

INDIAN SCHOOL MUSCAT
FIRST PRELIMINARY EXAMINATION
SUBJECT : PHYSICAL EDUCATION

CLASS: XII
12.12.2017

Sub. Code:048

Time Allotted: 3 Hrs
Max. Marks: 70

General Instructions:

- 1) The question paper consists of 26 questions.*
- 2) All questions are compulsory.*
- 3) Answer to question 1-11 carrying 1 mark should be in approximately 20- 30 words.*
- 4) Answer to question 12-19 carrying 3 marks should be in approximately 80-100 words.*
- 5) Answer to question 20-26 carrying 5 marks should be in approximately 150-200 words.*

Q.1 List down the components of Barrow General Motor Ability test. 1

Ans: This test was developed by Dr. Harold M Barrow in 1953. The test items included are standing broad jump for explosive strength, medicine ball put for arm strength and zig-zag run for agility.

Q.2 Define Axis and Plane. 1

Ans: An axis is a straight line around which an object rotates. Movement at a joint takes place in a plane about an axis. There are three axis rotations.
The plane is the surface on which movement takes place. There are three planes of motion that pass through the human body.

Q.3 Distinguish between flexion and extension? 1

Ans: Flexion is a decrease in the angle between two adjacent segments in the body as the ventral surface of the segments approximate each other. It occurs in a sagittal plane about a frontal axis.
Extension is an increase in the angle between two adjacent segments in the body as the ventral surfaces of the segments move away from each other. It occurs in a sagittal plane about a frontal axis.

- Q.4 Write the factors affecting projectiles trajectory. 1
- Ans: There are three main factors which affect trajectory, a. Speed of release (initial velocity) b. Angle of release(angle of projection is 45 degree) c. Height of release.(Gravity & air resistance)
- Q.5 What is circuit training? 1
- Ans: It is a form of body conditioning or resistance training. It is very good for development of muscular strength and endurance. Circuit is one completion of all prescribed exercises in the program. These are 7-12 exercises in one circuit.
- Q.6 Mention the types of coordinative abilities. 1
- Ans: 1. Orientation ability 2. Coupling ability 3. Reaction ability 4. Balance ability 5. Rhythm ability 6. Adaptation ability 7. Differentiation ability
- Q.7 What do you mean by ageing? 1
- Ans: Ageing is an inevitable and extremely complex, multi factorial process. It is characterized by progressive degeneration of organs, systems and tissues.
- Q.8 Name the components of Rikli and Jones test. 1
- Ans: 1. Chair stand test 2. Arm curl test 3. Chair sit and reach test 4. Back scratch test 5. Eight foot up and go test 6. Six minute walk test
- Q.9 What are postural deformities? 1
- Ans: It is either acquired or congenital. 1. Knock knee 2. Flat foot 3. Round shoulders 4. Lordosis 5. Kyphosis 6. Bow legs 7. Scoliosis
- Q.10 What do you mean by Female athletes triad? 1
- Ans: Triad is a serious illness with lifelong consequences. It includes anemia osteoporosis and amenorrhea. These diseases are interrelated.
- Q.11 Write the aims of sports medicine. 1
- Ans: Children's health and welfare is the top priority of sports medicine programs. Its main aim is to provide immediate care, treatment and disposition, rehabilitation, administration and education.
- Q.12 What do you understand by anaerobic activities? 3
- Ans: The term anaerobic means without oxygen or ability of an organism to perform an activity in the absence of oxygen. It refers to the energy exchange in your muscles that is dependent on oxygen. Anaerobic exercise is a high intensity activity for a short period of time. Anaerobic exercise relies on energy sources that are stored in the muscles because the demand for oxygen from the exercise exceeds the oxygen supply. Anaerobic activities depend upon the following

factors 1. Phosphogen stores. 2. Buffer capacity 3. Lactic acid tolerance 4. Aerobic capacity.

Q.13 My uncle facing age –related health problems specially High Blood Sugar, Obesity and Hypertension etc. I consulted my physical education teacher regarding my uncle’s health problem because once he had discussed this topic in class. He told me that he would meet my uncle at home. He came and suggested my uncle to start regular exercise or walking for at least one hour. My uncle started regular walking. After few months his above mentioned problems reduced. On the basis of the above passage, answer the following questions. 3

a. Which two values are shown by the physical education teacher and the nephew?

Ans: Care and concern

b. What are the common age related health problems?

Ans: Obesity , back ache and stress

c. Does physical activity help in maintaining functional fitness of aged population? State in brief.

Ans: Yes yoga and regular exercise helps in keeping a person physically and mentally fit, refreshing the mind.

Q.14 Explain three long term effects of exercise on circulatory system. 3

Ans: 1. Stroke volume increases at rest: it is the volume of blood ejected per beat from left ventricle. it is increased to 90-110 ml/ beat in elite endurance athletes via regular exercise.

