

MODEL QUESTION PAPER SOLUTION - 2 (2020-21)

Class: XII PHYSICAL EDUCATION (THEORY)

1. (B) Muscular body structure OR (B) Transport committee
 2. (A) Thiamine
 3. (C) Both (A) and (B) **OR** (B) Fartlek method
 4. (A) $\frac{N+1}{2}$
 5. (B) Cautions & physical conditions
 6. (A) Disturbance which further affects normal functioning
 7. (B) Paralympics **OR** (C) Law of action and reaction
 8. (C) Acceleration
 9. (B) Contusion
 10. (A) Asthma
 11. (A) Both (A) and (R) are true and (R) is the correct explanation of (A).
 12. (A) 4 3 2 1
 13. (A) Formula for calculating, number of matches in single league.
(B) Formula for calculating, number of teams in knock-out form upper half.
(C) Formula for calculating, number of teams in knock-out form lower half.
(D) Formula for calculating, number of byes in knock-out form upper half.
 14. (A) Arm curl biceps test (B) Back scratch test
(C) Chair stand test (D) 8 feet up and go test
 15. It is an ability to change movement and direction in the shortest time without getting unbalanced. Following are the types of Coordinative abilities:
(A) Orientation Ability (B) Coupling Ability
(C) Reaction Ability (i) Simple Reaction Ability (ii) Complex Reaction Ability
(D) Balance Ability (E) Rhythmic Ability
 16. **Intrinsic Motivation** : Intrinsic motivation is when you engage yourself in a behaviour because you find it rewarding. You are performing an activity for its own sake rather than from the desire for some external reward. The behaviour itself is its own reward.
Intrinsic motivation is more about personal growth, a sense of duty, and the recognition of purpose, while extrinsic motivation is more about financial incentives, status, and public recognition.
Extrinsic Motivation : Extrinsic motivation is when we are motivated to perform a behaviour or engage ourselves in an activity because we want to earn a reward or avoid punishment.
You will engage in behaviour not because you enjoy it or because you find it satisfying, but because you expect to get something in return or avoid something unpleasant.
- OR**
- Continuous Method** : In this type of method, the exercise is done for a long duration without taking rest. We do the exercise for a long duration. So, the intensity of work is low. The heart rate during the exercise for a sportsman should be between 140-160 beats per minutes. For the fast continuous method the heart rate of an athlete should be increased by 175-180 min. Its duration of exercise should be more than 30 minutes. E.g. running, walking, cycling, crosscountry race, etc.
- Interval Method** : This method is very effective for developing endurance for track runners. Intervals are given to the athlete in between the repetition for recovery. The recovery period for the athlete varies from person to person. The heart should go up to 180 beat/min. and when the heart rate comes down to 120-130 beats/min again, the repetition/work starts. The training load should be given again after checking the heart rate of the athlete. E.g. Middle distance race, football, hockey, etc.
17. a. (A) Knock knees b. (D) All of these c. (D) All of these
 18. a. (C) Baddha Konasana b. (D) All of these
c. (D) All of these

19. Following are the food myths:
1. Don't take heavy breakfast.
 2. Don't eat frequently.
 3. Sweets are not good for health.
 4. Don't take milk just after eating fish.
 5. Starve yourself to lose weight.
 6. Exercise make you feel better.
 7. Rice and potato increase carbohydrates.
 8. Egg increase cholesterol.
 9. Don't take in greasy meals.

OR

Macro Nutrients: Nutrients which consist of major part of diet are called macro nutrients. The main work of these nutrients is to provide energy, growth and repairing of wear tear of tissues. Carbohydrates, proteins and fats are to be known as macro nutrients.

Micro Nutrients : This group comprises of minerals and vitamins. They are also called micro nutrients because they are required in small amount. Micro nutrients are involved in synthesis of hormones, enzymes and other substances.

