CBSE QUESTION PAPER (2023)
(With Solutions)
Class XII
PHYSICAL EDUCATION (048)

TIME: 3 hrs **M.M: 70**

General Instructions:

1. The question paper consists of 5 sections and 37 Questions.
2. Section A consists of questions 1-18 carrying 1 mark each and are multiple choice questions. All questions are compulsory.
3. Section B consists of questions 19-24 carrying 2 marks each and are very short answer type and should not exceed 60-90 words. Attempt any 5.
4. Section C consists of questions 25-30 carrying 3 marks each and are short answer type and should not exceed 100-150 words. Attempt any 5.
5. Section D consists of questions 31-33 carrying 4 marks each and are case studies. There is internal choice available.
6. Section E consists of questions 34-37 carrying 5 marks each and are long answer type and should not exceed 200-300 words. Attempt any 3.

SECTION–A

(All Questions are compulsory)

1. Identify the Asana

(a) Bhujangasana (b) Halasana
(c) Vajrasana (d) Dhanurasana

(Question for Visually Impaired candidates)

_____ pose is like cobra.

(a) Bhujangasana (b) Dhanurasana
(c) Vajrasana (d) Ardhmatsyendrasana

2. Traits like sadness, mood swings and emotional instability are related with _____ [1]
   (a) Extroversion (b) Agreeableness
   (c) Conscientiousness (d) Neuroticism
3. Which of the following is NOT the factor affecting projectile trajectory ? [1]
   (a) Gravity (b) Angle of Release
   (c) Buoyant Force (d) Air Resistance
4. Which of the following factors, does NOT determine flexibility ? [1]
   (a) Joint Structure (b) Previous Injury
   (c) Efficiency of Lungs (d) Age and Gender
5. Fartlek Training is used to develop [1]
   (a) Endurance (b) Strength
   (c) Flexibility (d) Speed
6. Which type of coordinative ability is required in games like judo and wrestling ? [1]
   (a) Orientation ability (b) Coupling ability
   (c) Adaptation ability (d) Differentiation ability
7. The ability to tolerate higher concentration of _____ can help in improving endurance performance. [1]
   (a) Lactic acid (b) Hydrochloric acid
   (c) Acetic acid (d) Sulphuric acid

8. Centre of Gravity is the average location of an object's [1]
   (a) Weight (b) Force
   (c) Resistance (d) Velocity

9. Given below are the two statements labelled Assertion (A) and Reason (R). [1]

   Assertion (A): Aggression is part of human behaviour and is necessary for an individual to live and struggle for higher achievements.

   Reason (R): Aggression is inevitable and inseparable in sport activities. In the context of the above two statements, which one of the following is correct ?
   (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.

10. Role of water in human body is to _____ [1]
    (a) regulate body temperature (b) give energy
    (c) repair cell (d) protect from disease

11. Which of the following are water soluble vitamins? [1]
    (a) Vitamin D & K (b) Vitamin B & C
    (c) Vitamin A & E (d) Vitamin A & C

12. Which of the following asana is NOT used to cure Asthma ? [1]
    (a) Tadasana (b) Dhanurasana
    (c) Parvatasana (d) Bhujangasana

13. How many total matches will be played in a knock-out fixture of 19 teams ? [1]
    (a) 18 (b) 17
    (c) 20 (d) 16

14. Knock-out tournament is also known as _____. [1]
    (a) Elimination tournament (b) Round-robin tournament
    (c) League tournament (d) Challenge tournament

15. First Deaflympic Games was organized in the year _____. [1]
    (a) 1896 (b) 1960
    (c) 1924 (d) 1951

16. Match the following : [1]

List — I	List — II
I. Knock Knee / Genu Valgum	1. Increase exaggeration of backward curve
II. Kyphosis	2. Wide gap between the knees when standing with feet together
III. Lordosis	3. Knees touch each other in normal standing position.