2. Blood flow increases: supply of oxygen during exercise increases, so body increases its capillaries as a result distribution of blood becomes more efficient.

3. Decreases the blood pressure: systolic and diastolic blood pressure decreases by 10 mm Hg at rest.

Q.15 Explain Slaughter-Lohman Children skinfold formula. 3

The slaughter – Lohman is named after the authors of original research study. The skinfold equations are used to predict body fat in children 8-18 years of age.

Measurement of triceps: measures vertically on back of arms midway between top of shoulder point (acromial process) and elbow(olecranon process)

Calf skinfold measurement: it is measured from inside (medial) of the right lower leg at the greatest calf girth.

Male 6-17 years(% of body fat = $0.735 * \text{sum of skinfold} + 1.0$)

Female 6-17 years (% of body fat = $0.610 * \text{sum of skinfold} + 5.0$)

Q.16 What is Fartlek training? Give four advantages of Fartlek training. 3

Ans: It means speed play. It is a type of cross country running usually conducted over hilly regions. Along with running some exercise may also be included in this type of training.

1. It is good for increasing strength and cardio respiratory endurance.

2. This training method is not rigid. It is flexible in nature.

3. Several athletes can take part in the training program at a time.

4. It does not require any equipment and can be organised easily.

5. It helps you to accommodate any kind of terrain surrounding.

Q.17 Explain two types of aggression in sports. 3

Ans: a. Hostile aggression: Hostile aggression is when the main aim is to cause harm or injury to your opponent. For example a bowler sending a bouncer to distract the concentration of batsman.

b. Instrumental Aggression: is when the main aim in achieving the goal by using aggression. For example a rugby player using aggression to tackle his opponent to win the ball. The player is not using the aggression to hurt his opponent but rather to win the ball back. Experienced athletes use instrumental aggression. The player is not having any grudges and shake hands when playing against each other.

Q.18 Write the precaution and remedies of the following deformities: 3

a) Spinal curvature- Precautions: We should follow the appropriate posture of sitting, walking and running. We should not carry heavy weights. Balanced diet should be taken.

Remedies: For scoliosis bending exercises should be performed in appropriate side. For lordosis we should perform halasana and sit ups. Kyphosis persons should perform dhanurasana and chakrasana.

b) Flat foot: Precautions: Don't force the babies to walk at an early stage. Don't walk bare foot and avoid high heeled shoes. Avoid obesity.

Remedies: Practice rope skipping especially on toes. Perform Tadasana.

c) Round shoulder: Precautions: Bent position should be avoided in any work. Don't wear tight fitting clothes.

Remedies: Hold the horizontal bar by both hands. Do dhanurasana and chakrasana.

Q.19 What are the advantages of isometric exercises? 3

Ans: a. Isometric exercises need less time. Usually the duration of contraction is 5 to 7 seconds

b. These exercises need less equipment or do not require costly equipment a exercises can be performed anywhere at home.

c. These exercises are useful for weight lifters, bodybuilders and gymnasts.

d. Isometric exercises develop maximum strength.

e. These exercises can be developed at any place and require less time.

f. Isometric exercises are used for rehabilitation of sports injuries.

Q.20 Explain Newton's law of motion and their application in sports. 5

Ans: First Law: It is the law of inertia. The body will remain in its state of rest or of constant linear velocity unless it is acted upon by some external unbalanced force.

A body at rest tends to remain at rest and a body in motion tends to remain moving at the same speed and in the same direction.

This means that nothing starts or stops moving until some outside force causes it to do so.

These forces may add to its motion, slow down or change its direction.

Application: In basketball players on the court must keep in mind about dribbling because the ball will continue to bounce for some time if they lose control. If the ball bounces too far away from the player his or her team can lose possession.

Second Law: It is the law of acceleration. The acceleration of the body is directly proportional to the force acting on it and inversely proportional to the mass of that body or object, and is in the same direction as that of force.

It covers both change in direction and speed including starting up from rest and coming to a stop.

This law is expressed by $F = MA$

For example speeding up, slowing down, entering, climb or descent and turning.

Application: Runners struggle while stopping at the finish line because it requires a very sudden change in motion

Third Law: For every action there is an equal and opposite reaction.

Application: 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.

Q.21 Elaborate Sheldon and Jungs classification.

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Ans:

- a. Endomorphic: These individuals are pear shaped. These individuals have short arms and legs. They have large amount of fat on their body. Strength sports are suitable to these individuals. They easily gain weight. They have round, fat and soft bodies, are fond of food, easy going, slow in reaction and sociable.
- b. Mesomorphic: These individuals have a well developed, rugged and athletic body. They are adventurous, assertive, courageous and having a liking for physical activity. They excel in strength, speed and agility activities. They have broad shoulders with muscled arms and legs.
- c. Ectomorphic: They have a weak, fragile and delicate body build. These individuals have a narrow chest. Shoulders, abdomen and hip with lean muscles. They do not gain weight easily. They are reserved, anxious, pessimistic and having inhibition towards physical activity.

