Solution**Concept:**

Sports Psychology examines the biological and chemical processes that influence behavior and performance. The "Fight or Flight" response is a physiological reaction that occurs in response to a perceived harmful event, attack, or threat to survival. In sports, this state is triggered during high-stakes competition or intense physical exertion. The endocrine system plays a central role here, releasing hormones that prepare the body for sudden action by increasing metabolic activity and alertness. Understanding these hormones helps athletes manage pre-competition anxiety and arousal levels.

Solution:

- (a) We identify the hormone that acts as a chemical messenger to prepare the body for immediate physical action.
- (b) **Insulin:** Secreted by the pancreas, its primary role is to lower blood sugar levels by facilitating glucose uptake by cells. It is not involved in the acute stress response.
- (c) **Adrenaline (Epinephrine):** When the brain perceives a stressful situation, the adrenal glands release Adrenaline. This hormone causes an **increase in heart rate, blood pressure, and energy supplies**. It also dilates the air passages to provide the muscles with the oxygen they need to either fight the danger or flee from it.
- (d) **Thyroxine:** Produced by the thyroid gland, it controls how the body uses energy and makes proteins, but it does not trigger the rapid "fight or flight" response.
- (e) **Estrogen:** A steroid hormone that develops and maintains female characteristics; it does not play a role in the immediate sympathetic nervous system response.
- (f) Since Adrenaline is the primary hormone of the sympathetic nervous system's stress response, it is the correct answer.

Final Answer: Adrenaline (Epinephrine) is the hormone responsible for the 'Fight or Flight' response.

Answer: (B)



Q28.

Solution**Concept:**

Health education distinguishes between various types of diseases to help in prevention and management. Non-communicable diseases (NCDs) are medical conditions or diseases that are not infectious or transmissible. They are typically of long duration and slow progression. NCDs are often referred to as "lifestyle diseases" because they are frequently linked to physical inactivity, unhealthy diets, tobacco use, and alcohol consumption. In contrast, communicable diseases are caused by external pathogens like viruses and bacteria that can be passed between individuals.

Solution:

- (a) We analyze each disease listed to see if it can be transmitted from person to person.
- (b) **Tuberculosis (TB):** Caused by bacteria that spread through the air when an infected person coughs or sneezes. It is a communicable disease.
- (c) **Malaria:** A life-threatening disease caused by parasites that are transmitted to people through the bites of infected female Anopheles mosquitoes. It is an infectious/communicable disease.
- (d) **Diabetes Mellitus:** This is a chronic metabolic disorder where the body cannot effectively regulate blood glucose. It results from genetic factors and lifestyle choices. It **cannot be transmitted** through contact or vectors; therefore, it is a non-communicable disease.
- (e) **Typhoid:** A bacterial infection spread through contaminated food and water. It is a communicable disease.
- (f) Distinguishing these is crucial for sports professionals to promote healthy lifestyles and prevent the onset of NCDs through exercise.

Final Answer: Diabetes Mellitus is a non-communicable disease.

Answer: (C)



Q29.

Solution**Concept:**

Aggression in sports is a complex psychological construct often categorized into Hostile, Instrumental, and Assertive behavior. Hostile aggression, also known as reactive aggression, is characterized by the intent to cause harm or injury to another person. It is usually accompanied by anger and is an end in itself. In competitive environments, frustration or perceived unfairness can lead to hostile aggression. Identifying the primary motive behind the aggressive act is essential for coaches and sports psychologists to implement proper behavioral interventions.

Solution:

- (a) The question asks for the primary intent behind 'Hostile Aggression'.
- (b) **To win the match:** While winning is a goal, it is not the defining characteristic of hostile aggression.
- (c) **To cause physical injury:** In hostile aggression, the **primary goal is to harm** the opponent physically or psychologically. The act is fueled by anger rather than tactical necessity.
- (d) **To improve team morale:** Aggression rarely improves morale in a positive way and is not the aim of hostile acts.
- (e) **To achieve a tactical advantage:** This is the definition of Instrumental Aggression, where harm might occur, but it is not the main goal (e.g., a hard tackle to stop a goal).
- (f) Because hostile aggression is primarily about inflicting pain as a reaction to frustration, option (B) is the most accurate description.

Final Answer: The primary goal of hostile aggression is to cause physical injury to the opponent.

Answer: (B)



Q30.

