

IMPORTANT QUESTIONS WITH ANSWER FOR C.B.S.E. EXAMINATION**(PHYSICAL EDUCATION)****LONG TYPE OF ANSWER (4 to 6 MARKS EACH)**

Q. 1. Discuss about the environment and sports environment. Describe the need of sports environment.

Ans. By environment we mean, all the external factors that affect our growth, development and lives. Thus the place and surroundings in which we live, our parents, family, the society in which we grow and the institutions in which we study, constitute our environment. Our environment also includes social, economic, geographical and political factors which influence our behaviour and shape our lives. All factors or conditions that encourage participation in and promotion of sports constitute our sports environment.

A good environment is essential for any physical education programme. Sportspeople, sports and games will flourish only when there is a proper sports environment. For the promotion and encouragement of sports and games appropriate sports environment is always required. Sports and games cannot be ameliorated and flourished in the absence of appropriate sports environment. Physical education programmes can be carried out and implemented successfully if a person is healthy physically and mentally. A person needs to be well developed in social and motor skills too, for maximum benefit from physical education programmes.

Q. 2. Differentiate between biotic and abiotic environment.

Ans. Differences between biotic and abiotic environment are :

Environment has mainly two components:

Biotic factors : All surrounding living species like plants, animals, worms, insect and human beings.

Abiotic factors : Light, temperature, water, atmospheric gases, altitude, climatic conditions.

Biotic and abiotic factors are interrelated. If one factor is changed or removed, it impacts the availability of other resources within the system.

Q. 3. What are the essential elements of proper sports environment ?

Ans. As has been discussed earlier in the chapter a good environment is essential for promoting games, sports and other physical education activities. On the basis of these discussions, we can say that the essential elements of a healthy or positive sports environment are as follow:

(a) **Infrastructural set-up:** The infrastructural set-up for sports environment must be properly planned. The architectural design of infrastructure should consider the following factors such as; purpose and need of setting set-up must be made clear; for what activities to be played and how much area required for those activities; site or location of infrastructure; natural or other sources available; away from busy traffic, industrial pollution; age-group or category of players or level of players; facilities to be provided for players or spectators capacity of players or spectators sitting capacity; finances or funds available, etc.

(b) **Protective Equipments:** Essential protective equipments must be used by sportspeople. These equipments must be of good quality and according to norms. Various protective equipments such as mouthguards and teethguards should be made compulsory in a number of sports such as hockey, cricket, boxing, rugby etc.

(c) **Sports Equipments:** The sports equipments, training equipment, sports kit, headgears and shoes etc. should be safe to use, protective in nature and of ISI trademark. These should be as per the recommendation of sports authority. There should not be any risk of injury, loss or harm. Players should have proper knowledge about the use of sports equipments as per the item. Regular check and maintenance of these sports equipments is mandatory to reduce the risk.

Q. 4. What are the essential elements to create a positive sports environment ?

Ans. Essential elements to create a positive sports environment are as follow :

(a) Culture and tradition of society: Usually, it has been observed that people take directions established by the cultures and traditions. The people excel in that specific sports which is preferred by the society. For example, Japan, South Korea, China usually excel in Table Tennis. Hockey is preferred in Punjab and Football is preferred in West Bengal. This is merely owing to the culture and tradition of the society. In fact, culture and tradition create a positive sports environment.

(b) Drugs, Tobacco and Alcohol Free Environment : The coaches, parents, spectators, players and other officials should refrain from drugs, alcohol and tobacco. They should try to promote positive sports environment by refraining themselves from such substances. It is an important as well as essential element of positive sports environment.

(c) Climatic conditions: Generally, sports are conducted under a wide range of climatic conditions, i.e., heat, cold, humidity and polluted air, etc. It has been observed that a significant percentage of deaths in sports is related to climatic conditions particularly from heat related problems. Following steps should be taken in extreme conditions of heat, humidity, cold and polluted etc.:

(i) Enough fluids should be consumed after some interval.

(ii) During extreme environmental conditions when the temperature is above 95°F and there is high humidity, heavy exertion should not be done. Practice can be done in early morning or in late evening.

(iii) Light clothes should be worn during extreme heat. So, uniform must be put on the basis of temperature or humidity.

Q. 5. Explain the role of Television and Media for creating positive sports environment.

Ans. Role of Media in creating sports environment : Media refers to all those ways that are used to bring us stories, news, actions, knowledge and information. Media is of various types like magazines, books, newspapers, televisions, radio, cinema, computer, internet etc. Media plays big role in popularising sports at the global level. It gives us knowledge about sports, it guide us the changing trends in sports. Media promote new games and sports; it highlights the upcoming players and tells us more about good players. It also gives information about government policies for sports promotion. It tells more about good players and infrastructural developments for sports environment. It gives us information about current affairs in sports. It gives us the feedback about games and sports. It provides us information about sports result. It provides publicity for tournaments and competitions.

Electronic media provides live coverage of sports competition. It also provides great opportunity in jobs for sports person. Role of Television in creating sports environment: 50 years ago, most fans would have to wait until the next days newspaper to find out the scores of the games or might have access to radio. But live matches on the television have brought different sport fans very close to the teams. People today can watch the live matches, listen commentary and know the score sitting at home. Various T.V. channels like ESPN, Star Sports, Ten Sports, Star Cricket, Ten HD, DD Sports etc. not only give the recorded and updated information of sports but also make the sportsman popular. We can also see the highlights, documentaries and quiz shows about sports on T.V. All these create a positive sports environment.

Q. 6. Difference between the Physical Environment and Social Environment.

Ans. Difference between the Physical Environment and Social Environment:

(i) Physical Environment: Physical environment in sports includes natural and artificial or man-made environments, which further consists of playgrounds, courts, gyms, climate, weather, altitude, mountains stadiums, sports complexes, indoor halls, swimming pools, sports equipments and the surroundings of that area. The natural environment of sports impacts playground to a greater degree. Undoubtedly, the plain area is not suitable for mountaineering surbing depends on ocean. Skiing, ice skating and ice hockey are the right choices in cold regions.

(ii) Social Environment: Traditional and cultural environment are the elements of social environment. They include faith, assumptions, moral values and traditions in sports. The belief, behaviour and attitude of the spectators, sports trainers and sports officials also contribute in social environment.

Q. 7. Write six important ways to prevent injuries in the sports.

Ans. The six important ways to prevent injuries are:-

(i) For avoiding injuries: The proper sports environment is also needed for avoiding various sports injuries to sportspersons during the practice and competitions.

