BOARD EXAMINATION PAPER 2020 (Series: HMJ)

(SET–4)

TIME: 3 hrs M.M: 70

General Instructions:

1. The question paper consists of 34 questions.
2. All questions are compulsory.
3. Questions 1-20 carry 1 mark and are multiple choice questions.
4. Questions 21-30 carry 3 marks and should not exceed 80-100 words each.
5. Questions 31-34 carry 5 marks and should not exceed 150-200 words.

SECTION A

1. The competitions organised outside the boundary wall of an institution are called: 1

(a) Intramural (b) Combination

(c) Extramural (d) All of the above

Ans. (c)

2. League tournament is also known as: 1

(a) Knockout (b) Combination

(c) Round Robin (d) Consolation

Ans. (c)

3. Match List I with List II: 1

List I	*List II*
1. Energy-yielding	(i) Carbohydrate
2. Body-building	(ii) Vitamin
3. Protective	(iii) Cellulose
4. Fibre	(iv) Protein

	1	**2**	**3**	**4**
(*a*)	i	iv	ii	iii
(*b*)	iv	i	ii	iii
(*c*)	iv	i	iii	ii
(*d*)	i	ii	iii	iv

Ans. (*a*)

4. The main sources of protein are: 1

(a) Fish, meat and eggs (b) Green vegetables

(c) Wheat and rice (d) Sunlight and water

Ans. (a)

5. Which one of the following asanas can be performed immediately after the meals? 1

(a) Chakrasana (b) Dhanurasana

(c) Sukhasana (d) Vajrasana

Ans. (d)

6. Which one of the following asanas is ***not*** a remedial asana for treating obesity? 1

(a) Vajrasana (b) Tadasana
(c) Trikonasana (d) Ardha-Matsyendrasana

Ans. (b)

7. Cognitive disability is a broad term that includes: 1
(a) Intellectual disability (b) Locomotor disability
(c) Speech impairment (d) All of the above

Ans. (a)

OR

SPD means:
(a) Special Police Department (b) Sensory Processing Disorder
(c) Special Processing Disorder (d) Sensory Protecting Disorder

Ans. (b)

8. ADHD means: 1
(a) Automatic Deficit Hyperactivity Disorder
(b) Attention Deficit Hyperactivity Disorder
(c) Attention Disorder Hyperactivity
(d) None of the above

Ans. (b)

9. Abnormal curve of the spine at the front is called: 1
(a) Scoliosis (b) Kyphosis
(c) Lordosis (d) Psoriasis

Ans. (c)

10. In bow-legs, there is/are: 1
(a) wide gap between the knees (b) plain foot sole
(c) knees colliding with each other (d) both legs curving inwards

Ans. (a)

11. The weight of medicine balls for girls and boys in a Barrow test is respectively: 1
(a) 1 and 3 pounds (b) 3 and 4 pounds
(c) 1 and 2 kg (d) 3 and 4 kg

Ans. (a)

12. Rockport test is used to measure: 1
(a) Endurance (b) Strength
(c) Speed (d) Agility

Ans. (a)

OR

Sit and Reach test is conducted to measure:
(a) Flexibility (b) Motor fitness
(c) Endurance (d) Speed

Ans. (a)

13. Sprain is an injury of the: 1

(a) Muscle (b) Ligament
(c) Joint (d) Bone

Ans. (b)

OR

Laceration is a _____.

(a) Irregular cut on skin (b) Tissue injury
(c) Swelling (d) Ligament injury

Ans. (a)

14. The capacity of muscles to absorb and consume oxygen is called: 1

(a) Oxygen intake (b) Oxygen uptake
(c) Oxygen gain (d) Oxygen transfer

Ans. (b)

15. Acceleration of an object will increase as the net force increases, depending on its: 1

(a) Density (b) Mass
(c) Shape (d) Volume

Ans. (b)

16. Friction always acts _____ the motion of an object. 1

(a) in the same direction as (b) perpendicular to
(c) opposite to (d) at a 45 degree angle to

Ans. (c)