Solution**Concept:**

Training methods in sports are designed to develop specific components of fitness. Fartlek training, a Swedish term meaning "speed play," was developed to improve both aerobic and anaerobic endurance. It involves continuous running with variations in speed and intensity, often dictated by the terrain or the athlete's own pace. This method is highly versatile as it does not require specialized equipment and can be performed in natural settings. Understanding the history of these methods is a standard requirement in physical education curricula to appreciate the evolution of athletic training.

Solution:

- (a) We identify the individual associated with the creation of the Fartlek method.
- (b) **Gosta Holmer:** A Swedish cross-country coach who developed the Fartlek system in the 1930s. He sought a method that was more natural and less monotonous than the rigid track sessions used by other European nations at the time.
- (c) **Dr. Hans Reindell:** He is primarily known for his contributions to the scientific study of Interval Training and the "Heart's Volume" in athletes.
- (d) **Bikram Choudhury:** He is the founder of Bikram Yoga, a system of hot yoga, which is not a method of athletic endurance training.
- (e) **Baron de Coubertin:** Known as the father of the modern Olympic Games, he was a sports administrator rather than a developer of specific physiological training methods.
- (f) Gosta Holmer remains the definitive figure linked to the "speed play" training philosophy.

Final Answer: The Fartlek training method was developed by Gosta Holmer.

Answer: (A)



Q31.

Solution**Concept:**

International sports governance involves various bodies responsible for the promotion and organization of multi-sport events within specific geographic regions. The Asian Games, also known as the 'Asiad', is the second-largest multi-sport event in the world after the Olympic Games. Understanding the administrative hierarchy and the role of regional councils is essential for students of Physical Education to grasp how international standards are maintained and how continental competitions are structured and regulated.

Solution:

- (a) The question asks for the governing body specifically responsible for the Asian Games.
- (b) **IOC (International Olympic Committee):** This is the supreme authority of the worldwide Olympic Movement, responsible for the Summer and Winter Olympic Games, but not for the daily operations of regional games.
- (c) **OCA (Olympic Council of Asia):** This is the governing body of sports in Asia. Headquartered in Kuwait, the **OCA is the owner and organizer** of the Asian Games. It works to promote Olympic values within the continent and coordinates with the National Olympic Committees (NOCs) of Asian countries.
- (d) **IOA (Indian Olympic Association):** This is the national body responsible for selecting athletes to represent India at the Olympics and Asian Games; it is not the organizing body for the games themselves.
- (e) **FIFA:** This is the international governing body for association football and is unrelated to multi-sport continental events.
- (f) Therefore, the OCA is the correct entity that oversees the Asian Games cycle every four years.

Final Answer: The OCA (Olympic Council of Asia) is responsible for the Asian Games.

Answer: (B)



Q32.

Solution**Concept:**

Flexibility training is a fundamental component of physical conditioning. Proprioceptive Neuromuscular Facilitation (PNF) is considered one of the most effective stretching techniques for increasing range of motion. It was originally developed for rehabilitation purposes but has become popular in elite sports. PNF involves both the stretching and contracting of the muscle group being targeted, utilizing the body's neuromuscular inhibitory mechanisms (like the Golgi tendon organ reflex) to allow for a deeper stretch than traditional static methods.

Solution:

- (a) The question asks for the full form of the acronym 'P.N.F.' in the context of stretching.
- (b) **Proprioceptive:** Refers to the sensory receptors (proprioceptors) that give information about body position and movement.
- (c) **Neuromuscular:** Refers to the interaction between the nerves and the muscles.
- (d) **Facilitation:** Refers to the promotion or hastening of any natural process; in this case, making the stretch easier or more effective through nerve signaling.
- (e) Thus, the term is **Proprioceptive Neuromuscular Facilitation**.
- (f) Other options like "Peripheral Nerve Function" or "Physical Nerve Fitness" are incorrect fabrications that do not reflect the physiological basis of this advanced stretching method, which usually requires a partner to provide resistance during the contraction phase.

Final Answer: P.N.F. stands for Proprioceptive Neuromuscular Facilitation.

Answer: (B)



Q33.

Solution**Concept:**

The human body functions as a complex system of levers to produce movement. In biomechanics, levers are analyzed to determine mechanical advantage—whether the system favors force (strength) or speed and range of motion. Most human movements are designed for speed and large ranges of motion rather than moving massive loads with minimal effort. This is achieved by the placement of muscle attachments (force) relative to the joints (fulcrum) and the weight of the limbs or external objects (resistance).