(ii) For avoiding mental health risks: The proper sports environment in terms of social environment is also needed for avoiding mental health risks. It may create stressful situations.

(iii) For raising the standard of sports:

Appropriate sports environment encourages sportspersons to take keen interest in their sports and improve performance to higher levels. The improvement in their performance will lead to raising the standard of sports to greater higher levels.

(iv) For overall fitness: To develop the social, emotional and mental health along with physical fitness a healthy sports environment contributes a lot. It also helps in proper body growth and wellness and reduces various health hazards.

(v) For proper growth and development

: The proper sports environment is needed for proper growth and development of sportspersons who are engaged in various sports.

(vi) For recreational atmosphere: Today people are suffering with number of physiological problems like stress, tension, depression etc. The academic load also keeps the students under pressure.

Q. 8. Discuss the concept of women's participation in sports.

Ans. The desirability of women participating in sports has been debated very extensively during the middle of the twentieth century. It had been claimed at that time that women's participation in sports was not desirable on account of their frail constitution, feminine structure, child bearing responsibilities and emotional qualities, etc. On account of such views, women's participation in games and sports was discouraged, specially in sports which were thought to be injurious to their health or where there could be the possibility of injuries.

As a matter of fact, women's participation in sports has long history. In the ancient Olympics women were not allowed to watch the sports competition. Even in the first modern Olympic games which were held in 1896 in Athens, there was no participation of women. In fact, women started to participate in the modern Olympic games from 1900 onwards. They participated only in two sports events. In this Olympics, only twenty-two women participated.

On the basis of above mentioned facts, we can safely conclude that opposition to the participation of women in sports is not based on physiological facts. In spite of all sorts of opposing views, the participation of women in sports is increasing day-by-day. Today we find women participating and competing in large number in almost all games and sports. They are seen competing in sports like boxing, weightlifting and athletic events like pole vault and Marathone race. Women are also taking part in adventure sports like mountaineering, rock-climbing, surf-riding and sky diving etc.

Q. 9. What is trekking ? Mention the equipments for trekking.

Ans. Trekking : Trekking is a journey on foot, specially to hike through mountainous areas. Collins English Dictionary defines trekking as "the act of making a long journey across difficult country on foot, usually for pleasure".Trekking gives new experiences and excitement to explore the world. It is a part of adventure travel. It involves visits to remote areas, lodging in tent and minimal accommodation. It is done for adventure and expedition. Famous trekking places in India are Ladakh, Zankar Valley, Nubra Valley, Gunhill, Mussoorie, Dehradun, Dharainsala, Baijnath, Palampur, Darjeeling, Kanchenjunga, etc.

Equipments for Trekking : The trekkers require following equipments :

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|----------------------|-------------------------------------|
| (i) Map, food, water | (ii) Compass, sunglasses, sunscreen |
| (iii) First aid kit | (iv) A fire starter, knief etc. |
| (v) Trekking boots | (vi) Clothes, flash light |

Q. 10. What is natural resources? Write two main categories of natural resources.

Ans. Natural Resources: Our natural resources are the materials that sustain life on the earth, such as air, water, minerals and other raw materials. The earth has a limited amount of such resources. But the demand of the resource materials is increasing day-by-day. If we continue to use and destroy these natural resources at the current rate then we are going to put the future of humanity at stake.We can classify our natural resources into two main categories :

A. Renewable resources :

- (i) Food crops
- (ii) Cotton
- (iii) Cattle
- (iv) Leather and wool
- (v) Fish
- (vi) Solar energy
- (vii) Air power
- (viii) Water

B. Non-renewable resources :

- (i) Fuels such as coal, oil, natural gas
- (ii) Metal ores and minerals
- (iii) Inorganic fertilizers
- (iv) Materials obtained from rocks like
 - (a) Sand
 - (b) Gravel
 - (c) Limestone
 - (d) Silica

Q. 11. Write materials required and safety measures for river rafting.**Ans. (a) Materials or equipments required:**

- (i) A swim suit
- (ii) Additional clothings (T-shirts, shorts)
- (iii) Sunshade or cap
- (iv) Sun glasses
- (v) Plastic bags for wet things
- (vi) Helmet
- (vii) All kitchen and camping equipments
- (viii) Tennis shoes and socks
- (ix) Flash light
- (x) Sunscreen lotion
- (xi) Personal medication
- (xii) Life jacket or vest
- (xiii) First aid box
- (xiv) Waterproof bags

(b) Safety measures :

- (i) You should avoid to go for river rafting alone. In fact river rafting alone is a sign of just asking for trouble.
- (ii) You should have enough capabilities as a swimmer. **Vein cgribliemawpropa IfavoaltAgt atizmk** the classification of the river. These are classified from grade I to VI (from easy level to dangerous level).
- (iv) Whenever you go for river rafting always wear life vest and helmet.
- (v) Before going for river rafting: check the equipment to make sure that everything is in place and nothing has become defective. Taking a few minutes to check for cracks and the air levels of the rafts will always be beneficial.
- (vi) If it is going dark, don't raft. So end your trip before darkness falls.
- (vii) Drink plenty of liquids before, during and after the rafting because rafters can easily forget to stay hydrated.
- (viii) When you feel tired during rafting it is significant to remember the rule of not dragging their paddle in the water.

Q. 12. Write qualities of a student leader or captain.

Ans. (i) Example for others : Leader's behaviour should be so good that everybody is impressed by him and should present an example for others.

- (ii) **Determination :** Firm deciding capability and determination are expected from a good leader. Leader must have the desire to improve further and solve problem on priority basis.
- (iii) **Self-discipline :** Self-discipline, regularity, punctuality, adjusting, politeness, patience **audt.vderauck** must. be possessed by him. This inspires others to do the same.
- (iv) **Good moral character :** Leader must possess moral values with good character. Leader's behaviour to everybody should be good and an example for others.
- (v) **Academically sound :** He must be well-qualified with good command and should have good experience to lead the group. He must be efficient to give comment and understand the needs of the group.
- (vi) **Expressive and optimistic :** Leader should be able to express his ideas in an easy way. He must have an imaginative and optimistic attitude to guess problems and solve them.
- (vii) **Inculcate friendship :** Leader should encourage cooperation, team spirit, brotherhood and inspire group to do the same. Courageous quality and logical thinking enhance the leadership qualities.
- (viii) **Physical personality :** Leader should have a handsome and attractive personality. Leader must be fit and healthy along with good perfection in the activity.

