Class 12

Physical Education

Set 1 with Solutions

Time Allowed: 3 Hours **Maximum Marks: 70**

General Instructions:

The question paper consists of 5 sections and 37 Questions.

Section A consists of Questions 1-18 carrying 1 mark each and is multiple choice questions. All questions are compulsory.

Section B consists of Questions 19-24 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. Attempt any 5.

Section C consists of Questions 25-30 carrying 3 marks each and are short answer types and should not exceed 100-150 words. Attempt any 5.

Section D consists of Questions 31-33 carrying 4 marks each and are case studies. There is an internal choice available.

Section E consists of Questions 34-37 carrying 5 marks each and are short answer types and should not exceed 200-300 words. Attempt any 3.

Section – A (18 marks)

Question 1.
Identify the asana: [1]

(a) Paschimottanasana
(b) Halasana
(c) Vajrasana
(d) Dhanurasana
Answer:
(d) Dhanurasana

Explanation: It is a back-bending asana in hatha yoga.

Question 2.
A person who likes to learn new things, new concepts, and new experiences is categorized as [1]
(a) Agreeableness
(b) Extroversion
(c) Conscientiousness
(d) Openness

Answer:
(d) Openness

Explanation: People who tend to be high in the trait of openness are open-minded and approach new things with curiosity and tend to seek out novelty.

Question 3.
Cartwheel in gymnastics is an example of_____. [1]
(a) Static Equilibrium
(b) Dynamic Equilibrium
(c) Active Equilibrium
(d) Passive Equilibrium
Answer:
(b) Dynamic Equilibrium

Explanation: Cartwheels are commonly performed in gymnastics in the floor exercise and on the balance beam.

Question 4.
Slowtwitch fibers are_____in color. [1]
(a) White
(b) Red
(c) Transparent
(d) Brown
Answer:
(b) Red

Explanation: Slow twitch fibers are also called red fibers because they contain more blood carrying myoglobin.

Question 5.
Jumping on the spot is an example of_____. [1]
(a) Iso-metric
(b) Iso-tonic
(c) Iso-kinetic
(d) Iso-kinesthetic
Answer:
(b) Iso-tonic

Explanation: It is a type of muscle contraction in exercise physiology.

Question 6.
Take-off in a Long jump is an example of_____strength. [1]
(a) Explosive strength
(b) Maximum strength
(c) Strength endurance
(d) Static strength
Answer:
(a) Explosive strength

Explanation: Explosive strength is the speed at which you can use your strength.

Question 7.
The amount of oxygen that can be absorbed and consumed by the working muscles from the blood is called_____. [1]

(a) Oxygen Uptake
(b) Oxygen Intake
(c) Oxygen Transport
(d) Vital capacity
Answer:
(a) Oxygen Uptake

Explanation: It is a measure of a person's ability to take in oxygen through the respiratory system and deliver it to the working tissues via the cardiovascular system and the ability to work tissues to use oxygen.

Question 8.
In the Law of Acceleration, the acceleration of an object is inversely proportionate to its_____. [1]
(a) Force
(b) Mass
(c) Speed
(d) Size
Answer:
(b) Mass

Explanation: According to the law of force and acceleration, a force upon an object causes it to accelerate according to the formula i.e., net force = mass x acceleration.

Question 9.
Given below are the two statements labeled Assertion (A) and Reason (R).
Assertion (A): Intrinsic motivation has long-term benefits.
Reason (R): As factors behind it are naturally pursuing actions that provide fun, pleasure, fulfillment, or challenge In the context of the above two statements, which one of the following is correct? [1]
(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
Answer:
(a) Both (A) and (R) are true and (R) is the correct explanation of (A).

Explanation: Intrinsic motivation gives a positive emotional return, because it's fun or because it's something you take pride in.

Question 10.
Carbohydrates are soluble in water and crystalline in structure. [1]
(a) Simple
(b) Complex
(c) Compound
(d) Complicated
Answer:
(a) Simple

Explanation: Simple carbohydrates are broken down quickly by the body to be used as energy.

Question 11.
Which among these is not a micromineral? [1]
(a) Iodine
(b) Magnesium
(c) Iron
(d) Copper

Answer:
(b) Magnesium

Explanation: Magnesium is a macro mineral Macro minerals are present at larger levels in the animal body.

Question 12.
Which asana is helpful in increasing height? [1]
(a) Sukhasana
(b) Tadasana
(c) Bhujangasana
(d) Vajrasana
Answer:
(b) Tadasana

Explanation: Tadasana is one of the simplest yoga poses that can help you increase your height.