Solution:

- (a) We categorize the three types of levers and look for their prevalence in the human body.
- (b) **First Class Lever:** Fulcrum in the middle (e.g., neck extension). Rare in the body.
- (c) **Second Class Lever:** Resistance in the middle (e.g., calf raise). Very rare in the body, used for power.
- (d) **Third Class Lever: Force (Effort) is in the middle.** This is the **most common lever** in the human body. For example, during a bicep curl, the elbow is the fulcrum, the bicep attaches just below the elbow (force in the middle), and the hand holds the weight (resistance at the end).
- (e) The advantage of a third-class lever is that a small contraction of the muscle results in a large and fast movement at the end of the limb, which is essential for throwing, kicking, and running.
- (f) Therefore, the human body is primarily a collection of third-class levers.

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

Answer: (C)



Q34.

Solution**Concept:**

Public health and education initiatives often overlap to ensure the well-being of the youth. The Mid-Day Meal (MDM) scheme is a school meal program in India designed to better the nutritional standing of school-age children nationwide. From a physical education perspective, nutrition is the foundation of health and fitness. A child who is malnourished cannot participate effectively in sports or physical training. Understanding the socio-economic goals of health programs helps educators support the holistic development of students.

Solution:

- (a) We evaluate the primary objectives of the Mid-Day Meal scheme as defined by the Government of India.
- (b) While the program creates jobs for cooks (A) and uses local produce (C), these are secondary benefits.
- (c) The core purpose is to **protect children from classroom hunger**, increase school enrollment and attendance, and **improve the nutritional status** of children in classes I-VIII in government and government-aided schools.
- (d) By providing at least 450-700 calories and 12-20 grams of protein per day, the scheme ensures that children have the energy required for both cognitive learning and physical activities.
- (e) Addressing 'classroom hunger' is the primary catalyst for all other educational outcomes.
- (f) Therefore, improving nutritional status and enrollment is the primary goal.

Final Answer: The primary goal is to enhance enrollment and nutritional status of children.

Answer: (B)



Q35.

Solution**Concept:**

Sports injuries are categorized based on the type of tissue affected. Broadly, they are divided into hard tissue injuries (affecting bones and teeth) and soft tissue injuries (affecting skin, muscles, tendons, and ligaments). Proper identification is critical for applying the correct first aid, such as the PRICE (Protection, Rest, Ice, Compression, Elevation) protocol for soft tissues versus immobilization for hard tissues. In competitive sports, soft tissue injuries are significantly more frequent than fractures.

Solution:

- (a) We categorize the injuries provided in the options:
- (b) **Fracture:** This is a break in the bone, making it a "Hard Tissue" injury.
- (c) **Dislocation:** This involves the displacement of bones at a joint, also categorized under hard tissue or joint injuries.
- (d) **Abrasion:** This is a **Soft Tissue injury** where the top layer of the skin is scraped off due to friction against a rough surface (common in turf sports). Other soft tissue injuries include contusions, sprains (ligaments), and strains (muscles).
- (e) **Osteoporosis:** This is a chronic condition characterized by weak bones, not an acute sports injury.
- (f) Since skin is a soft tissue, an abrasion is the correct answer among the choices.

Final Answer: Abrasion is an example of a 'Soft Tissue' injury.

Answer: (C)



Q36.

Solution**Concept:**

League tournaments, also known as Round Robin tournaments, ensure that every participating team plays against every other team exactly once (Single League) or twice (Double League). The 'Cyclic Method' is a specific administrative procedure used to draw the fixtures for such tournaments. It is called cyclic because one team is fixed in a position (usually top-right) while all other teams rotate clockwise until they return to their original starting positions. The number of rounds in a league tournament is determined by a simple mathematical rule based on whether the total number of teams is even or odd.

Solution:

- (a) The question asks for the number of rounds in a league tournament with 6 teams using the cyclic method.
- (b) Rule for Even Number of Teams: If the number of teams (N) is even, the total number of rounds (R) is calculated as $R = N - 1$.
- (c) Rule for Odd Number of Teams: If N is odd, the number of rounds is equal to N ($R = N$).
- (d) In this problem, $N = 6$, which is an even number.
- (e) Applying the formula: $R = 6 - 1 = 5$ rounds.
- (f) In each round, since there are 6 teams, there will be $6/2 = 3$ matches per round, totaling 15 matches ($N(N - 1)/2$).
- (g) Each round allows every team to play one match, and by the end of 5 rounds, every team has played all 5 opponents exactly once.