(ix) **Loyal** : Leader must be loyal to his group and do sincere efforts for progress of group, moreover, leader should encourage others to do the same.

(x) **Intelligent**: Leader should be intelligent and creative. Leader must think logically with abstract thinking to solve the problem. He must understand the needs of the group.

(xi) **Master of physical skill**: Leader should be able to demonstrate as well as explain the physical skill to others for better understanding.

Q. 13. Mention the suggestions for conservation of environment to the persons related to adventure sports.

Ans. The persons, who are engaged in various adventure sports such as camping, rock climbing, trekking, mountaineering, hiking and rafting etc. can play a vital role for conservation of environment (surrounding) by laying stress on the following points/suggestions:

(i) Don't leave any eatables near the roadside for wild animals. Make sure that utensils are not washed in the stream but through collection of water in bucket. Don't wash of the leftover food.

(ii) Don't wash your clothes in water streams.

(iii) Don't leave any non-biodegradable waste product while participating in adventure sports. Collect them and bring them back or deposit them at waste collection centers.

(iv) Used plastics should not be littered in mountains, disposed off in valleys, buried or burnt or washed away in rivers.

(v) Don't defecate or urinate near river banks.

(vi) Don't dispose of one time used raincoats, slippers and shoes in valleys or mountain slopes.

(vii) Don't litter mountains while trekking, hiking or mountaineering.

(viii) Don't leave burning embers or fire while camping.

(ix) Don't remove or cut trees, herbs, shrubs for the purpose of burning fire or cooking during expedition.

(x) Refrain from polluting waters with human and kitchen waste.

It can be concluded that the participants of various adventure sports can play a vital role in the conservation of their environment or the surroundings by following the above mentioned points.

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Q. 14. Mention the suggestions for conservation of environment to the persons related to adventure sports.

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(ii) Don't wash your clothes in water streams.

15. What do you mean by balanced diet and nutritions ? Explain. (CBSE 2012)

Ans. (i) The food which we eat is known as diet and it is the basic requirement of every individual. Diet is the daily intake of food by human body. It provides energy for workout along with growth and development of body. Human beings take different types of food in their diet. It may be liquid food or solid (hard) food. These things which we eat give us energy to our body for performing work in a proper way. The food contains various types of nutrients in it.

(ii) It can be said that nutrition is the science of foods which deals with the dynamic process in which the food consumed is digested, nutrients are absorbed, distributed to the tissues for utilization and wastes are disposed off the body.

Food is main basis for maintaining health. So, the knowledge of 'food and nutritions' is essential for every individual. Generally, food and nutritions are considered synonyms to one another, whereas nutrition is dynamic process in which body is made healthy by the consumption of food

Q. 16. What do you mean by non-nutritive components of diet? Explain any four non-nutritive components in brief.

Ans. Non-Nutritive Components: Non-nutritive are those components of food, which don't give energy or calories. They do not have nutritional value and are added to food and beverage products. They are designed to make the food smell better, taste better, last longer and look better. Following are the non-nutritive components of diet:

(i) Fibre or Roughage : Fibre or roughage has no nutrient value. Hence is included in non-nutritive components of diet. It is undigested part of the food or it can be said that it cannot be digested by the human.

Food Dyes : Food dyes are additives which are added intestinal tract.

(ii) to the food to give colour. A sensitive HPCL method can be used for quality control testing of the dyes.

(iii) Flavour Compounds : The flavours are derived from both nutritive and non-nutritive components of food. Sometimes it becomes very difficult to know the source of a specific flavour. An acidic food provides sour taste while alkaline one provides a bitter taste.

(iv) Water : Water is also an essential component of diet. Even blood comprises 90 per cent of water. With the help of water through blood the nutrients are carried to various cells of the body. It is also significant in the excretion of waste products. It also regulates the body temperature. Our body loses approximately 2% of our body weight as water per day. We recoup this loss of water by drinking water and by intake of food substances. It also functions as a lubricant, keeps the skin moist and protects the body from shock. Generally, about 20% of water intake comes from food and remaining intake comes from drinking water. It is excreted from the body in various forms such as urine, faeces, sweating and water vapours in the exhaled breath.

Q17. What do you mean by eating disorders? Explain its types in details.

Ans. Eating disorders are the conditions defined by abnormal eating habits that may involve either insufficient or excessive food intake to detriment of an individual's physical and mental health. Bulimia Nervosa and Anorexia Nervosa are common eating disorders.

Types of Eating Disorders : There are two main types of eating disorders as discussed below :

(a) Anorexia Nervosa and (b) Bulimia Nervosa

(a) Anorexia Nervosa : In this eating disorder, it is characterised by food restriction and irrational fear of gaining weight as well as a distorted body self-perception. In this disorder, the person restricts the amount of food because of fear of gaining weight. This eating disorder causes metabolic and hormonal disorder. Prolonged Anorexia causes serious health problems like loss of appetite nausea feeling dizziness, headache and lack of energy. This disorder is mostly common among girls and they often hunger or starve to gain thin figure or reduce weight.

(b) Bulimia Nervosa : In bulimia nervosa, individuals eat excessive amount of food and then purge or vomit it all out. Over eating involves a large amount of calorie-rich foods. Such individuals don't have a control on their eating and then attempt to compensate it by vomiting or using laxatives to avoid weight gain. People with bulimia eat a large amount of junk food like burger, pizza at once usually in secret. Sometimes eat uncooked food or frozen food. They typically feel powerless to stop eating. They stop only when they are too full to eat anymore. Most people with bulimia, then purge by vomiting, using laxatives or over exercise. Such people may have a normal body weight or an over weight.

Q18. Discuss the role of diet on the performance of a sportsperson. (CBSE 2010)

Ans. No doubt dedication, hard work and good genes are very essential to become a professional athlete but a good nutritious plan can't be ignored. Inadequate or improper diet plan or unhealthy eating habits may be responsible for poor results on the playing fields. A diet with all the necessary constituents for the maintenance and growth of body in adequate amount is essential for every individual. The requirement of diet varies from individual to individual. The daily requirement for an active individual may vary from 3000 calories to 8000 calories depending upon the age, weight, size, physical condition and the work done by the individual each day. The opinion of researchers is divided about the role of diet on sports performance. Some hold the opinion that diet can improve sports performance while others hold that it only relates to energy requirements of an individual depending on the sport but diet has no profound effect on the performance. All agree that an imbalanced and improper diet affects the health of a sportsperson and the performance. The effect of various nutrients had been discussed below.