Question 13.
How many byes will be given if there are 17 teams? [1]
(a) 1
(b) 8
(c) 15
(d) 12
Answer:
(c) 15

Explanation: No. of teams = 17 = N
No. of matches = N -1 = 16
Total no. of Byes = 2N- 17 = 32- 17 = 15.

Question 14.
How many matches will be played in the knockout tournament's first round if there are 15 teams? [1]
(a) 8
(b) 7
(c) 5
(d) 6
Answer:
(b) 7

Explanation: The number of knockout matches is always one less than a number of participating teams.

Question 15.
Watching others play and enjoy which in turn motivates the child with special needs to participate is a part of which kind of strategy? [1]
(a) Menta
(b) Physical
(c) Psychological
(d) Social
Answer:
(d) Social

Explanation: Watching others play and enjoy is one of the most effective ways to motivate a child to participate.

Question 16.
Match the following: [1]

	Column (A)		Column (B)
(I)	Garudasana	(1)	Round shoulder
(II)	Gomukhasana	(2)	Lordosis
(III)	Chakrasana	(3)	Bow legs
(IV)	Naukasana	(4)	Knock knees

(a) (l)-(3), (ll)-(4), (lll)-(1), (IV)-(2)
(b) (l)-(1), (ll)-(3), (lll)-(4), (IV)-(2)
(c) (l)-(4), (ll)-(2), (lll)-(1), (IV)-(3)
(d) (l)-(2), (II)-(3), (lll)-(4), (IV)-(1)
Answer:
(a) (l)-(3), (ll)-(4), (lll)-(1), (IV)-(2)

Question 17.
Match the following: [1]

	Column (A)		Column (B)
(I)	Chair stand test	(1)	Lower Body Strength
(II)	Arm curl test	(2)	Aerobic Endurance
(III)	Back scratch test	(3)	Upper body strength
(IV)	Six-minute walk test	(4)	Upper body flexibility

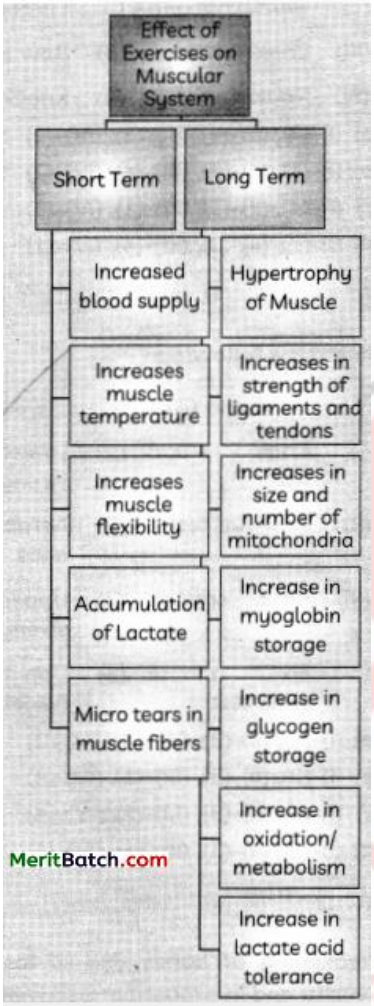
(a) (l)-(1), (ll)-(3), (lll)-(4), (IV)-(2)
(b) (l)-(2), (ll)-(3), (lll)-(1), (IV)-(4)
(c) (l)-(1), (ll)-(3), (lll)-(2), (IV)-(4)
(d) (l)-(2), (ll)-(3), (lll)-(4), (IV)-(1)
Answer:
(a) (l)-(1), (ll)-(3), (lll)-(4), (IV)-(2)

Question 18.
Weakening of bones due to loss of bone density and improper bone formation is known as_____. [1]
(a) Amenorrhea
(b) Anorexia Nervosa
(c) Osteoporosis
(d) Lordosis
Answer:
(c) Osteoporosis

Explanation: Osteoporosis is a condition in which bones become weak and brittle. New bone creation doesn't keep up with old bone removal.

Section – B (10 marks)

Question 19.
List down any four effects of exercise on the muscular system. [2]
Answer:



Explanation: Four effects of exercise on the muscular system are:
(1) Exercise builds and strengthens muscles, which protect the bones from injury.
(2) It improves blood supply to the muscles and increases their capacity to use oxygen.
(3) Exercise lubricates joint D and reduces stiffness.
(4) It increases muscular endurance and cardiovascular health.