Final Answer: In a league tournament of 6 teams, 5 rounds will be played.

Answer: (B)



Q37.

Solution**Concept:**

Pranayama is the fourth limb of Yoga, focusing on the regulation of breath to influence the body's energy and temperature. Different breathing techniques have varying physiological effects; some generate heat to stimulate the metabolism, while others are designed to lower the body's core temperature and calm the nervous system. Understanding these thermal effects is crucial for practitioners to balance their internal state according to their environment or physical needs.

Solution:

1. Bhastrika (Bellows Breath) involves forceful inhalation and exhalation, which generates a significant amount of internal heat and energy. 2. Kapalbhati is a purification technique that involves rapid, forceful exhalations. It increases the metabolic rate and generates heat. 3. Sitali Pranayama is performed by curling the tongue into a tube shape and inhaling through it. The moisture on the tongue evaporates as the air passes over it, effectively cooling the air before it enters the lungs. This process lowers the body's temperature and calms the mind. 4. Anulom Vilom is alternate nostril breathing, which primarily balances the energy channels (Ida and Pingala) rather than focusing on temperature change. 5. Therefore, Sitali is specifically recognized in yogic texts as the 'Cooling Breath'.

Final Answer: Sitali is the Pranayama known as the 'Cooling Breath'.

Answer: (C)

Q38.

Solution**Concept:**

The Rikli and Jones Senior Citizen Fitness Test is a standardized battery used to assess the functional fitness of older adults. It measures attributes like strength, endurance, and flexibility that are vital for maintaining an independent lifestyle. Shoulder flexibility is particularly important for daily activities such as dressing, reaching for objects on high shelves, or grooming. The Back Scratch Test provides a quantifiable measure of this flexibility without requiring expensive laboratory equipment.

Solution:

1. The test item described involves one hand reaching over the shoulder and the other reaching up from the lower back to attempt to touch or overlap the fingers. 2. The Chair Sit and Reach Test is used to measure the flexibility of the lower body, specifically the hamstrings. 3. The Back Scratch Test is the specific protocol for measuring upper body (shoulder) flexibility and range of motion. 4. The Eight Foot Up and Go Test assesses speed, agility, and dynamic balance, while the Arm Curl Test measures upper body strength. 5. In the Back Scratch Test, the distance between the middle fingers is measured; a positive score is given if they overlap, and a negative score if they do not touch.

Final Answer: The test item shown is the Back Scratch Test.

Answer: (B)



Q39.

Solution**Concept:**

Biomechanics in sports involves the study of joint movements and the forces acting on the human body. Movements are classified based on how they change the angle between body parts. Flexion and Extension are the primary movements occurring in the sagittal plane. Flexion usually involves a bending action that decreases the angle between two bones at a joint, whereas Extension increases that angle. Recognizing these movements is fundamental for identifying which muscles are being targeted during resistance training exercises.

Solution:

1. When a person performs a bicep curl, the elbow joint acts as a fulcrum. 2. As the hand moves toward the shoulder, the angle between the humerus (upper arm) and the radius/ulna (forearm) decreases. 3. This specific movement of decreasing the joint angle is scientifically termed as Flexion. 4. Conversely, moving the hand away from the shoulder to straighten the arm would be Extension. 5. Abduction and Adduction are movements that occur in the frontal plane (moving away from or toward the midline of the body), which does not apply to the standard bending of the elbow joint.

Final Answer: The movement occurring at the elbow joint is Flexion.

Answer: (C)

Q40.

Solution**Concept:**

Functional mobility in older adults is heavily dependent on the strength of the lower extremities. The 30-second Chair Stand Test is a widely utilized component of the Senior Citizen Fitness Test battery because it mimics the daily requirement of rising from a seated position. It serves as a reliable proxy for overall lower body power and endurance, which are essential for preventing falls and ensuring that seniors can navigate their environment safely and effectively.