17. Endomorphic, Mesomorphic and Ectomorphic are types of: 1

(a) Bones (b) Joints
(c) Personalities (d) Muscles

Ans. (c)

OR

Traits like insight, imagination, receptivity towards new ideas are involved with:

(a) Openness (b) Conscientiousness
(c) Agreeableness (d) Extroversion

Ans. (d)

18. The source of intrinsic motivation is: 1

(a) Teachers (b) Family
(c) Self (d) Siblings

Ans. (c)

19. While exercising on a multigym, the type of muscular contraction that occurs is: 1

(a) Isotonic (b) Isometric
(c) Isokinetic (d) Eccentric

Ans. (b)

20. Resistance ability against fatigue is called: 1

(a) Strength (b) Speed
(c) Endurance (d) Agility

Ans. (c)

SECTION B

21. List down the nutritive components of diet and explain any one. 3

Ans. Nutritive components of diet supply us calories and energy. These are proteins, fats, carbohydrates, vitamins and minerals. Proteins are among the most important as they are the building blocks of human body. These are found in muscles, skin, bone and hair. Proteins provide 4 kilocalories per gram. Dietary sources of proteins are meat, eggs, fish and dairy products as well as pulses. Lack of protein in diet causes poor health, poor muscle structure, and poor skin and hair. Also, most hormones are protein-based.

OR

What do you understand by 'Non-nutritive Components'? Elucidate any four non-nutritive components of diet.

Ans. Non-nutritive components of diet do not provide calories but are important to human health. These include water, fibre and many chemicals in plants and fruits called phytonutrients. Water is the main component of human body. It is responsible for the chemical reactions in the body, for removing the waste produced and for temperature regulation. Fibre cleans the intestinal system and maintains blood sugar and cholesterol levels. Phytonutrients nourish the human cells and help achieve peak performance.

22. Describe any two specific sports programmes. 3

Ans. While many specific sports programmes currently run in India, among the most important are sports day as well as health runs. Sports day in schools aims at mass involvement of students in sports, helping develop a spirit of competition and brotherhood. Leadership skills are shown and talent is discovered at this event. Another programme is the health run which focuses on specific health challenges such as heart diseases or cancers. These events increase awareness not only about the diseases and their possible causes but also about the role of regular physical activity in moderating diseases.

23. Explain the procedure and benefits of any one asana used to cure diabetes. 3

Ans. Diabetes is one of the largest silent killers in the world. Many yogasanas help and bhujangasana is one of them. It is called the cobra pose and is performed lying down on the stomach with the forehead touching the floor. Hands are placed under the shoulders and elbows close to the body. Then the head is gently lifted up to achieve a back bend. The benefits include stretching muscles in chest and abdomen as well as decreasing lower back stiffness. Also, arms and shoulders are strengthened and flexibility is enhanced. It also improves the mood and increases height.

24. What do you understand by the term disability? Explain any four disability etiquettes. 3

Ans. Disability is a condition, physical or mental, that prevents full function in humans. Handling people with disability needs certain methods called disability etiquettes. Disabled people need to be treated with care and respect. It makes them feel welcomed and a part of regular society. People that have hearing disability should not be shouted at. While talking to them, loud music in the background should be avoided and written notes are desirable. Similarly, people with any visual handicap need to be given clear directions, especially about obstructions in their path. Such people need to be guided and not pushed or pulled. If there is a learning disability, speak slowly and clearly using small words and sentences. For those with speech disability, one needs to speak slowly letting them patiently complete what they want to say and encouraging them to express themselves.

25. Define motor development and list down the factors affecting it. 3

Ans. Motor development is learning how to use the muscles to move the body. Thus, this is development of movement and occurs from simple to complex.

Factors affecting motor development include genetic, environmental, nutrition, exercise, pollution, deformities and deficits as well as body weight, etc. Besides, opportunities for sports and a proper environment for growth offered by the family and society are important for the growing child.