   Choose the correct option from the following:

	I	II	III	IV
(a)	3	1	4	2
(b)	1	3	4	2
(c)	4	2	1	3
(d)	2	3	4	1

17. Match the following : [1]

List — I	List — II
I. Plate Tapping Test	1. Upper body strength endurance of boys
II. Push-up	2. Speed and coordination of limb movement
III. Partial Curl up	3. Upper body strength endurance of girls
IV Modified push up	4. Abdominal strength

Choose the correct option from the following :

	I	II	III	IV
(a)	2	1	4	3
(b)	2	3	1	4
(c)	1	3	2	4
(d)	2	3	4	1

18. Menarche is related to : [1]
    (a) Ending of menstrual period in women
    (b) Beginning of menstrual period in women
    (c) Time of pregnancy
    (d) Sp inal deformity

SECTION–B

(Attempt any 5 questions)

19. Briefly explain any two factors determining endurance. [1+1]
20. What do you understand by "Goal Setting" ? [2]
21. Define Flexibility and list down its types. [1+1]
22. Elucidate any four types of fractures.
23. What is BMI ? Calculate BMI of a child whose weight is 72 kg and height 1.68 out. [1+1]
24. Differentiate between Macro and Micro Nutrients. [2]

SECTION–C

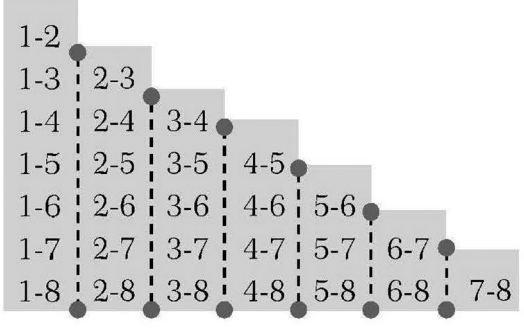
(Attempt any 5 questions)

25. "Participation in physical activities is advantageous for children with special need." Briefly explain any six advantages. [3]
26. Write the functions of Vitamin D and Vitamin K and mention their sources. [1.5+1.5]
27. Briefly explain the functions of Directing and Controlling to organize sports event. [1.5+1.5]
28. How can we enhance the sports performance with the help of self-talk and self-esteem ? Explain. [1.5+1.5]
29. Elucidate any six effects of exercise on muscular system. [3]
30. What do you understand by Round shoulders deformity ? Suggest any four corrective measures for round shoulders. [1+2]

SECTION–D

(Internal choices available)

31.



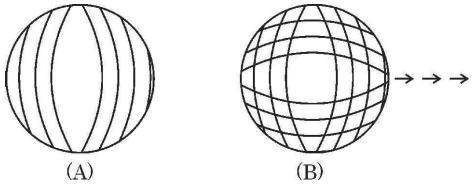
On the basis of above fixture, answer the following questions : [4]

(a) Which method is shown in the picture to draw fixture in league tournament ?
(b) What is the formula to calculate number of matches ?
(c) In league or Round Robin Tournament winner will be decided on the basis of
(d) If 7 teams participate in a league Tournament, number of matches will be played.

(For Visually Impaired Candidates)

Explain the responsibilities of any four committees required to organize a sports event.

32. Study he pictures given below:



Stationary Ball Moving Ball

Based on your above study and your knowledge, answer the following questions : [4]

(a) Which law of motion will be applied to initiate motion of the ball as depicted in the illustration (A) ?

(b) In illustration (B) which force is acting upon the ball to slow it down ?

(c) Which law of motion will determine the quality of bounce ?

(d) _____ of an object directly depends upon the mass of the object and net force applied on it.

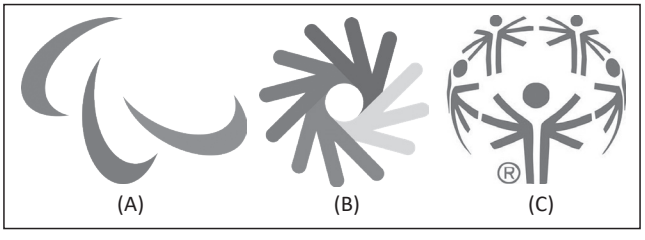
OR

"When a cricket ball is moving with a certain velocity, the player has to apply retarding force to bring the ball at rest in his hands." Which Newton's Law is applied in this illustration ?

(For Visually Impaired Candidates)

By giving suitable examples from sports, explain any two Newton's Laws of Motion in detail.