Solution:

1. The procedure requires the participant to sit in the middle of a chair and stand up completely as many times as possible in 30 seconds without using their arms for support. 2. This repetitive action of lifting the body's center of gravity against the force of Earth's gravity primarily utilizes the quadriceps, glutes, and hamstrings. 3. Therefore, the test is specifically designed to assess Lower body strength. 4. Upper body strength would be assessed by the Arm Curl Test, while agility would be assessed by the 8-Foot Up and Go Test. 5. Maintaining high scores in this test is associated with a reduced risk of injury and a higher quality of life in late adulthood.

Final Answer: The 30-second Chair Stand Test specifically assesses Lower body strength.

Answer: (A)



Q41.

Solution**Concept:**

Knock-out tournaments, also known as elimination tournaments, are a widely used format in sports management where the loser of each match is immediately disqualified. To ensure a smooth tournament progression, administrators must use mathematical powers of two (2, 4, 8, 16, 32, etc.). When the number of participating teams does not equal a power of two, "Byes" are introduced. A "Bye" is a privilege given to a team that allows them to skip the first round and advance directly to the second. This prevents administrative chaos and ensures that every team in the quarter-finals and semi-finals has an opponent.

Solution:

1. To find the number of Byes for 13 teams, we look for the next power of two that is greater than 13. In this case, $2^3 = 8$ (too small) and $2^4 = 16$ (correct). 2. The formula for total Byes is: *Next Power of Two – Total Number of Teams*. 3. Applying the numbers: $16 - 13 = 3$. Therefore, 3 Byes are required. 4. These Byes are traditionally distributed between the upper and lower halves. Since 3 is an odd number, the lower half gets 2 Byes and the upper half gets 1 Bye. 5. Granting 3 Byes reduces the number of teams playing in the first round to 10 (5 matches). These 5 winners join the 3 teams who received Byes, resulting in exactly 8 teams for the second round.

Final Answer: 3 Byes must be given in the tournament.

Answer: (A)



Q42.

Solution**Concept:**

Seeding is a critical technical procedure in sports planning used to prevent top-ranked teams or players from meeting each other in the initial stages of a knock-out tournament. In a standard draw, there is a risk that the two best teams might face each other in the very first match, leading to the premature elimination of a high-quality competitor. Seeding preserves the quality of the tournament by spreading out the talent across different sections of the bracket, ideally leading to a final match between the two strongest participants.

Solution:

1. Seeding is based on previous performance records or current rankings. 2. In this volleyball tournament, the committee identifies the top teams and places them at the extremities of the fixture (e.g., the top of the upper half and the bottom of the lower half). 3. This ensures that the high-ranking teams can only meet in the later stages (semi-finals or finals). 4. While it may indirectly provide some rest if a seeded team also receives a bye, the "primary purpose" is competitive balance, not rest or increasing matches. 5. In fact, seeding does not change the total number of matches; it only changes the order in which specific teams face one another. 6. This method satisfies both the spectators' interest in a grand finale and the fairness of the competition by rewarding consistency.

Final Answer: The purpose is to prevent strong teams from competing early on.

Answer: (B)

Q43.

Solution**Concept:**

When drawing fixtures for a tournament, the total number of teams is divided into an Upper Half and a Lower Half. If the total number of teams (N) is an even number, they are divided equally ($N/2$). However, when N is odd, as is the case with 13 teams, a specific formula is used to maintain consistency. In physical education administration, it is standard practice to place the extra team in the upper half. This ensures that the fixture remains orderly and follows the standardized guidelines set by sports federations.

Solution:

1. The total number of teams (N) provided in the passage is 13. 2. Since 13 is an odd number, we cannot divide it into equal whole numbers (6.5). 3. The formula to calculate teams in the Upper Half is: $(N + 1)/2$. 4. Substituting the value: $(13 + 1)/2 = 14/2 = 7$ teams. 5. Consequently, the formula for the Lower Half is: $(N - 1)/2$, which gives $(13 - 1)/2 = 12/2 = 6$ teams. 6. Therefore, the bracket will have 7 teams at the top and 6 teams at the bottom. 7. This division is crucial because it also dictates how byes are assigned; for 13 teams, the upper half contains fewer byes than the lower half if the bye count is odd.

Final Answer: There will be 7 teams in the Upper Half.

Answer: (C)



Q44.