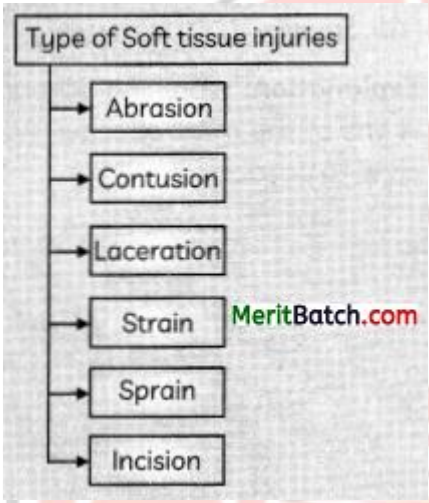
Question 20.
List down any four benefits of self-talk by athletes in sports. [2]
Answer:
The benefits of self-talk by athletes in sports are as follows:
(1) Building and developing self-efficacy
(2) Skill acquisition
(3) Creating and changing mood
(4) Controlling efforts
(5) Focusing attention

Question 21.
List down any four advantages of the fartlek training method. [2]
Answer:
The following are the advantages of the Fartlek training method:
(1) Develops strength and endurance.
(2) Appropriate form of training for most sports.
(3) Can be adjusted to suit age, fitness and health of the athlete.
(4) Exercises are simple enough to make each athlete feel a sense of achievement in completing them.

(5) A wide range of exercises to select from which will maintain the athlete's enthusiasm.
(6) Can be done in a group.

The following are the Disadvantages fartlek training method:
(1) Many exercises require specialized equipment e.g., gym equipment.
(2) Ample space required to set up the circuit exercises and equipment.
(3) In general can only be conducted where appropriate facilities/equipment are available.
(4) Use of additional equipment requires appropriate health and safety monitoring.

Question 22.
Explain any two types of soft tissue injuries with the help of examples. [2]
Answer:
A soft tissue injury is the damage of muscles, ligaments, and tendons throughout the body.



Explanation:
(1) Abrasion: Abrasions are superficial injuries of the skin and visceral linings in the body, resulting in a break in the continuity of tissue. These are the simplest of injuries in terms of heating, with most injuries being confined to the epidermis and resulting in minial bleeding at the most. Examples include scrapednee, road rash, and injuries that a cheese grater or sandpaper could create.
(2) Contrusion: Also called bruise, in caused by a direct blow to the body that can cause damage to the surface of the skin and to deeper tissues as well depending on the severity of the blow. Examples include blunt trauma, injury, recent IV use or drawing blood.

Question 23.
Write down the objectives and administration of the flamingo test. [2]

Static Balance (Flamingo Balance Test)

What does it measure:

Ability to balance successfully on a single leg. This single leg balance test assesses the strength of the leg, pelvic and trunk muscle as well as static balance.

How to Perform: Stand on the team. Keep balance by holding the instructor's hand (if required to start).

While balancing on the preferred leg, the free leg is flexed at the knee and the foot of this leg held close to the buttocks.

Start the watch as the instructor lets go of the participant/subject.

Pause the stopwatch each time the subject loses balance (either by falling off the beam or letting go of the foot being held).

Resume over, again timing until they lose balance. Count the number of falls in 60 second of balancing.

If there are more than 15 falls in the first 30 seconds, the test is terminated.

Infrastructure/Equipment Required: Non Slippery even surface. Stopwatch, can be done by just standing on a beam.

Scoring: The total number of falls or loss of balance in 60 seconds of balancing is recorded.

If there are more than 15 falls in the first 30 seconds, the test is terminated.

Administrative Suggestion:

Participants should be encouraged to focus eyes on stationary objects straight ahead.

Suggested physical activities to improve Balance (Flamingo Test)

To improve balance, you should practice practice one foot balance, walking on toes and heel toe walking, walking on straight lines, skipping, happing, vrikshasana, walking on beam etc.