(a) Carbohydrates : They provide more energy than the other forms of food. So, they are very important to be added in athlete's diet. In the process of digestion of food, the body converts carbohydrates into glucose and keeps it stored in the form of glycogen. The athletes get energy from this stored glycogen which at the time of exercise, is changed back into glucose and provides energy. Carbohydrates also enhance the endurance of the athletes.

(b) Fat : Fat is considered as a major source of fuel for light to moderate levels of activity. Various types of sports require different proportions of fat to muscles, for maximum performance. A minimum amount of fat is desirable for a distance runner, high jumper and a gymnast. These athletes require nominal fat. If they add weight it will hinder their performance. Distance swimmers need a certain amount of fat distributed near the skin surface to diminish the heat loss to the water.

(c) Protein : Protein is necessary for the growth and development of various tissues of the body. Now it has been recognised that some amount of protein is consumed as fuel for muscular work. If fat and carbohydrate are available, they are selected preferentially over protein as the source of energy.

Q. 19. Elucidate about the various pitfalls of dieting.

Ans. The dieting has harmful effects on our body systems. It is harmful for not only physical consideration but also from the mental point of view. Some of the harmful effects of dieting are:

(i) Lack of proper nutrients: Dieting leads to limit major nutrients severely. You cut out the carbohydrates, fats, proteins and other nutrients. Try to understand that your body needs all forms of nutrients. To keep yourself healthy, understand how much amount of particular nutrients are required by your body and follow accordingly.

(ii) Skipping meals: It is a fact that if you have good metabolic rate, you can maintain or lose weight. If it is low you gain weight very easily. So, if you skip meals, it will lower your metabolism to conserve energy.

So, skipping meals works against your weight loss plans. Research studies also show if you skip one meal, you take more calories at the next meal.

(iii) Liquid calories: Are you drinking more calories than you are eating ? Alcohol, fizzy drinks, squashes, cold drinks, packed juices etc. add a lot of calories. Research suggests that drinking calories contribute a lot in weight gain. Be very careful by sticking to diet drinks.

(iv) Not performing exercise: If you go on dieting and do not perform exercise it will not work properly. Instead of losing weight you are likely to gain weight. As a matter of fact, exercise has a positive effect on metabolism and also helps to burn some extra calories. Exercise increases metabolic rate which ultimately reduces body weight. So dieting is beneficial if you perform exercise along with it.

Q. 20. What are the objectives of planning?

Ans. The objectives of planning :

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| (i) Aim of programme. | (ii) Requirement of programme. | (iii) Available resources. |
| (iv) Arranging resources. | (v) Schedule of programme. | (vi) Information to concerned. |
| (vii) Forming various committees. | (viii) Directing committees. | (ix) Managing and coordination. |
| (x) During programme needs. | (xi) After programme works. | (xii) Boarding and lodging needs. |

Q. 21. Describe Run for 'Unity'.

Ans. 'Run for unity' is organised to celebrate their independence. It may be in the form of relay race of long distance. Every participant runs some distance in the form of relay, they feel united. It may be in the form of Marathon race as it is usually organised in Mumbai. A lot of people participate in this race from corporate world, film stars and marathon runners from other countries.

Q. 22. Explain the meaning of Intramural and Extramural.

Ans. Intramural : The word 'Intramural' is combination of two Latin words Intra and Mural where Intra means 'Inside' and Mural means 'Within the Walls'. Thus intra-mural means competition within the walls of institution. In these activities the students of the institution are divided into various groups known as houses. They compete for various activities of intramural in their houses within the campus. The motive of intramural activities is to bring mass participation; developing the interest towards physical activities and developing the calibre of organising programmes of intramural by students.

Extramural : The word 'Extramural' means the activities performed outside the walls of institution. Thus these are the competitions of various activities at inter-institutional level. Extramural activities are played at various levels like Inter-School, Inter-District, Inter-State, Cluster, Regional, National and International levels. The motive of extramural activities is to find the talented players and to give exposure to good players at higher levels. Extramural activities are the index and image of the institution.

Q. 23. Write any two objectives of Intramurals. (CBSE 2013)

Ans. (i) To develop the feeling of cooperation : It is really very difficult to get success alone in the field of sports and games. In fact, cooperation is essential to achieve an apex position in games and sports. We cannot think about winning specially in team games if the players do not have good cooperation. Intramural activities help in developing the feeling of cooperation among students.

(ii) To provide recreation : To provide recreation to the students is another vital objective of intramurals. In fact, intramural activities provide a number of opportunities for recreation to the students. Students participate in intramural activities according to their interests. Hence, they get a lot of joy, fun and pleasure by participating in such intramural activities/competitions.

Q.24. Describe 'Round Robin Tournament'.

Ans. League tournament is also called 'Round Robin Tournament'. Mr. Burger was the first person, who imagined about the league tournament and owing to that, it is also called 'Burger System'. According to this tournament each team plays with every other team once in a single league tournament. If it is a double league tournament, each team plays with every other team twice. In these types of tournament every team plays with every other team irrespective of victory or defeat.

Q. 25. What are the disadvantages of Extramural ?

Ans. Disadvantages :

- (i) Winning in competitions becomes important than participating in them.
- (ii) Sometimes normal school activities are disrupted.
- (iii) Sometimes competitions do more harm physically and emotionally to participants.
- (iv) Due to extra importance given to winning, the use of unfair means is increased.

- (v) These activities put an extra financial burden on some institutions.
- (vi) Students who do not care much about sports feel discouraged and neglected.
- (vii) Star players often suffer in their studies due to missing classes.

Q. 26. Describe 'Run for Awareness'.

Ans. Run for Awareness : This kind of run is organized to create awareness among masses related to different issues and causes. These may be awareness towards increasing crime, pollution, conservation of wild conservation of natural resources, cancer blindness, AIDS or any issue that concerns masses. The running distance may be 5 km and one mile. It is also organized to raise the funds for charitable society. This run is pre-organized and T-shirts are given to participants displaying the cause of run. Prizes are also given to three position holders. Efforts are done to increase the number of participants. Different categories are made for participants such as 5 to 9 year to 19 years and so on. The main purpose of run for awareness is to bring awareness among the masses about current problems or hazards.