26. Explain the purpose and procedure of any two batteries for the Motor Fitness Test. 3

Ans. Motor Fitness Test measures an athlete's ability to perform at sports and other physical activities. It comprises a panel of tests including 50-metre standing start, 600-metre run or walk, sit and reach test, partial curl-up test, push-ups, standing broad jump and agility 4 × 10 m shuttle run. To perform the 600-metre walk/run, one needs a track with marking done. The objective is to cover the 600 metres in the shortest time. To perform the sit and reach test for flexibility, the person sits with legs straight and reaches out forward to their maximum. Then we measure the distance stretched with a scale on a box or the ground.

OR

How is cardiovascular fitness measured with the help of 'Harvard Step Test'? Explain.

Ans. Harvard Step Test, a measure of cardiovascular fitness, is performed on a step usually 20 inches high. The Step Test is designed to measure a person's aerobic fitness. Participants step up and down, on and off an aerobics-type step at the rate of 30 steps per minute for a period of five minutes or to increase the heart rate. Then the athlete sits down and the total number of heart beats per minute is counted.

27. Define speed and explain any one method to develop it. 3

Ans. Speed is the time taken by an athlete to cover a specified distance. While there are many methods to develop speed, a popular method is called the acceleration run. Here, the running speed is gradually increased from jogging to striding to finally sprinting at the maximum possible pace. These are generally done over 50-metre stretches. This is a good form of anaerobic training and involves doing 6 to 12 cycles during the practice session. The method helps reduce the risk of muscle injury while practising.

28. Discuss in detail about any two movements of the body. 3

Ans. Human beings can perform many movements. These occur at the joints and include rotation, circumduction, gliding and angular movements.

Circumduction occurs when the bones move at their head inside the joint cavity. Hip and shoulder joints have these movements and it is a combination of all movements but in a circular fashion. The other common movement is angular movement like flexion, extension, adduction and abduction. In flexion, the angle between two bones decreases at the joints like when we bend our elbow, while in extension, the bones go farther away at the joint, like when we open the elbow. Adduction is when the body part comes towards the midline of the body like when we bring down a lifted arm, while in abduction, the body parts move away from the body line like when we lift up the arm over the shoulder.

29. What do you understand by the term Exercise Adherence? 3

Ans. Exercise adherence is the ability to maintain an exercise programme for an extended time. Exercise adherence helps maintain a healthy body and a healthy mind. It encourages healthier ageing while boosting self-confidence and elevates mood. Better sleep follows as does reduction in stress and increased energy. In the long run, adherence to exercise saves money as well by preventing sickness and hospital visits.

OR

What are the types of aggression?

Ans. Aggression in sports is the behaviour that is intended to cause hostility or even harm to an opponent. While sports aggression has many positive effects, it can also have negative effects. Aggression in sports is divided into hostile aggression or instrumental aggression. Hostile aggression may involve hitting an opponent or damaging the sports property to cause harm and destruction. Instrument aggression, on the other hand, is generally to achieve a goal without exhibiting anger or desire to harm. For example, when a hockey player uses his stick to snatch the ball from his opponent, his intent is to get the ball and not hurt the opponents. Similarly, sledging in cricket is an aggressive behaviour but is not intended to cause physical harm to the opponents.

30. Differentiate between Isometric and Isotonic exercises. 3

Ans. Isometric and isotonic exercises are methods of improving muscle strength. In isometric exercises, the length of the muscle does not change but the tone changes while in isotonic exercises, the length of the muscle alters but not its tone. Any exercise that causes movements at joints is isotonic. Isometric exercises focus on increasing strength but may not contribute to flexibility. These are best suited to bodybuilders, wrestlers, weightlifters and gymnasts. Isotonic exercises, on the other hand, enhance flexibility and are, thus, best suited to jumpers, calisthenics and even weightlifters.

SECTION C

31. Discuss in detail the different types of coordinative abilities. 5

Ans. Coordinative ability involves coordination between the nervous system and the musculoskeletal system. Coordinative abilities are important for sportspersons to develop high levels of skills. The various types of coordinative abilities are:

(i) Differential ability which helps determine the position of various parts of the body in space.

(ii) Orientation ability which helps adjust to movement.

(iii) Coupling ability which helps coordinate hand and foot movement.

(iv) Reaction ability which helps respond to stimuli, for example, the starter's gun or an oncoming cricket ball.