20. The effects of exercise on muscular system:
1. Increase in shape of Muscles.
 2. Formation of new capillaries.
 3. Muscles remain in toned condition
 4. Protection from diseases.
 5. The blood does not have to resist to pass through the arteries.
 6. Correct body posture.
 7. Increase in activeness of fibers.
 8. Enhances body shape.
 9. Delay in fatigue.
 10. Efficiency in muscle movements.
 11. Reduction in extra fat.
21. Following are the test items for general motor fitness
1. 50 m Standing Start
 2. 600m Walk and Run
 3. Sit and Reach
 4. Partial Curl-up
 5. The Push-Up (for Boys)
 6. Standing Long Jump (Board Jump)

OR

The importance of bio-mechanics in sports:

1. Improves performance in sports.
2. Improvement in technique
3. Development of improved sports equipment.
4. Improvement in training techniques.
5. Prevents sports injuries
6. Helps in understanding human body.
7. Knowledge of safety principles.

8. Helps in research work.
 9. Creates confidence in player.
 10. Helps in maintaining healthy body.
 11. Increases the popularity of sports.
22. Following are the factors determining speed:
1. **Mobility of the nervous system:** Contraction and relaxation of muscles is controlled by the nervous system. Frequency of contraction and relaxation is determined by excitability of nerve impulse.
 2. **Muscle composition :** The percentage of WBC and RBC fiber is genetically determined and cannot be changed through training.
 3. **Explosive strength :** It depends on muscle composition, muscle size, muscle coordination and metabolic process.
23. 1. **Hostile Aggression :** Hostile aggression is a type of aggression that is committed in response to a perceived threat or insult. It is unplanned, reactionary, impulsive, and fueled by intense emotion as opposed to desire to achieve a goal.
2. **Instrumental Aggression :** Instrumental aggression refers to an aggressive behavior intended to achieve a goal. It is made against another person in whom the aggression is used as a means of securing some reward or to achieve an external goal such as a victory. When one receives a reward because of deviant aggressive act, he/she will be conditioned towards committing that act again when motivated to obtain that previously possessed rewards.
3. **Assertive Behaviour :** The aim of assertive behaviour is to communicate productively with another person, achieving what is often described as a win/win outcome. This involves standing up for your own rights without violating those of the other person. To do this, you need to express your needs, wants, opinions, beliefs and feelings in a direct, honest and adult way. The aim of aggressive behaviour is to win, if necessary, at the expense of other.
24. Following the Non-nutritive components of Diets:
1. **Water :** It is an essential nutrient. Our body consists of 60-70% of water. It is impossible to think of life without water. Water consists 90% of blood. Each person shall drink 8-10 glass of water daily. The essential elements are sent through water to all cells of body. It is significant in excretion of water products. It helps in digestion. It keeps tissues soft and flexible. It provides minerals to the body. It acts as lubricant, keep skin moist and protects body from shock.
 2. **Fiber :** Its scientific name is non-starch polyaccharides (NSP). It is like one of complex carbohydrates. It is undigested part of food. It cannot be digested by human intestinal part. It increases appetite and smoothens function of intestines. It removed constipation.
Two Types of Fiber :
 3. **Flavour Compounds :** It addresses the taste of food, but does not contribute any nutritive value, like tea in milk or coffee powder in milk tastes its colour and taste. In same way, diabetic patient used sugar free in tea. It does not provide calorie. Sometimes colour compounds can be harmful. It varies taste in salty, sweet, etc.
 4. **Colour Compounds :** It makes attractive to see by the wide reflection of colours made possible through pigments. Natural pigments are found in fruits and vegetables such as red, orange, yellow, blue, green. Sometimes due to commercial benefits, these fruits and vegetable are dipped through various chemicals which are harmful for body.
 5. **Plant Compounds :** There are some plants which contain non-nutritive element. Ingestion can be beneficial or harmful. There are many compounds that inhibit cancer.
 6. **Pesticides and Fertilizers :** Now a day, fruits and vegetables have a lot of mixture of pesticides and fertilizers. This case cause serious disease like cancer. That's why we was vegetables and fruits properly before eating. It is a big challenge in recent times.