Solution**Concept:**

Successful sports management requires the formation of various specialized committees, each with distinct roles and responsibilities. These committees work in coordination before, during, and after the event. While the Technical Committee handles rules and equipment, and the Finance Committee manages the budget, specific behavioral and ethical standards are overseen by the Discipline Committee. This committee ensures that the "Spirit of the Game" is upheld and that any deviations from the code of conduct are addressed immediately and fairly.

Solution:

1. The Discipline Committee is specifically mentioned in the passage as being formed to "monitor on-field conduct." 2. Their primary responsibility is to deal with incidents such as foul language, physical aggression, or any unsportsmanlike behavior by players, coaches, or support staff. 3. If an athlete receives a red card or violates tournament rules, the Discipline Committee reviews the incident to determine if further suspension or fines are necessary. 4. The Finance Committee handles monetary allocations and receipts. 5. The Technical Committee focuses on the field of play, officiating, and the technical aspects of the specific sport. 6. The Transport Committee manages the movement of teams and officials. 7. Therefore, based on the passage and administrative definitions, the Discipline Committee is the correct answer.

Final Answer: The Discipline Committee is responsible for handling unsportsmanlike behavior.

Answer: (B)



Q45.

Solution**Concept:**

In a knock-out (single-elimination) tournament, every match results in exactly one team being eliminated from the competition. Since the goal is to eliminate all participants except for the ultimate winner, there is a very simple mathematical relationship between the number of teams and the total number of matches required to finish the tournament. This formula is essential for sports planners when booking venues, scheduling referees, and determining the duration of the sports meet.

Solution:

1. Let N represent the total number of teams participating in the tournament. 2. In a knock-out format, if we want 1 winner, we must have $N - 1$ losers. 3. Since each match produces exactly one loser, the number of matches must equal the number of teams that need to be eliminated. 4. Therefore, the formula for the number of matches is: $N - 1$. 5. In the case of the 13-team volleyball tournament mentioned in the passage, the number of matches would be $13 - 1 = 12$ matches. 6. The other options provided are used for different purposes: $N(N - 1)/2$ is the formula for a single league (round-robin) tournament, and 2^n is used to identify the next round of competition. 7. Thus, $N - 1$ is the universally accepted formula for single knock-out matches.

Final Answer: The formula to calculate the number of matches is $N - 1$.

Answer: (B)



Q46.

Solution**Concept:**

Newton's Laws of Motion are the fundamental principles of classical mechanics that describe the relationship between a body and the forces acting upon it. In the context of sports biomechanics, the Third Law is particularly significant during explosive movements like jumping or sprinting. It explains how athletes interact with their environment to generate propulsion. By understanding that force is a mutual interaction between two objects, athletes can optimize their technique—such as the angle of take-off or the hardness of the playing surface—to maximize the resulting reactive force and improve overall performance.

Solution:

1. The passage specifically mentions that the high jumper utilizes a law of motion during the take-off phase by pushing against the ground. 2. According to Sir Isaac Newton, forces always exist in pairs. If Object A exerts a force on Object B, then Object B exerts a force of equal magnitude and opposite direction back on Object A. 3. This is formally known as Newton's Third Law of Motion, or the Law of Action and Reaction. 4. Option (1), the Law of Inertia, refers to the first law; Option (2), the Law of Acceleration ($F = ma$), refers to the second law. 5. In high jumping, the "Action" is the athlete's foot pushing down on the ground, and the "Reaction" is the ground pushing the athlete upward, which facilitates the vertical lift described in the text.

Final Answer: The Law of Action and Reaction states that for every action, there is an equal and opposite reaction.

Answer: (3)

Q47.

Solution**Concept:**

Anatomical planes are hypothetical geometric planes used to describe the location of structures or the direction of movements in the human body. There are three primary planes: Sagittal, Frontal (Coronal), and Transverse. Every movement, whether it is a bicep curl, a jumping jack, or a waist twist, occurs within one of these planes or parallel to them. Mastering these spatial divisions is essential for biomechanical analysis, as it allows sports scientists to categorize joint actions (like flexion, extension, abduction, and rotation) and evaluate the efficiency of an athlete's technique during a specific approach or movement phase.