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



(a) Logo shown in picture _____ refers to Special Olympic.

(b) Who was the founder of Special Olympics ?

(c) According to figure 'B', the hand shapes of 'OK', 'Good' and 'Great' that overlap each other in a circle, represent the original sign for _____.

(d) How many countries participated in the first Paralympic Games in Rome (Italy) in 1960?

OR

The moto of Paralympics is

(For Visually Impaired Candidates)

Explain any four strategies to make physical activities accessible for children with special needs.

SECTION — E

(Attempt any 3 questions)

34. List down any four asanas used for prevention of Hypertension. Explain the procedure and contraindication of any one of them with help of a stick diagram. [1+4]

35. What is the purpose of Riklli and Jones fitness test ? Explain the procedure of its any two test items in detail. [1+4]

36. Define strength and explain any two methods to develop it. [1+4]

37. What is Friction ? Write the advantages and disadvantages of friction by giving suitable examples from sports. [1+4]

ANSWERS TO CBSE QUESTION PAPER (2023)

SECTION–A

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

SECTION–B

19. Directing is a process to ensure that individuals and teams involved in an event are aligned and working effectively towards a common goal while controlling helps ensure that the event is organised efficiently and effectively by monitoring progress, identifying and addressing issues, and making necessary adjustments. Directing process plays a crucial role in the management of sports events. It involves guiding, leading, supervising and motivating people to achieve the desired objectives and goals of the event.

Controlling is a comprehensive management concept, operating at all levels of the navigation system of the management of sports organisations. By monitoring, we mean the continuous and systematic observation and supervision of certain objectives, plans, processes and events.

20. Setting goals is an effective way to focus on the right activities, increase commitment and energise oneself. Goals are based on the athlete's physical and mental capacity. Goals should be divided into short, medium and long-term objectives. The idea is to divide the ultimate goal into incrementally progressive steps. Also, the goals ought to be regularly evaluated by the mentors and the approach should be flexible, allowing sufficient time and resources to reach the set goal.

21. Flexibility or limberness refers to the range of movement in a joint or series of joints. Flexibility is called active flexibility where both a joint and the muscles are moving whereas passive flexibility refers to the ability to hold a stretch using body weight or some other external force such as an assistant or an aid. Passive flexibility is always greater than active flexibility and is the base for active flexibility. Generally, athletes use the weight of the limb, the wall or a chair to enhance passive flexibility.

22. Bone injuries are called fractures. The four types of fractures are:

(a) **Simple fracture:** When there is no wound and the bone is broken in one place only.

(b) **Compound fracture:** When the bone is broken and comes out to the surface through the muscles and the skin.

(c) **Greenstick fracture:** This occurs in young children where the bone bends rather than breaks and only one cortex of the bone is involved.

(d) **Comminuted fracture:** This is when the bone is broken into many pieces at one place or into many pieces at different places.

23. BMI stands for Body Mass Index, which is a measure of body fat based on an individual's weight and height.

In this case, the child's weight is 72 kg and height is 1.68 metres.

BMI = weight (kg) / height^2 (m^2)

BMI = 72 kg / (1.68 m) ^{2}

BMI = 72 kg / 2.8224 m^2

BMI = 25.5

24. Nutrients that we need daily by the grams are called macronutrients whereas nutrients that we need regularly but in fractions of grams are called micronutrient. There are four macronutrients—proteins, carbohydrates, fats and water. Vitamins and minerals are the micronutrients that we need in fractions of grams but we need them daily to stay healthy.

SECTION–C

25. Physical activity in children with special needs leads to gain in physical strength, increased flexibility, improved bone health, better endurance and cardiovascular fitness. Exercise boosts academic achievement. The six advantages of physical activity are:

Physical improvement: Exercise helps improve muscle strength, coordination and flexibility.

Mental improvement: As the general mood of children improves and they start feeling better, mental agility as well as motor skills get better.

Self-esteem: Exercise helps in positive self-image and confidence which further helps in the overall development of children.

Health benefits: Better muscle and bone strength with focused attention on sports leads to overall well-being and health.

Social interactions: Physical activities are great opportunities for social interaction and contribute to improved emotional and psychological well-being.