Q. 27. What do you mean by planning? Explain the objectives of planning.

Ans. Planning is a specific result that a person or system aims to achieve within a time frame and within available resources. In other words, it is a strategic and systematic arrangement for a programme is called planning. Planning is pre-work and done before the programme.

Objectives of Planning:

(i) **Aim of Programme:** Planning is done considering the aim and objectives of programme along with time and finances available for programme.

(ii) **Requirement of Programme:** Planning begins with requirements of the programme based upon number of participants, type of activity, level of participants, etc.

(iii) **Available Resources:** Planning is made by listing down the available resources and resources to be arranged for programme.

(iv) **Arranging resources:** A good planning guides us how to arrange resources *i.e.*, which items or things to be purchased, borrowed or hired.

(v) **Schedule of programme :** In a planning exact schedule is chalked out keeping in mind the time, duration, venue, weather factors, etc.

(vi) **Information to concerned:** Planning needs to give attention related to information to concerned ones, getting approvals and consent from authorities.

(vii) **Forming various committees:**

Planning needs to give special care in forming various committees and their team.

(xi) **After programme works:** Planning is also done after programme works *i.e.*, over: report of programme, returning of things, etc

(xii) **Boarding and lodging needs:** Special planning is required related to boarding and lodging needs of programme.

Q. 28. Explain the seeding method. Give an example.

Ans. In seeding method strong teams are allotted proper place in fixtures to avoid the grouping in the same half. For selecting strong teams the organisers must be well-aware of past performances. If two teams are to be upper to and second team is kept in the last of the 1st half. If 4 teams are to be seeded, the first teams will be kept at the places mentioned above. The third seeded team will be kept on the top lower half and the fourth seeded team will be kept at the lowest place in the upper half.

Generally, the number of seeded team shall the power of two like 2, 4, 8, 16, etc. All teams except seeded teams, are kept in fixture by lots.

Q.29. What is knock-out tournament. Discuss the advantages and disadvantages of this tournament. (CBSE 2014)

Ans. Knock-out : In this type of tournament, a team which is once defeated, automatically gets eliminated from the tournament. Only the winning teams continue in the tournament. It means that second opportunity is not given to the defeated team. Opportunities are given to the winning teams or players. For example, if four teams participate in knock-out tournament, the winning team is declared in the following:

Advantages of Knock-out Tournament:

- (i) The knock-out tournaments are less expensive because the team, which gets defeated, is eliminated from the competition.
- (ii) The knock-out tournament is helpful in enhancing the standard of sports, because each team tries to present the best performance to avoid the defeat.

Disadvantages of Knock-out Tournament :

- (i) There may be many chances of elimination of good teams in 1st or 2nd round. So, good teams may not reach into the final round.
- (ii) There are maximum chances of weak teams to enter into the final round.

Q. 30. What is Bye.

Ans. Bye : It is a sort of privilege to a team. A team who is given Bye does not play the first Round. Bye is an opportunity to play the match in higher round without playing in the lower round. It is only given in Knock-Out tournament. The number of Byes in a fixture are decided by subtracting the number of teams from the nearest number in power of 2. Bye is also a necessity to complete the draw by the nearest number in power of two's. While making fixture it is best to divide Byes to both upper and lower halves in symmetry. But in case of odd number of teams the upper half will have one less Bye than lower half.

Q. 31. What are the corrective exercises of Knock-Knees' and 'Bowlegs' deformities?

Ans. Corrective Measures :

i) **Akaran Dhanurasana** : In this asana the person stretches one leg near the ear whereas

other hand holds the opposite leg straight

(ii) **Padmaasana** : It is sitting with crossed legs in such a way that feet should touch the opposite hip while hands are on the knees and back is straight.

(iii) **Ardh Chakraasana** : In this person starts bending sideward. One hand close to head while other pushes the leg.

(iv) **Garudasana** : In this body balances over one leg while other leg is rolled over the other leg. Hands are also rolled in front of face.

(v) **Ardh Matasyendraasana** : In the crossed leg sitting position one leg is placed over the other so that the foot touches the opposite hip whereas one hand supports the leg and other rolls over the spine.

Q.32. Describe exercises related to Scoliosis.

Ans. Scoliosis exercises are designed to correct the rotatory curvature of the spine. I these exercises help in a limited way to decrease curve angles. In fact, exercises do not have very, significant role in the correction of scoliosis. The affected ones are advised to participate in physical education programmes, organised sports and normal recreational activities. They may wear scoliosis braces. Some exercises, which are described below, may be beneficial for some extent:

- (i) Lie down in prone position, *i.e.*, on the chest. Right arm should be upward and left arm at side. After that move right arm towards the left over head, press down with left hand and then slide the left hip up.
- (ii) Stand erect with feet few inches apart. After that raise the left heel and left hip. Extend right arm in an arch overhead to the left. Press left hand against the ribs on the left side.

(iii) Stand in erect position with feet several inches apart. Keep left hand's finger tips on left shoulder and bend the upper body in right side if there is an opposite 'C' curve in the spine. But if there is not opposite 'C' curve means if there is 'C' curve, bend the upper body to left side. The tips of the fingers of right hand should be on right shoulder. Repeat the exercise for some time as per the 'C' curve.

Q. 33. Explain exercises related to Lordosis.

Ans. (i) Sit on a chair with feet wide apart. Bend and position your shoulders between knees. Then reach to the floor under back of chair. Hold this position for some duration.

(ii) Lie in prone position on the floor. Keep the palms of your hands on the floor according to shoulders' width. Push torso up keeping pelvis on floor. Hold this position for some time.

(iii) Sit down with knees extended, feet together and hands at sides. After that bend forward, touching the fingers to toes. Hold this position for some time. Then come back and repeat.

(iv) Bend knees forward while allowing hips to bend back behind, keeping back straight and knees pointed in same direction as feet. Descend until thighs are just parallel to floor. Extend knees and hips until legs are straight. Come back in starting position and then repeat the same.

(v) Lunge forward with knee on a mat. Take position of the foot beyond knee. Place both hands on knee. Straighten hips of rear leg by pushing hips forward and hold stretch. Repeat with opposite side.

(vi) Lie down in prone position, with hands under abdomen. Then keep hips and shoulders down, press hands up on abdomen and raise lower back.

Q. 34. Define correct posture of Lying. Write advantages of correct postures.

Ans. Normal size of pillow should be used by the children. Hard bed is beneficial for those, who have spinal problems. We should sleep in such state that we should not feel any difficulty in respiration.