Solution:

1. The Sagittal plane is a vertical plane that passes through the body from front to back. 2. This plane divides the body into Left and Right halves. If the plane passes exactly through the midline, it is called the Median or Mid-sagittal plane. 3. Movements that occur in this plane include flexion and extension, such as the forward-and-backward swinging of the legs during a high jumper's approach, as mentioned in the passage. 4. For comparison: the Frontal (Coronal) plane divides the body into Front (Anterior) and Back (Posterior) halves. 5. The Transverse plane divides the body into Top (Superior) and Bottom (Inferior) halves. 6. Since the question specifically asks for the division created by the Sagittal plane, the correct answer is the division into left and right sides.

Final Answer: The Sagittal plane divides the body into Left and Right halves.

Answer: (2)



Q48.

Solution**Concept:**

Inertia is an inherent property of matter that describes its resistance to any change in its state of motion. It is not a force itself, but a measure of how much force is required to achieve a certain acceleration. The amount of inertia an object possesses is directly proportional to its mass; a heavier athlete has more inertia and therefore requires a greater muscular force to accelerate from a stationary position to a full sprint. In biomechanics, understanding inertia is key to analyzing "starting strength" and the energy expenditure required during the transition phases of various track and field events.

Solution:

1. The passage highlights that scientists measured the "Inertia" of the jumper to understand the force needed to change their state of motion. 2. This is based on Newton's First Law, which states that an object at rest will remain at rest, and an object in motion will remain in motion, unless acted upon by an external force. 3. The tendency to maintain this status quo is called Inertia. 4. Momentum (Option 4) is the product of mass and velocity ($p = mv$), representing the quantity of motion, whereas Inertia is the resistance to change. 5. Friction (Option 1) is a resistive force between surfaces, and Velocity (Option 3) is the rate of change of displacement. 6. Therefore, the resistance to changing state—from stationary to sprinting—is correctly identified as Inertia.

Final Answer: Inertia is the tendency of an object to resist changes in its state of rest or motion.

Answer: (2)



Q49.

Solution**Concept:**

Ground Reaction Force (GRF) is a critical concept in sports mechanics, representing the force exerted by the ground on a body in contact with it. According to the laws of physics, when an athlete interacts with the playing surface, the surface pushes back. This reactive force is what actually propels the athlete into the air or forward. The magnitude and direction of the GRF are determined by the force the athlete applies to the ground. In activities like high jumping, the vertical component of the GRF must exceed the athlete's body weight to create the "vertical lift" required to clear the bar.

Solution:

1. The passage describes a jumper pushing down on the ground and receiving a force back that allows them to go up. 2. This "pushing back" by the earth is the definition of Ground Reaction Force (GRF). 3. It is the real-world application of Newton's Third Law (Action-Reaction) in sports. 4. Centripetal force (Option 1) is a center-seeking force involved in circular motion, not vertical lift. 5. Internal forces (Option 4) are those generated by muscles and tendons within the body, which then cause the external interaction with the ground. 6. Air resistance (Option 3) is a drag force that opposes the athlete's motion through the atmosphere. 7. Thus, the upward force provided by the surface in response to the jumper's downward push is the Ground Reaction Force.

Final Answer: The ground pushing back is an example of Ground Reaction Force.

Answer: (2)



Q50.

Solution**Concept:**

Dynamics, a branch of mechanics, is divided into two main sub-fields: Kinematics and Kinetics. Kinematics is often described as the "geometry of motion." It focuses on the description of how objects move without considering the forces (like gravity or muscle contraction) that cause that motion. By analyzing kinematic variables such as displacement, velocity, and acceleration over time, coaches can evaluate an athlete's technique, such as the stride length of a runner or the flight path of a jumper, to identify areas where efficiency can be improved for better competitive outcomes.

Solution:

1. The question asks for the branch of science that studies motion in terms of time, velocity, and displacement. 2. Kinematics is the study of motion regarding these parameters (spatial and temporal) without reference to the forces involved. 3. Kinetics (Option 1), by contrast, is the study of the forces that cause or change motion, such as torque or impact force. 4. Statics (Option 3) deals with bodies at rest or in a state of constant velocity (equilibrium). 5. Anatomy (Option 4) is the study of the structure of the body, not the mathematical description of its motion. 6. In the passage, measuring horizontal velocity and the transition to vertical lift over time are kinematic observations. 7. Therefore, Kinematics is the specific branch concerned with these descriptive variables.

Final Answer: Kinematics is the branch of science that studies motion with respect to time, velocity, and displacement.

Answer: (2)



Answer Key

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