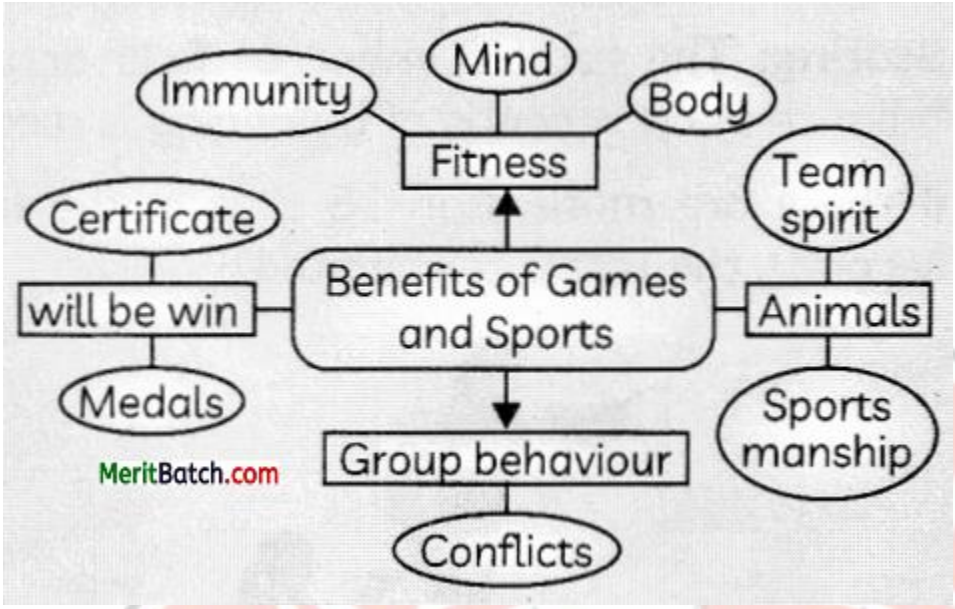
Question 24.
What should be the basic nutrient in a weightlifter's diet and why? [2]

Proteins	Proteins build and repair body cells Proteins form part of various enzymes, hormones, and antibodies Also provide energy (4 Kcal/g)	Milk and milk product fish, eggs, poultry, meat, legumes and grains

Explanation: Protein is an important nutrient that helps in rebuilding muscle strength and accelerates recovery. This is the reason why weight lifters need it to heal their muscles so that they don't suffer micro tears. Protein is found in animal products, such as beef, chicken, eggs, dairy, fish and seafood, and some plant sources, like beans, lentils, whole grains, and soya. The main role of protein is to build and repair muscle. Proteins give a constant supply of nutrients to the muscles and also keeps energy level on an even keel.

Section – C (15 marks)

Question 25.
Create a mind map including any six advantages of physical activities for children with special needs. [3]
Answer:
Six advantages of physical activities for children with special needs



Explanation: Six advantages of physical activities for children with special needs are:
(1) It strengthens the heart muscle thereby improving cardiovascular efficiency.
(2) Physical activity develops social relationships with other children, teammates, and teachers.
(3) It improves the stamina of children.
(4) It increases stability.
(5) It improves bone health.
(6) It also improves strength.

Question 26.
What are carbohydrates? Differentiate between its types. [3]
Answer:
Carbohydrates are organic compounds made up of Carbon, Hydrogen, and Oxygen. Carbohydrates are a major source of energy.
Type of Carbohydrates:
(1) Monosaccharide,
(2) Disaccharides
(3) Polysaccharides
(4) Simple sugars
(Mono and disaccharides) are found in fruits (sucrose, glucose and fructose), milk (lactose) and sweets that are produced commercially and added to foods to sweeten, prevent spoilage or improve structure and texture. Polysaccharides are more than two units of monosaccharide joined together. These are starches and fibre (cellulose). These are also called complex sugars and are found in whole grain cereals, rice, oats, potatoes, bread, legumes, corn and flour.

Question 27.
Define bye. Explain the rules of giving bye with help of an example. [3]
Answer:
Bye is the position of a participant in a tournament who is not paired with an opponent, usually in the first round, and advanced to the next round without playing The right to proceed to the next round of a competition without contesting the present round, often through non-appearance of an opponent.
Allotment of byes in the fixture should be given in following order:

First byes will be given to last team of Lower Half,

Second byes will be given to first team of Upper Half,

Third byes will be given to first team of lower Half,

Fourth byes will be given to last team of Upper Half

Same pattern will be followed after fourth bye till the remaining byes have been given.

Question 28.
Make a table explaining any three personalities from Big five theory and their characteristics. [3]
Answer:

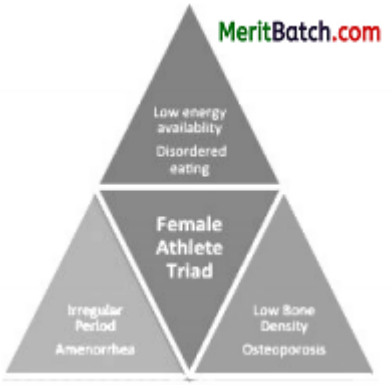
Trait	Description
Openness	Being curious, original, intellectual, creative and open to new ideas.
Conscientiousness	Being organized, systematic, punctual achievement oriented, and dependable
Extraversion	Being outgoing, talkative, sociable and enjoying social situations.
Agreeableness	Fleeing affable, tolerant, sensitive, trusting, kind
Neuroticism	Being anxious, irritable, temperamental and moody.