Sheldon also classified three types of personalities on the basis of temperament

- a. Viscerotonic- happy, outgoing and lovers of food
- b. Somatotonic- assertive, bold and risk taking
- c. Cerebronic- studious, tense and introvert.

Q.22 Elucidate psychological effects of regular exercise on individuals.

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Ans:

- Improves mood: Exercise is a great source of energy. It helps in changing mood. It stimulates various brain toxins which make us feel happy.
- Develops self confidence: Regular exercise increases strength which leads to better fitness and develops self confidence.
- Reduces depression: Exercises act as antidepressant and recreational activities.
- Reduces anxiety and stress: Regular exercise reduces muscle tension, frustration and anxiety. Exercise also reduces build up of stress hormones.
- Increases relaxation: People who do not work out regularly often face insomnia. Meditation is also a great source of relaxation.
- Improves self esteem: Regular exercise improves body image, self-worth and self esteem.

Q.23 Explain in detail the mechanical analysis of running.

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Ans: Running is achieved from a series of alternating hops from left to right leg. The ankle, knee and hip provide almost all the propulsive forces during running. Running has alternate periods of single step separated by flight phase when both feet are airborne. It has the following phases.

a. Stance: It has got three sub phases. Initial contact, Mid Stance and Propulsion.

Initial contact: The first contact of the foot is made by heel. It continues till the whole sole of the foot comes into contact with the ground. The knee and ankle flexes and the foot rolls in to absorb impact forces.

Mid stance: In this stage sole of the foot completely touches the ground. At this point whole body balances on one leg.

Propulsion: The supporting leg leaves the ground before the opposite leg comes into contact with the ground.

b. Swing: The non-supporting leg swings past stationary leg and becomes ready for the next step. The swing ends with initial contact.

c. Upper body and arm mechanics during running: Its main function is to provide balance and promote efficient movement. The movement of arms should be opposite to the legs. Arms movement adds to gain momentum.

Q.24 How is respiratory system altered as a result of training?

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Ans:

a. Lung volume: With endurance training lung volume and capacities increases. Vital capacity, which is maximum volume of air forcefully expelled after a maximum inspiration is increased after endurance training.

b. Decrease in breathing frequency: Breathing frequency is the number of breaths per minute. After training breathing frequency is decreased.

c. Maximum minute ventilation: After training maximum minute ventilation is increased. For untrained it is 100 liters/ minute and for trained it is 150-160 liters / minute.

d. Tidal Volume: The tidal volume, which is the amount of air inspired or expired per breath, is increased as a result of endurance training.

e. Increase in ventilator efficiency: As the body is involved in regular vigorous type of endurance training as well as physical exercise so our ventilator efficiency increases.

f. Pulmonary diffusion: Pulmonary diffusion is the exchange of gases taking place in the alveoli (small air sacks in our lungs). During maximum level of exercise more alveoli become active for diffusion. The size of the alveoli is also increased which provide more space to diffusion. The size of the alveoli is also increases which provide more space to diffusion of gases such as O₂ and CO₂

Q.25 Explain the factors affecting motor development in detail.

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Ans: There are various factors which affect motor development in children

a. Heredity: The motor development largely depends on the genetic factors. Children get genetic traits of development from their parents. It includes height, weight, muscle mass etc.

b. Environment: Healthy environment provides encouragement and security.

Encouragement by the parents leads to sensory and motor development. Children who get more opportunities for playful activities have much better motor development than

those who are less exposed to educational environment.

- c. Regular physical activity: In the form of yoga, calisthenics, aerobics, participation in games and sports always promote motor development. These are necessary for basic foundation of life. It makes the child confident with good development of strength, speed and endurance.
- d. Nutrition: Children who eat balanced and nutritious food are mentally strong and healthy, whereas those who do not get nutritious food remain weak forever. It directly affects the physical and psychological development of children.
- e. Immunization: It is very important for both mother and children. It always facilitates better sensory motor development. Many diseases / flaws can be prevented by proper immunization. Otherwise it can create barriers to the harmonious development.

Q.26 Discuss the ways to encourage participation of women in sports.

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Ans: The value of sports participation in women is undeniable. Sports has innumerable benefits for girls and women. It lowers the risk of obesity, heart diseases, osteoporosis problems etc. It makes them more attractive, energetic and confident. More and more females should take part in sports as it also teaches us the moral and ethical values. There are some points to encourage women's participation in sports.

- a. Self confidence must be developed in women
- b. Female role model to be highlighted.
- c. More time and facilities to be given to women participation.
- d. Women should be aware regarding the benefits of sports . (Job opportunities, personality development etc.)
- e. Better safety measures to be implemented.
- f. Legislation regarding women in sports should be more flexible.
- g. Attitude of spectators and media should be motivating.
- h. Women coaches should be appointed in more number.
- i. Equal importance to be given to female in sports.

End of the Question Paper