(v) Balance ability which helps maintain balance during sporting activity.

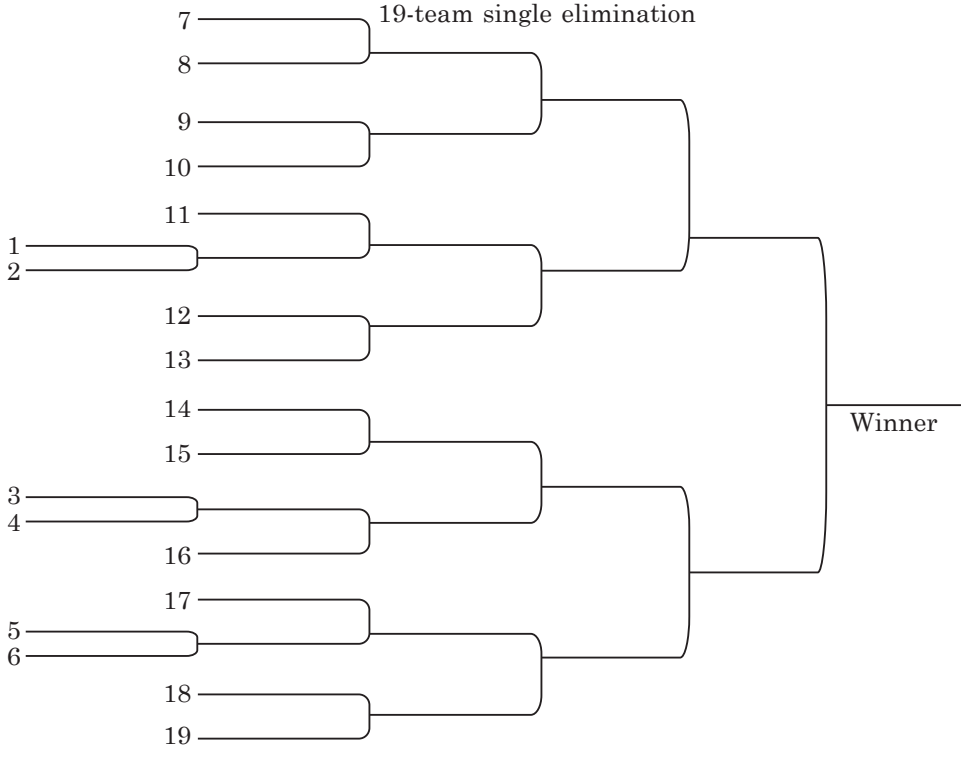
(vi) Rhythm ability which helps develop rhythm in sports such as gymnastics.

(vii) Adaptation ability which helps adapt to the changing sports situations.

OR

What are knockout tournaments? Draw a knockout fixture for 19 teams, mentioning all the steps involved.

Ans. Knockout tournaments are also known as single elimination tournaments. Here, the loser of each match is immediately eliminated from winning the championship.



Teams in upper half, by the formula: N+1/2

Teams in lower half, by the formula: N–1/2

Byes in upper half, by the formula: N–1/2

Byes in lower half, by the formula: N+1/2

Teams in each quarter are = Total number of teams divided by 4.

{19/4}

We have 4 as our quotient so

1st Q = 4+1

2nd Q = 4+1

3rd Q = 4+1

4th Q = 4

Byes are always distributed from the last to the first.

As in the case of upper half, bye will be given as follows:

Last–first–second-last–second and so on…

Then same for second half.

Draw fixture of 19 teams.

Total teams = 19

Teams in upper half = 10

Teams in lower half = 9

Byes = 32 – 19 = 13 byes

Byes in upper half = 6

Byes in lower half = 7

Rounds = 2 × 2 × 2 × 2 × 2 = 5 rounds.