Cognitive benefits: Sports with their system and rules are a learning tool for self-regulation and decision-making. Also, children can learn how to communicate as they get to interact with other children.

26. Vitamin D is responsible for increasing intestinal absorption of calcium, magnesium and phosphate. It not only maintains bone health but also helps parathormone function normally. Lack of adequate vitamin D in food results in getting sick or infected often, fatigue and tiredness, bone and back pain, depression, impaired wound healing, bone loss, hair loss and muscle pain. Sources of vitamin D in food include fatty fish like tuna, mackerel and salmon. Cheese and egg yolks are also good sources. Human skin can make large amounts of vitamin D when skin is exposed to the sun when it is high in the sky. Vitamin K is a group of fat-soluble vitamins that play a role in blood clotting, bone metabolism and regulating blood calcium levels. The body needs vitamin K to produce prothrombin, a protein and a vital factor in blood clotting and bone metabolism. Vitamin K deficiency can result in easy bruising, bleeding, tooth decay and weakened bones. Food sources for vitamin K are green leafy vegetables, spring onions, cabbage, broccoli, cucumbers, meat, cheese and eggs.

27. Endurance is the capacity to sustain an activity at a desired rate and speed. It is the staying power of an athlete. A few determinants of endurance are: aerobic capacity, lactic acid tolerance, economy of movement and muscle composition.

Aerobic Capacity: Aerobic capacity refers to the maximum amount of oxygen consumed by the body during intense exercises in a given time frame. It depends on many sub-factors which include oxygen circulation, oxygen uptake and energy reserve.

Muscle composition: Muscle composition depends on the ratio of fast twitch muscle to slow twitch muscle. More the slow twitch fibre, more will be the endurance.

28. Positive self-esteem helps sports performance. A negative self-image arises when a person feels that their sports performance does not measure up to what society, family, friends and the media expect. Exercises neutralise these feelings and help generate positive self-esteem by changing mental and physical attributes. Also, being physically fit and active enhances sports performance automatically. An athlete who has self-belief in their capacity to do well tends to do better than those who doubt their own skills and capacity. The best performance comes from people who have unshakable belief in their capacity and skills. Positive self-talk seeks to bring the positive out of the negative to help you do better, go further or just keep moving forward. The practice of positive self-talk is often the process that allows you to find optimism, hope and joy in any situation.

29. Regular exercise leads to most obvious and more permanent changes on our musculoskeletal system. Bones, joints and muscles benefit greatly from regular physical activity.

Effects of exercise on the muscular system:

(a) **Hypertrophy of muscles:** This means increase in size and bulk of the muscle. Especially true for skeletal muscles, the shape and form of the human body is enhanced by regular exercise because of this change.

(b) **Increased capillary density:** This change in the muscle makes them look redder and also allows for more blood flow to meet the increased demand.

(c) **Better muscle tone:** Regular exercise leads to better muscle tone and firmness. Besides improving muscle function, it also causes the body to look good.

(d) **Better reaction time:** Muscles that undergo regular exercise react faster to stimuli. This makes the movements more efficient and attractive.

(e) **Better posture:** Increased strength and flexibility is a direct result of regular exercise. Better posture while sitting, standing or walking comes from strong muscles. Also, better posture leads to more confidence during interactions.

(f) **Controls fat deposit:** Regular exercise prevents excess fat deposits while stored fat is used to generate energy.

30. Rounded shoulders are an unnatural posture characterised by an exaggerated curvature of the upper back, often a forward positioning of the head where the shoulder girdle is protracted with increased thoracic kyphosis. Over time, this postural adaptation causes the muscles and fascia to get shorter in the front of the chest. Besides being hereditary, it is made worse by sitting on improperly designed furniture, wearing very tight clothes, poor sleeping postures, etc. Rounded shoulders are also caused by poor posture habits, muscle imbalances and focusing on certain exercises, such as too much focus on chest strength while neglecting the upper back. Lack of adequate and proper exercise also leads to rounded shoulders.

Remedies include shoulder rotation exercises, pull-ups on horizontal bars and yogasanas such as Chakrasana and Dhanurasana. Exercises like bench press are useful. Active downwards shrugging of the shoulders, called Brugger's exercises, also helps.