25. Formula : $N - 1$

Total no. of matches = Total no of teams - 1 = $21 - 1 = 20$ matches

Total no. of byes = next power of 2 - total no. of team = $32 - 21 = 11$ byes

Bye Division

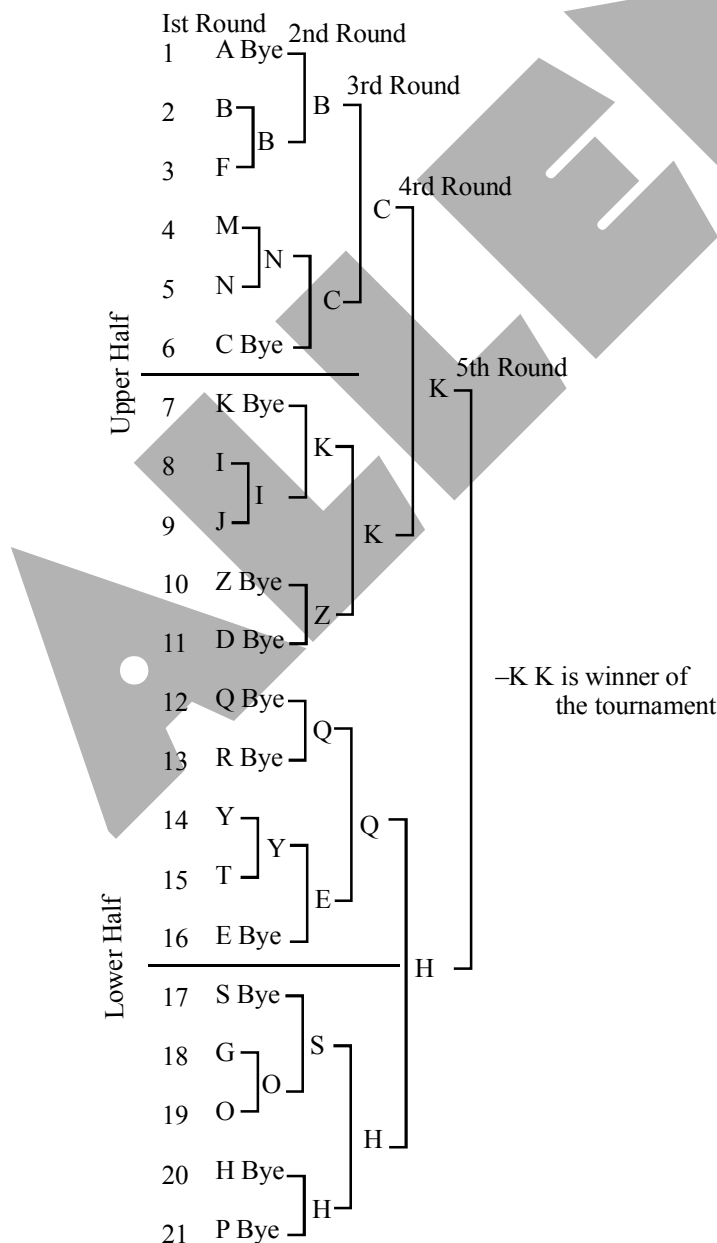
$$\text{Total no. of byes in upper half} = \frac{\text{Total no. of byes} - 1}{2} = \frac{11 - 1}{2} = 5 \text{ bye.}$$

$$\text{Total no. of byes in lower half} = \frac{\text{Total no. of byes} + 1}{2} = \frac{11 + 1}{2} = 6 \text{ bye.}$$

Team Division

$$\text{No. of team in upper half} = \frac{\text{Total no. of team} + 1}{2} = \frac{21 + 1}{2} = 11 \text{ teams}$$

$$\text{No. of team in lower half} = \frac{\text{Total no. of team} - 1}{2} = \frac{21 - 1}{2} = 10 \text{ teams}$$



26. Soft tissue injuries are as follows :

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|--------------|---------------|-------------|-------------------------|
| 1. Contusion | 2. Strain | 3. Sprain | 4. Abrasion Skin Injury |
| 5. Bruises | 6. Laceration | 7. Incision | |

OR

The types of Vitamins :

1. Fat Soluble Vitamin : Vitamins which get dissolved in fat are called fat soluble vitamins

Those are :

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|---------------|----------------|-----------------|----------------|
| (i) Vitamin A | (ii) Vitamin D | (iii) Vitamin E | (iv) Vitamin K |
|---------------|----------------|-----------------|----------------|

Vitamins	Sources	Functions
A	Milk, butter, cheese, egg, cod liver oil, carrots	Prevents night-blindness, effective for eye sight.
D	Butter, meat, bread, sunlight, fish liver oil	Makes bones and teeth strong and prevents rickets.
E	Butter, meat, bread	Prevents destruction of red blood cells, protects cell membranes
K	Green vegetable, cereals, fruits and meat	Promotes blood clotting deficiency, excessive bleeding from wounds.