Teams in each quarter 19 ÷ 4 R = 3

1^{st} Q = 4 + 1 = 5

2^{nd} Q = 4 + 1 = 5

3^{rd} Q = 4 + 1 = 5

4^{th} Q = 4

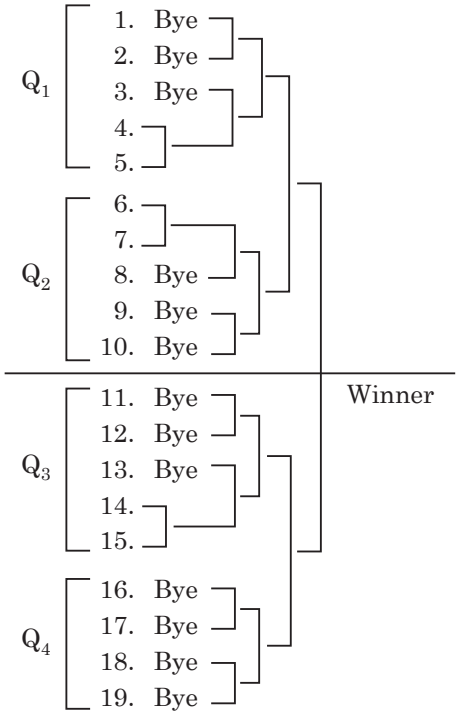
No. of byes in each quarter

Q_1 = 3

Q_2 = 3

Q_3 = 3

Q_4 = 4



32. Write short notes on OCD and ODD. 5

Ans. OCD, also known as Obsessive Compulsive Disorder, is a mental disorder in which people have repeated thoughts and feelings which cause them to do things over and over again. People follow routines repeatedly, called rituals, and this occurs at all ages. It can involve things like obsession with thoughts, fear of germs or of getting dirty, the need for placing things in an exact order, or the idea that colours are good or bad. Also, sufferers of OCD tend to wash hands repeatedly, have fear of touching things like doorknobs, avoid public toilets and hoard things.

ODD stands for Oppositional Defiant Disorder. Here, the sufferer's behaviour is characterised by anger, irritation, argumentative nature and defiance. It occurs due to a combination of biological and social factors and is common with ADHD. Sufferers lose temper easily and repeatedly throw temper tantrums. Arguments occur with elders and people in position of authority. Treatment is usually based on counselling.

33. What are the effects of exercising on the cardio-respiratory system? Explain. 5

Ans. Exercise is good for all systems of the body including the cardio-respiratory system. The effects of exercising on the cardio-respiratory system are:

1. Increased respiratory rate. This helps meet the increased energy and oxygen requirements.
2. Deeper breaths allowing more oxygen intake.
3. Increased vital capacity.
4. Increased size of chest and lungs and stronger chest muscles.
5. Increased air volume.
6. Increased alveolar use so that lung is used fully.
7. Delayed second wind leading to delayed fatigue.
8. Increased endurance and faster post-exercise recovery.

34. What do you understand by the female athlete triad? Explain the symptoms and causes of any one of them. 5

Ans. Female athlete triad is a combination of three symptoms, namely weak bones (osteoporosis), amenorrhoea and eating disorders. The condition starts gradually and may have one or all three components. It starts with gradual weight loss, irregular menstruation and increased fatigue. The most common component of this triad is eating disorders. These can be anorexia nervosa or bulimia. In anorexia, abnormally low body weight results from severe conscious restriction of food intake. Some also vomit after eating and use laxatives and enemas to get rid of whatever they have eaten. This can be life threatening. Bulimia, on the other hand, starts with overeating and then vomiting after eating. Cycles of overeating are followed by cycles of purging. Here, most people have normal weight but severe dehydration, poor health and changing body weight.

OR

Explain Newton's laws of motion and their application in sports.

Ans. Newton elucidated three laws of motion. These are law of inertia, law of acceleration and law of reaction. Applied to sports, the law of inertia is seen when most sportspersons stand still before taking off, say from the diving board or the runners block. Similarly, cyclists stand still before they start pedalling and keep moving till they stop pedalling and apply brakes. The law of acceleration is best seen when swimmers use their feet against the pool wall to push themselves forward at a fast pace. Shot-putters and discus-throwers also use this law to throw far. The law of reaction is seen in sports when a swimmer pushes back the water with hands and feet to move forward or a cricketer opposes the force of the incoming ball to throw it off the bat in the opposite direction.