Question 29.
Explain any three physiological factors determining strength. [3]
Answer:
Strength: Strength component has varied subtypes like maximum strength, Explosive strength, Strength, Endurance etc. Each has different types of exercise, intensity and duration so physiological factors vary. In games like weightlifting, jumps, sprint or power, agility and strength-dominating sports where force production is high, fatigue is quick, and fast twitch fibre percentage must be high in muscles. ATP-CP system or anaerobic system works to produce energy for strength training. Stroke volume (the volume of blood pumped out of the Left ventricle of the heart during each systolic cardiac contraction) is a vital parameter as far as cardiovascular system is concerned.

Explanation: Three physiological factors for determining strength are:

(1) Muscle composition: There are two types of fibres in muscles i.e., fast-twitch fibres and slow-twitch fibres.
(2) Size of the muscle: The strength of an individual depends on the size of muscle.
(3) Body weight: There is a positive relation between body weight and strength.

Question 30.
What is the meaning of female athletes Triad? Explain any two in brief. [3]
Answer:
Female Athlete Triad



(A) disordered eating
(B) amenorrhea and
(C) osteoporosis

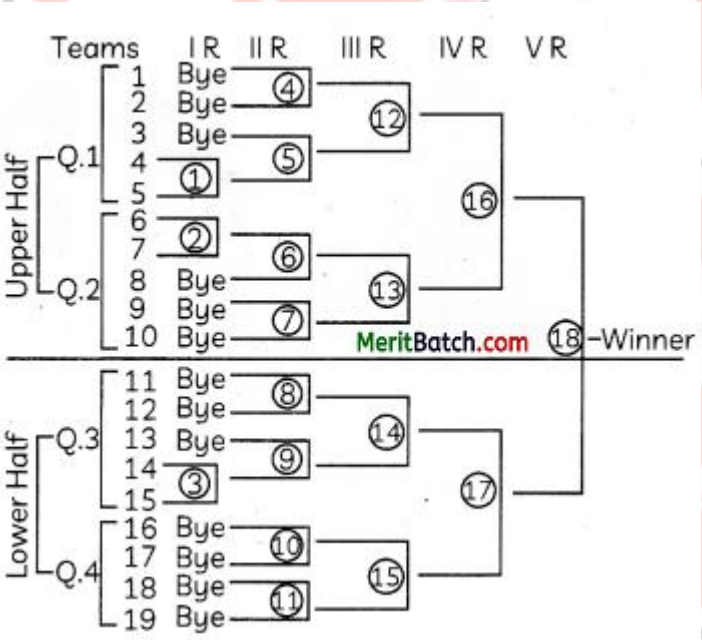
Explanation: The female athlete triad is an interrelationship of menstrual dysfunction low energy availability and decreased bone mineral density. It is common among young women participating in sports.

(1) Disordered Eating: It includes a range of irregular eating behaviours that do not necessarily meet criterion for severe disorders, such as anorexia nervasa and bulimin nervosa is also fairly common in the athletic community.

(2) Menstrual Dysfuction: Menstrual dysfunction in the female athlete includes a wide spectrum of disorders. The most common menstrual at normality is amenorrhea.

Section – D (12 marks)

Question 31.



On the basis of above given fixture answer the following questions: [4]
(A) Total number of matches in 2nd round are _____.
(B) What is the formula for calculating the total number of matches?
(C) The fourth round in this case can also be called as _____.
(D) What is the formula for calculating the number of byes?
OR

The formula for calculating number of round is _____.
Answer:
(A) 8
(B) N-1
(C) Semi final
(D) 2n-N

OR

N(N−1)2

Question 32.
The teachers as well as coaches always make their best efforts to improve the performance of their students in various competitive games and sports. They can help to improve the performance of students if they have adequate knowledge of biomechanics. [4]