Advantages of correct postures : Correct posture enhances the personality of an individual. Our walking efficiency and ability depends upon good posture. Having a correct posture can give you many benefits and failing to do so, can invite loads of trouble as far as your health is concerned. Maintaining a correct posture is not a difficult task and you can definitely feel the change in you, once you follow this on a regular basis. A correct posture can give you the following advantages:

(i) Grace and efficiency of movement : Physical posture plays a vital role in the field of sports and games. Sports and games involved various types of movements. Walking, running, jumping and throwing depends upon the abilities of movement. An athlete requires a variety of efficient movements. The apex marks can be achieved in the field of sports if movements of the sportsman are efficient and graceful. The balance and coordination depends upon physical posture. Without correct posture grace as well efficiency of movements cannot be attained.

(ii) Looks and Personality : Posture reflects the personality of a person. Correct body posture adds to graceful movements and looks. Everyone wants to appear attractive and a good posture is a key to it. A person's slouching and drooping shoulders cannot create a good impression as compared to a person standing erect.

Q. 35. What do you mean by food supplement? Describe the precautions for taking food supplement.

Ans. Food supplements are the products which intend to provide nutrients that otherwise not consumed in sufficient quantity. These food supplements are generally Vitamins, Minerals, Fibres, Fatty acid, Amino acids, Herbal products, Oils, Enzymes, Animal organs, Glandular extract, etc., all are dietary/food supplements.

Precautions :

(i) First of all ensure that there is a lack of essential nutrients in a child. So consult the doctor whether the child needs to take food supplements or not.

(ii) Before purchasing an individual should ensure that it is free from preservatives, contains no fillers and does not contain any added sugar.

(iii) Food supplements may create harm if they are taken in excessive dosage specially the minerals and fat soluble vitamins which can be accumulated in the body. Some of the food supplements may cause harm due to their rapid absorption in a short period of time.

(iv) Don't pay heed to the words of salesmen or advertisements which claim that these supplements will improve child's brain.

Q. 36. What is weight training ? Discuss its advantages and disadvantages.

Ans. Weight training is defined as those exercises that are designed to strengthen specific muscles by causing them to overcome a fixed resistance, usually in the form of bar-bells or dumb-bells. In fact, weight training refers to the exercise phase of the activity where weight in the form of bar-bells and dumb-bells are used to condition and alter the sizes of various segments of the body. This is, undoubtedly, the most popular phase.

Advantage of Weight Training :

(i) **Best means of providing fitness :** Weight training has a major advantage over other means of fitness. It takes less time, except for throwers and competitive weight lifters who need longer sessions. Optimum gains can be made by spending just one hour three times a week in weight training gymnasium. It enhances all the components of health related fitness such as muscular strength and body composition.

(ii) **Helps in getting good shape :** Weight training is an extraordinary training. This is full of magic because it can shape up all people by using appropriate schedules (and sometimes appropriate diet). Fatty people can become trim and slim, people can put on weight if so desired. The weak can become strong and the strong can become stronger. The slower can become speedier and the ponderous can become more dynamic. In fact, weight training helps individuals in getting the entire body in good shape. It is beneficial not only for upper body but lower body also.

Disadvantage of Weight Training :

(i) **Less flexibility :** Weight training reduces the level of flexibility, if flexibility exercises are not done along with weight training. However this is a mild or little disadvantage in comparison to many advantages. If flexibility exercises are performed persistently it will be negligible.

(ii) **Risk of injuries :** While performing weight training, there is always a risk of getting injuries specially when performing exercise without any companion. Whenever you are not able to perform the required repetitions of exercise, at that critical movement if you are alone you may be injured. So you should always have a companion or supporter with you in case the worst happens. In addition you should perform weight training under expert physical trainer.

Q. 37. Explain the need of food supplements for children in detail.

Ans. Food supplements play a vital role in proper growth and development of children. Though, it is not essential to consume food supplements but it becomes necessary when there is a lack of proper nutritious diet. In fact, it can be said that food supplements are unnecessary if a child takes a balanced diet regularly. Moreover, there are various food supplements which have no practical effect. For example, food supplement omega-3 fatty acids has been shown to be without benefit for healthy children. It means that if child takes a balanced or nutritious diet regularly, there will not be any benefit of taking food supplement on that child. Even some food supplements may be harmful. A research study indicates that the individuals who consumed vitamin 'E' supplement had a higher rate of prostate cancer than individuals who did not consume vitamin 'E'. In the same way, calcium supplement too found to put individuals at a greater risk of heart attacks. In addition, the food supplements may not contain all the nutrients that a child needs.

Q. 38. Elucidate any five physical and physiological benefits of exercise on children.

Ans. Physical benefits :

- (i) The muscles of children increase in size as a result of regular exercise which is reflected in their muscular appearances.
- (ii) They gain in height due to increase in the length and structure of bones. Their body weight increases.

- (iii) Body assumes correct erect posture.
- (iv) The texture (appearance) of their skin improves.
- (v) Their movements become well-coordinated and skillful.

Physiological benefits :

- (i) The storage of nutrients (Glycogen) in muscles increase which can be utilized when required.
- (ii) Body weight increases.
- (iii) Bones become well-calcified.
- (iv) The stroke volume of heart increases.
- (v) The capacity to do a physical activity for a longer period before exhaustion increases gradually.

Q. 39. Describe childhood period in the human life.

Ans. Childhood is the golden age in the human development process. It is an age free from worries and tensions of life. It is the "Play age" which lays the foundation of health, fitness and motor ability. During this period of growth and development, children are restless, untiring, exploring and have a wide range of interests. It is an age of experimentation and multidirectional efforts that can lead to a future full of achievements and hope for a healthy and successful life. Children who remain deficient in learning motor skills are left behind in the race for development as compared to others and can develop inferiority complex. As children move into the early childhood period (6 to 12 years) they move away from being self-centered to being more social. They develop a strong urge to become members of teams or groups. During this period they form clubs and friends who may be serious or mischievous. They develop well physically. The foundation of a good personality is laid in this period. It is the period of transition from puberty to physical education programmes and activities can play a very important role in improving the quality of lives of adolescents, as such activities are an effective means of channelising their energies. Since adolescents are full of energy, the best way to utilize their energy is to motivate them to participate in vigorous physical activities such as swimming, athletics, games and sports like mountaineering, hiking and trekking etc. Children are usually hungry for vigorous activities.