2. Water Soluble Vitamin : Vitamins which dissolved in water are called water soluble vitamins. These are:

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|-----------------------|----------------|
| (i) Vitamin B complex | (ii) Vitamin C |
|-----------------------|----------------|

Vitamins	Sources	Functions
B, B1, B3	Peanuts, Fish, Eggs	Prevents nervousness and Beri-Beri
B2, B6, B12	Milk, Cheese, Meat	Makes bones and teeth strong and prevents rickets
C	Amla, Citrus Fruits, Tomatoes, Green, Leafy, Vegetable, Potatoes	Keep Bones, Ligaments and other supportive tissue, healthy teeth.

27. Following are the pitfalls of dieting.

- Deficiencies of Minerals :** Due to dieting, there may be deficiency of minerals which disorder in thyroid gland cause goiter. Goiter is swelling of neck which hampers imbalance in the respiratory system.
- Memory Loss :** Deficiency of minerals like potassium can cause memory loss. It can also cause disturbance in sleep, and lack concentration.
- Loss in Body Weight :** Dieting causes immediate loss of body weight and affects efficiency of body. The body appears to be imbalanced. It causes loss of blood and tiredness and affects sleep.
- Hair Loss :** The most common side effect of dieting is that you start to lose your hair. Lack of required amount of proteins and fats results in hair loss.
- Depression :** Dieting may also causes depression.

28. Following are the spine deformities:

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|-------------|--------------|-------------|
| 1. Lordosis | 2. Scoliosis | 3. Kyphosis |
|-------------|--------------|-------------|

Lordosis : it is a common defect in deformity & posture. Here lumber curve becomes more pronounced and front central position of pelvic region it tilted forward.

Corrective measures for lordosis

- Forward bending
- Alternate toe touching
- Slope walking



(iv) Perform Paschimottanasana, Halasana, Trikonasana

Scoliosis : It is a postural defect in which there may be one large curve extending through the whole length of spine.

Corrective measures for scoliosis

- (i) Perform Ardh Chakra Asana
- (ii) Chin-ups
- (iii) Swim by using breast stroke technique
- (iv) Perform Trikonasana
- (v) Perform Tadasana
- (vi) Sideward stretching (opposite to deformity)

Kyphosis : It is a deformity of the spine in which there is an increase or exaggeration of a backward curve. It is also known as hump back.

Corrective measures for kyphosis

- (i) Perform Dhanurasana regularly
- (ii) Bend your head backward in standing position
- (iii) Reverse sit-up
- (iv) Perform Bhujang Asana
- (v) Perform Ushtrasana

OR

The components of healthy balanced diet are :

- (i) Carbohydrates
- (ii) Fats
- (iii) Proteins
- (iv) Vitamins
- (v) Minerals
- (vi) Fibre (roughage)
- (vii) Water fluids

29. There are following advantages of knock out tournament:

1. These tournaments are economical and less expensive.
2. Tournaments run for shorter duration as number of matches are less.
3. The performance of each team/player has to be their best effort because of fear exit from tournament.
4. There is less requirement of officials due to shorter duration of tournament.

OR

Asanas practiced for preventing Asthama:

- | | | | |
|-----------------|----------------------|-------------------|----------------|
| 1. Sukhasana | 2. Chakrasana | 3. Gaumukhasana | 4. Parvatasana |
| 5. Bhujangasana | 6. Paschimottanasana | 7. Matsyendrasana | |

30. Physical Fitness Index = $\frac{(\text{Duration of exercise in seconds} \times 100)}{(5.5 \times \text{Pulse count between 1 - 1.5 minutes})}$

Duration of exercise for 12-years old boy = 3 minutes

Pulse count for 1 to 1.5 minutes = 54

$$\text{So, Physical Fitness Index} = \frac{3 \times 60 \times 100}{5.5 \times 54} = \frac{18000}{297} = 60.6$$

So, by looking at the norms of Harvard Step Test, the 12-year-old boy's physical condition is under the category of low average.