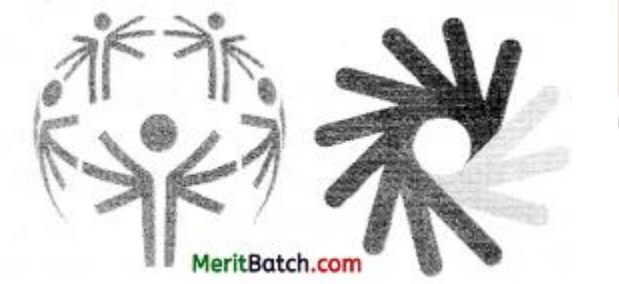
(A) The more force one exerts on the downward bounce, the higher the ball bounces into the air. Which law is this statement being referred to?
(B) Among the above given pictures, Newton's 3rd law is depicted in _____.
(C) Newton's second law is also known as _____.
(D) The study of human body and various forces acting on it is _____.
Answer:
(A) Third law of motion-Action reaction
(B) 1st picture
(C) Law of Acceleration
(D) Kinesiology

OR

A high jumper can jump higher off a solid surface because it opposes his or her body with as much force as he or she is able to generate. This example refers to which law of motion?

Third law of motion-Action reaction

Question 33.
In relation to the pictures, answer the following questions. [4]

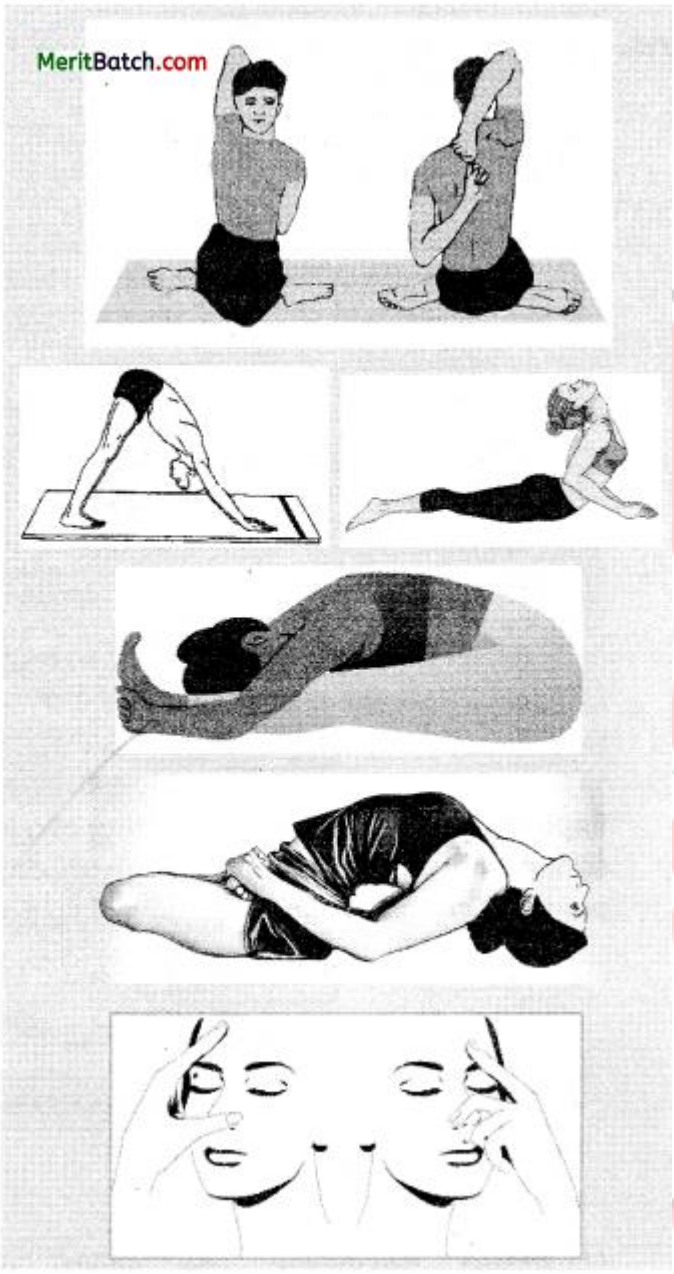


(A) What is the mission of the first organization?
(B) What is the Motto of the first organization?

(C) Until 1965 the games in the second picture were known as _____.
(D) Second picture games are conducted after every _____ years.
Answer:
(A) The mission of Special Olympics is to provide year-round sports training and athletic competition in a variety of Olympic-type sports for children and adults with intellectual disabilities, giving them continuing opportunities to develop physical fitness, demonstrate courage, experience joy and participate in events.
(B) The motto of special Olympics is "Let me win. But if I cannot win, let me be brave in the attempt."
(C) International Games for the Deaf International Silent Games".
(D) 4yrs

Section – E (15 marks)

Question 34.
List down any four asanas used for prevention of asthma. Explain the procedure for administration of any one of them with help of a stick diagram. [5]
Answer:
Asthma: Sukhasana, Chakrasana, Gomukhasana, Parvatasana, Bhujangasana, Paschimottanasana, Matsyasana, Anulom Vilom



Explanation: Four asanas used for prevention of asthma are:

(1) Sukhasana
Procedure:

It is done in sitting position.