SECTION–D

31. **(a)** Staircase method

(b) To determine the number of matches for a single Round Robin Tournament, we use the formula N x (N-1)/2.

(c) Points table.

(d) 21

(For Visually Impaired)

Depending on the level of sports, participation, number of events and available resources, different committees need to be set up. These committees are set up before, during and after the tournament.

(a) Organising Committee: Before any sports event is organised, an organising committee is set up. This committee is headed by a chairman who has the overall responsibility of organising, running and wrapping up the event. All sub-committees report to the organising committee. All aspects of the event are routed through this committee.

(b) Finance Committee: All events need a budget for smooth conduct. The finance committee takes care of the budget, plans spending and prevents wasteful expenditure. Many finance committees are also tasked with arranging funds and sponsorships.

(c) Publicity Committee: The dates, venues and timing of the events need to be brought to the notice of the people. Also, prominent participants need to be highlighted to attract a large audience. This can be done through media advertising, press meets and publicity through newspapers, hoardings, etc.

(d) Technical Committee: This committee is tasked with the responsibility to ensure that the equipment, playing area, courts and grounds meet the required specifications.

32. (a) The First Law of Motion is used to initiate motion of stationary ball as Newton's First Law of Motion states that a body will remain at rest or in motion unless some force is applied.

(b) Friction

(c) The quality of bounce of an object such as a ball can be explained by the Third Law of Motion, also known as Newton's Law of Action and Reaction. This law states that for every action, there is an equal and opposite reaction.

(d) Acceleration

OR

Newton's second law, the force with which ball is moving is equal to its mass multiplied by its acceleration. When we catch a ball, momentum of the ball is transferred from ball to hand.

(For Visually Impaired)

Newton's third states that to every action, there is always an equal and opposite reaction. While swimming, the swimmer pushes the water backwards using his hands and thus attains a forward push due to an equal and opposite reaction from the water.

Newton's second law of motion indicates that the acceleration of a football is inversely proportional to its mass. It means that when you throw a ball with the same force but a heavier mass, the acceleration will be less.

33. (a) C

(b) Eunice Kennedy Shriver

(c) DEAFLYMPICS

(d) TWENTY THREE COUNTRIES

OR

Spirit in Motion

(For Visually Impaired)

Four strategies to make physical activities accessible to CWSN are:

(a) Health check-ups: Regular and detailed medical assessment of all special needs children is a must. Specialised assessment of the child helps us focus on the disability and recommend appropriate activity for them.

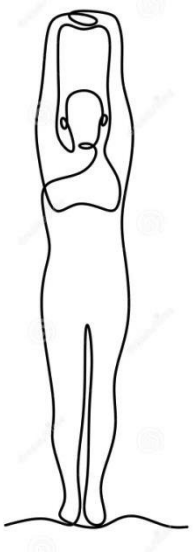
(b) Individual needs: Assessment of each child needs to be done so that a customised program is prepared for them. Teachers should be sensitive to each child's interest, limitations and aptitude. The activity should be designed keeping all this in mind.

(c) Specialised equipment: Size, weight, shape and colour of the playing equipment also has to be customised. Visually handicapped children need bright-coloured equipment while those with weak muscles need light equipment.

(d) Playing environment: Playing areas need to be modified. The size of the playfield may need to be decreased or more lights, louder music and provision of handrails, etc., may be required.

SECTION–E

34. High blood pressure is a common condition. Some yogic asanas recommended for controlling high blood pressure include Tadasana, Katichakrasana, Uttanpadasana, Ardha Halasana, Sarala Matsyasana, Gomukhasana and Vakrasana.



Tadasana or Mountain Pose: This asana is like the base or the mother of all asanas from which all other asanas emerge. It is best to take your meals at least four to six hours before you practise this asana. Also, make sure that your bowels are cleared.

Procedure:

- Stand erect and place your legs slightly apart, with your hands hanging alongside your body.
- You must make your thigh muscles firm. Lift your kneecaps while ensuring you do not harden the lower part of your belly.
- Strengthen the inner arches of your inner ankles as you lift them.
- Now, imagine a stream of white light (energy) passing through your ankles, up to your inner thighs, groin, spine, neck, all the way up to your head. Gently turn your upper thighs inward. Elongate the tailbone such that it is towards the floor. Lift the pubis such that it is closer to the navel.
- Look slightly upward.
- Now breathe in and stretch your shoulders, arms and chest upwards. Raise your heels, making sure your body weight is on your toes.
- Feel the stretch in your body right from your feet to your head. Hold the pose for a few seconds. Then exhale and release.