Q.40. Explain Chair Sit and Reach Test for Lower Body Flexibility.

Ans. Chair Sit and Reach Test for Lower Body Flexibility : The chair sit and reach test is conducted to assess the lower body flexibility, particularly hamstring flexibility in senior citizens. Hamstring flexibility is important for good posture and mobility tasks like walking, stair climbing, sitting, running etc.

Equipments required :

* A chair about 17 inches/44 cm high* Ruler

Method :

- (i) Sit at the first edge of a straight back or folding chair placed against a wall for safety.
 - (ii) Keep on foot flat on the floor.
 - (iii) Extend the other leg forward, knee straight, heel on the floor, ankle bent at 90°.
 - (iv) Place one hand on top of the other with tips of the middle fingers even.
 - (v) Inhale and then exhale, reaching towards your toe and bending at your hip.
 - (vi) Keep your back straight and head up.
 - (vii) Avoid bouncing or quick movements and never stretch to the point of pain.
 - (viii) Keep the knee straight and hold the reach for two seconds.
 - (ix) The assistant measures the distance between the finger tips and toes to the nearest inch.
 - (x) If the finger tips touch the toes then the score is zero.
 - (xi) If they do not touch, measure the distance between the fingers and the toes as a negative score.
 - (xii) If they overlap, measure the distance as positive score.
- Scoring :** The score is recorded to the nearest 1/2 inches or 1 cm as the distance reached; either a positive or negative score record which leg is used for measurement.

Q. 41. Explain Minute Walk Test. Write Administration and Procedure of Test.

Ans. Minute Walk Test : This test is used to measure aerobic fitness. Equipments required are measuring tape to mark track distance, stopwatch, chairs positioned for resting.

Administration and Procedure of Test :

- (i) The walking course/track is laid in rectangular area (45 x 5 m²) with cones marking the area at regular interval.
- (ii) The aim of test is to walk as quickly as possible for six minutes to cover maximum distance.
- (iii) Persons set their own pace. They can take rest if desire.
- (iv) Measure the distance covered by person in six minutes walk test in metre.

Evaluation

Age	Below Average		Average		Above Average	
	Men	Women	Men	Women	Men	Women
60 — 64	> 610	> 545	610 to 735	545 to 660	< 735	< 660
65 — 69	> 560	> 500	560 to 700	500 to 635	< 700	< 635
70 — 74	> 545	> 480	545 to 680	480 to 615	< 680	< 615
75 — 79	> 470	> 430	470 to 640	430 to 585	< 640	< 585
80 — 84	> 445	> 385	445 to 605	385 to 540	< 605	< 540
85 — 89	> 390	> 340	390 to 570	340 to 510	< 570	< 510
90 — 94	> 305	> 275	305 to 500	275 to 440	< 500	< 440

Q. 42. Explain the Arm Curl Test for measuring upper body strength.

Ans. Arm Curl Test : The arm curl test is a test for upper body strength. It is a part of the senior citizen fitness test. It is designed to test the functional fitness of senior citizens.

Purpose : The main purpose of this test is to assess or measure the upper body strength and endurance which is required for performing household and other activities involving lifting and carrying things.

Equipments required : 5 pound weight for women and 8 pound weight for men, a chair without arms and a stopwatch.

Procedure : To do the maximum number of arm curls that can be completed in 30 seconds is its aim. Arm curl is performed with the dominant arm sides. The participant sits on the chair, holds the weight in the hand using a suitcase grip. It means the palms should be facing towards the body. The arm should be in a vertically downward position. The upper arm should not move but lower arm should move freely. Curl the arm up through a complete range of motion gradually turning the palm up. When the arm is lowered through the complete range of motion, gradually return to the starting position. The arm should be completely bent and then completely straightened at the elbow. This complete action should be repeated by the participant as many times as possible within 30 seconds.

Q.43. What do you mean by AAPHER fitness test? Explain administration of any two items of this test.

Ans. In the beginning, its name was AAPHER *i.e.*, American Alliance for Health, Physical Education and Recreation but now it is known as AAPHERD *i.e.*, American Alliance for Health, Physical Education, Recreation and Dance. It is one of the oldest professional organisations in the U.S.A. Its motor fitness tests have been the major instruments for measuring motor fitness in American school children for over 50 years. The first version of this test was published in 1958 and then revised in 1965 and after that many changes in the test battery were made in 1975 in AAPHERD Youth Fitness Test. In this test, the following items were included:

- (a) Pull-ups (Boys), Flexed-arm hang (Girls)
- (b) Flexed-leg sit-ups
- (c) Shuttle run
- (d) Standing long jump
- (e) 50-yard dash
- (f) 600-yard run-walk
- (g) Soft ball throw for distance

In 1976, the final test manual was prepared. The following items were finalized in this test battery :

- (a) Pull-ups (for boys) and Flexed-arm hang (for girls)

- (b) Flexed-leg sit-ups
- (c) Shuttle Run
- (d) Standing long jump
- (e) 50-yard dash
- (f) 600-yard run-walk

Administration of AAPERD Youth

Fitness Test :

1. **(a) Pull-ups (Boys)** : This test measures the total number of repetitions performed without taking rest on a horizontal bar. The total number of pull-ups are noted. In this test, the chin must reach above the bar while doing pull-ups.

(b) Flexed-arm Hang (Girls) : This test is administered on an adjustable horizontal bar. The height of the bar should be adjusted so that it is approximately equal to the standing height of the student. The correct position of hands is shown in fig. With the help of two girls the student's body is lifted off the ground until her chin is positioned above the bar. She is required to hold the bar in the same position for maximum time. Her time is noted in seconds. She may be allowed for one trial.

2. **Flexed-leg Sit-ups** : The student lies on back with legs in flexed position *i.e.*, in bent knee position. His/her hands should be behind the neck. Elbows must touch the knees while performing sit-ups. The total number of repetitions of sit-ups is noted in one minute only.

Q. 44. Explain any one test items of Rikli and Jones Test batter.

Ans. Rikli and Jones Test : Senior citizen fitness test was developed by Roberta Rikli and Dr. Jessie Jones. It consists of six easy and simple tests that assess the functional fitness of senior citizen. The tests are easy to understand and effective tests to measure aerobic fitness, strength and flexibility using minimal and inexpensive equipments. This test has common activities such as getting up from chair, walking, lifting, bending and stretching. The test involves following test items :

Chair Stand Test : This test checks the leg strength and endurance. Equipments required are straight back chair without arms (approximately 45 cm high).