Sit cross Legged on the floor or any other fiat surface.

Bend your knees and cross your right shin in front of your left shin.

Move the knees closer until your feet is directly underneath them.

Place both the palms on your knees an close your eyes.

Breathe slowly and concentrate on the breathing pattern.

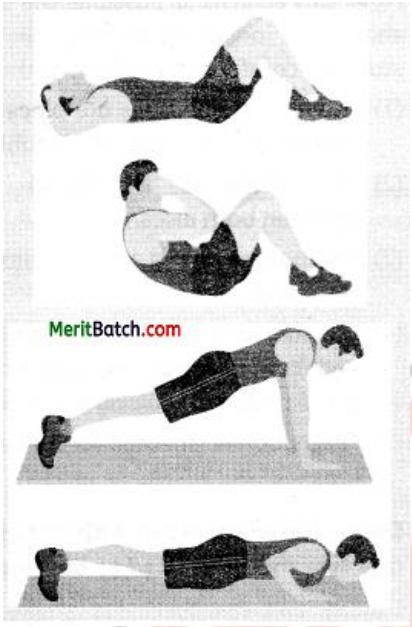
Continue breathing in the same way for five minutes.

(2) Bhujangasana

(3) Chakasana

(4) Gomukhasana

Question 35.
Make a table of test items listed under fitness test by SAI (Age group 9-18 yrs) along with the objectives of conducting them. Explain the administration of any one of them. [5]
Answer:
Age group 9-18yrs/ class 4-12: BMI, 50mt Speed test, 600mt Run/Walk, Sit & Reach flexibility test, Strength Test (Abdominal Partial Curl Up, Push-Ups for boys, Modified Push-Ups for girls).



Explanation: Test items listed under fitness test by SAI (Age group 9-18 years) are:
(1) Body Mass Index (BMI)
(2) Plate Tapping Test
(3) Flamingo Balance Test
(4) Partial Curl up (30 sec.)
(5) Sit and reach flexibility test
(6) 600 meter Run/walk
(7) Computing Basal Metabolic Rate
(8) Motor fitness test and measurement
(9) Measurement of cardiovascular fitness
(10) 50 mt. speech test

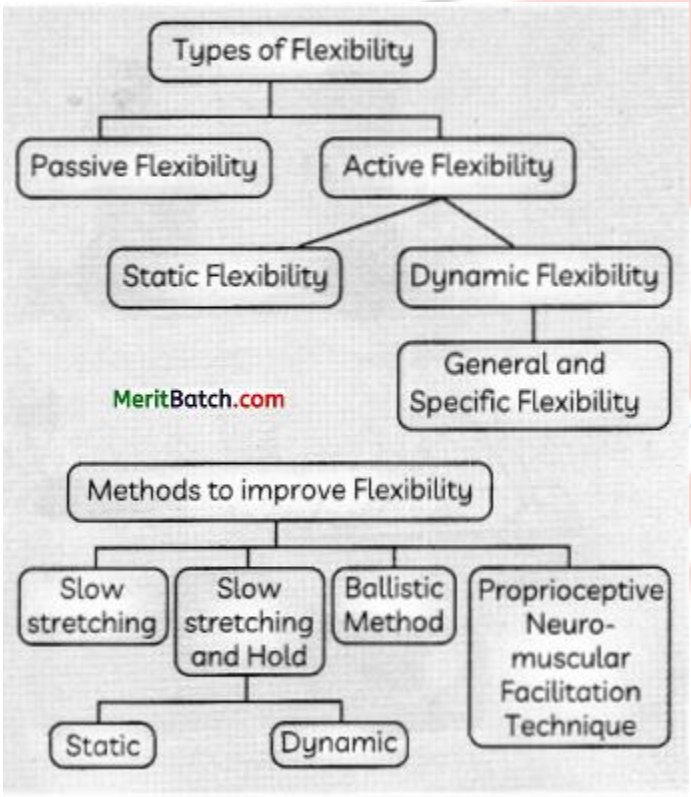
Test and measurement is the instrument for getting essential details regarding the needs, capacities, abilities and attitudes of students. Evaluation is based upon tests and measurements, which is very important to check the progress of an individual. A test helps to collect data which can be evaluated for further improvement.