Contraindications:

- This asana should be avoided by people suffering from headaches.
- It should be avoided by patients of insomnia.
- People suffering from low blood pressure should not attempt it.

35. Rikli and Jones senior fitness test is a simple, easy-to-use battery of test items that assess the functional fitness of older adults. The test describes easy to understand and effective tests to measure aerobic fitness, strength and flexibility using minimal and inexpensive equipment. It includes the following six tests:

(a) Chair Stand Test for Lower Body Strength
(b) Arm Curl Test for Upper Body Strength
(c) Chair Sit and Reach Test for Lower Body Flexibility
(d) Back Scratch Test for Upper Body Flexibility
(e) 8-Foot Up and Go Test for Agility
(f) Six-minute Walk Test for Aerobic Endurance

Chair Stand Test: This test is performed to measure lower body strength, especially of the legs. These muscles are used to climb stairs, sit in cars and get out of them, as well as sit on chairs, etc. The test is done on a chair at least 44 cm high and a stopwatch is also used.

To perform this test, the subject sits in the middle of the chair which is kept against a wall. Feet are kept shoulder-width apart with arms crossed at wrist and kept on the chest. The test starts with standing up and then sitting down completely. The number of stands in a 30-second period is the final score.

Arm Curl Test: Designed to test the strength of upper body muscles, especially of the senior people, this is a test of functional fitness of the subject.

To perform this test, we need a five-pound weight for females and an eight-pound weight for males. The procedure to be followed in this test is to find out the maximum number of arm curls that one can complete in 30 seconds. This is done using the dominant arm. With the participant sitting in the chair, the weight is held in the hand with the palm upwards towards the body. The arm needs to be lifted upwards at the elbow completely and brought down to the original position. The number of movements in 30 seconds is the count.

36. Strength is simply defined as the quality or state of being physically strong. Strength is also defined as the state of being strong having bodily or muscular power and vigour. Methods of improving strength include Isometric, Isotonic, Isokinetic exercises.

Isometric Exercises: All exercises where the length of muscle does not change are classified as isometric exercises. These exercises help increase strength of the muscles. During isometric exercises, the limbs do not move while we can see movement in the muscle mass. These exercises are important to gain strength but do not contribute to flexibility. Bodybuilders, wrestlers, weightlifters and gymnasts benefit most from them. These exercises are also used extensively in rehabilitating injured sportspersons.

Isotonic Exercises: Exercises where the strength of the muscle does not change but the length does are isotonic exercises. Any exercise that causes movements at joints is classified as an isotonic exercise. Need for increased elasticity of the muscle or elastic strength requires the athlete to do isotonic exercises. Stationary jumps, squats, calisthenics and weight training are good examples of isotonic exercises.

37. Friction is the force that resists the sliding or rolling of one solid object over another. Friction is also defined as “the force resisting the relative motion of solid surfaces, fluid layers and material elements sliding against each other”. Friction is a vital force in sports. It allows us to grip sports equipment, run and even perform well. While friction is an advantage in many cases, in some cases it is a handicap also. Use of spiked footwear in sports like racing and use of studs in football shoes and even cricket shoes ensures that friction offers an advantage as stabiliser of the atheletes. Use of dusting powders by gymnasts and by carrom players is an effort to use friction to their advantage. Sports equipment like the badminton handle have rough grips allowing the players to get a stronger hold. During cycling, friction from the track offers protection from skidding off. Friction, however, is disadvantageous in a few sports. During cycling at high speed, tyres heat up because of friction offered by the road and may burst. Similarly, racing cars experience tyre bursts because of heat generated by friction from the racing track. Skiers need to decrease friction as it tends to slow them down. Weightlifters need more friction between their feet and the floor so that they can avoid slipping while lifting heavy weights. Thus, friction can be advantageous in some sports while a deterrent in some others.