Plate Tapping Test: This tests speed and coordination of limb movement.

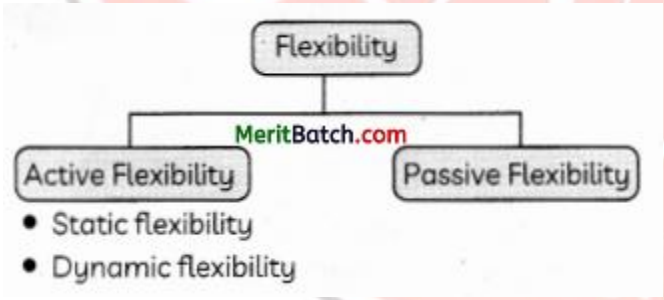
How to Perform: If possible, the table height should be adjusted so that the subject is standing comfortably in front of the discs.
(1) The two yellow discs are placed with their centers 60 cm apart on the table.

(2) The rectangle is placed equidistant between both discs.
(3) The non-preferred hand is placed on the rectangle.
(4) The subject moves the preferred hand back and forth between the discs over the hand in the middle as quickly as possible.
(5) This action is repeated for 25 full cycles (50 tops).

Question 36.
Define flexibility along with its types. Explain any two methods used to develop flexibility. [5]
Answer:



Explanation: Flexibility is the ability of a joint or series of joints to move through an unrestricted, pain-free range of motion.



(1) Active flexibility: The ability of an individual to do the joint movement for a longer range without any external help. E.g., doing any stretching exercise without external help. It is of two kinds:

Static Flexibility: It is usually required by a sports person when he remains in static position e.g., diving setting lying.
Dynamic flexibility: It is needed for walking and running.

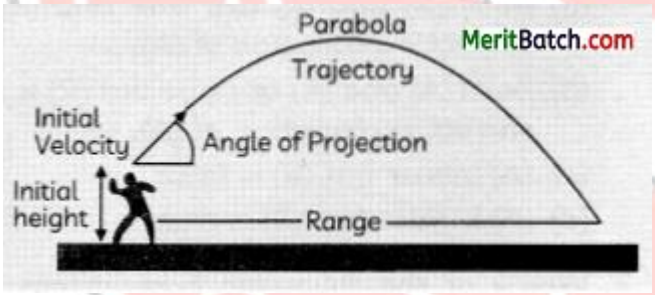
(2) Passive flexibility: The ability to do joint movement with a greater range with an external help of partner. This flexibility is mainly determined by joint structure, stretchability of muscle and legoment. It helps in the development of active flexibility.

Method to improve flexibility:

(1) Ballistic Stretching: The individual performs these stretching exercises while in motion. This dynamic method uses the momentum generated from repeated bouncing movements to stretch the muscles. This method includes various exercises like swinging the trunk sidewards forwards, backward, swinging the legs etc.

(2) Static Stretching: It is an extremely popular and effective technique. Which involves gently and slowly moving into the stretch position and holding it for a certain period of time. Movement should take place through the full range of motion until a little tension or tightness is felt in the muscles or group of muscles. As the muscle releases, the stretch should be extended and held again. Stretching should be held from 10 to 30 seconds and a maximum of give repetitions for each exercise.

Question 37.
Define Projectile and explain any two factors affecting projectile with the help of examples from sports. [5]
Answer:
Factors Affecting Projectile Trajectory:
- Initial velocity
- Angle of projection
- Projection height relevant to the landing surface
- Air resistance
- Surface area of the projectile
- Surface-to-volume ratio
- Mass
- Velocity
- Gravity
- Spin



Explanation: An object thrown into space either horizontally or an acute angle under the action under gravity is called a projectile. There are forces which act on a projectile gravitational force and air resistance. The factors affecting projectile trajectory are:

(1) The angle of projection: An object which is projected at different angles covers different distances. When it is projected or released at an angle of 30, making it a parabolic path and covers lesser distance. When it is projected at 60, it covers a distance of less than 30. When it is released at an angle of 45, makes a parabolic path and covers maximum distance. So, the distance covered by an object (shot, put, hammer, javelin, discuss etc. depends on the angle of release of projectile.)

(2) Gravity: Gravity acts on a body or object to give it mass. The greater the weight of an object, the greater the influence of gravity upon it. Gravity will effect a projectile as well as it will decrease the height, the projectile can obtain. For example, a cricket ball can be thrown at a greater distance in comparison to shot put.