Administration and Procedure of Test :

- (i) Place the chair against wall or stabilize it for safety.
- (ii) The person sits on chair with feet apart (at shoulder width) on the floor. Arms crossed at the wrist and held close to chest.
- (iii) From sitting position the person stands completely up and then completely back down.
- (iv) It is repeated for 30 seconds.
- (v) The number of complete chair stand (up and down equals one stand).

Q. 45. Elucidate any five physiological changes due to ageing.

Ans. (i) Reduces the risk of age-related diseases : Regular exercise reduces the risk of a number of health problems-many ageing persons face. Such health problems are type 2 diabetes, obesity, hypertension and heart diseases etc. Regular exercise decreases blood sugar level, decreases LDL (bad cholesterol), increases HDL (good cholesterol), decreases blood pressure and decreases blood vessel stiffness. It can be alluded with physical exercise reduces the risk of diseases related with age.

(ii) Improves muscular strength : Ageing process does not hinder the individual's ability to enhance muscle strength. Regular exercise increases the strength of muscles. As a matter of fact, exercises increase the size of muscles which ultimately increases muscular strength.

(iii) Reduces the loss of muscle mass : Muscle mass decreases with advancing age. Ageing has a negative effect on metabolism. Regular exercise decreases the loss of lean body mass and drop in the metabolic rate. Regular exercise also reduces the accumulation of fats.

(iv) Enhances the capacity of lungs : Regular exercise enhances the capacity of lungs. It reduces the loss of elasticity of the lungs and chest wall. It also plays a key role in keeping the lungs strong. Regular exercise increases oxygen uptake and oxygen exchange.

(v) Improves flexibility : Regular exercise improves the elasticity of tendons, ligaments and joint capsules. Exercise decreases the stiffness of joints. In this way, there is improvement in flexibility.

Q. 46. Discuss any five effects of exercise on respiratory system.

Ans. (i) Avoids second wind: For a beginner, the stage of second wind is, indeed, a crucial stage. But for a regular exerciser, it is hardly felt. Sometimes, a well-experienced athlete does not feel it in his course of activity.

(ii) Unused alveoles become active:

Regular exercise activates the unused alveoles, because much amount of O₂ is required in vigorous and prolonged exercise of daily routine. The passive alveoles become active.

(iii) Increase in endurance: If exercise is performed regularly and for a longer period, it increases endurance. An activity can be done for a longer period without taking any rest. Those who do not perform exercise, have less endurance, They cannot continue exercise for a long duration. Hence, it can be alluded that exercise increases the endurance of an individual.

(iv) Increase in residual air volume Residual air is that amount of air, which is left in the lungs after exhalation. If an individual performs regular exercise, his residual air capacity increases in comparison to an individual who does not perform regular exercise.

(v) Increase in size of lungs and chest: When a person performs exercise regularly, he requires more amount of O₂. He inhales more amount of air during exercise. Consequently, his lungs and chest are exercised. After some period, the size of his lungs and chest increases.

Q. 47. Discuss five long-term effects of exercise on cardiovascular system.

Ans. (i) Increase in the size of heart :

When we perform regular exercise the muscles of the heart increase in size and strength. In fact, the left ventricle adapts to the greatest extent. The heart walls grow stronger and thicker. The recent studies show that the myocardial wall thickness also increases.

(ii) Decrease in resting heart rate : Regular exercise decreases the resting heart rate. If a 10 week training programme is given to an individual whose initial resting heart rate is 72 beats per minute, after this duration his resting heart rate may reduce up to 10 beats per minute. After regular exercise the heart finally becomes more efficient. It does not require to beat as quickly to supply the body with blood while at rest. It has been noted that highly conditioned athletes can have their resting heart rates in the 30s.

(iii) Increase in cardiac output : Regular exercise tends to increase the cardiac output. The cardiac output in untrained individuals may be 14-20 litre/minute and 25-35 litre/ minute in trained individuals and elite athletes', cardiac output can be as high as 40 litre/minute at rest.

(iv) Increased blood flow : In response to the need to supply the muscles with more oxygen during exercise, the body increases its number of capillaries. The existing capillaries also open wider. The blood redistribution becomes more efficient and effective. As a result of above mentioned facts there is an increased blood circulation in the body.

(v) Reduced risk of heart diseases :Regular exercise gradually reduces stress-related hormones from circulating in the blood. This increases the blood vessel path, which in turn lowers the risk for the build up of plaque that can lead to coronary heart diseases. Hence, exercises reduce the risk of heart diseases.

Q. 48. Discuss physiological factors determining flexibility.

Ans. (i) Muscle Strength : The muscles should have a minimum level of strength to make the movement possible specially against gravity or external force. In sprinting runnings the legs or knees cannot be lifted to the required height or angle if the related muscles (abdominal muscles) are weak. In fact, weak muscles can become a limiting factor for achieving the higher range of movement. Muscle strength is highly trainable therefore, it can enhance the flexibility.

(ii) Joint Structure : There are several different types of joints in human body. Some of the joints intrinsically have a greater range of motion than others. For example, the ball and socket joint of the shoulder has the greatest range of motion in comparison to the knee joint.

(iii) Internal Environment : Internal environment of the athlete influences the flexibility. For example 10 minutes in a warm bath increases body temperature and flexibility whereas, 10 minutes stay outside in 10°C reduces body temperature and flexibility.

(iv) Previous Injury : Injuries to connective tissues and muscles can lead to thickening or if bruising on the affected area. Fibrous tissues are less elastic and can lead to limb shortening and ultimately lead to reduced flexibility.

(v) Age and Gender : It is a well known fact that flexibility decreases with the advancement of age. However, it is trainable. It can be enhanced with the help of training as strength and endurance are enhanced. Gender also determines the flexibility. Females tend to be more flexible than males.

Q. 49. Discuss physiological factors determining speed.

Ans. (i) Mobility of the nervous system : Our muscles contract and relax at maximum possible speed such as in sprinting events. This rapid contraction and relaxation of muscles is made possible by rapid excitation and inhibition of the concerned motor centres. This is called the mobility of the nervous system. The nervous system can maintain this rapid excitation and inhibition only for a few seconds after which the excitation spreads to the neighbouring centres causing tension in the entire body.

(ii) Muscle composition : The muscles, which have more percentage of fast twitch fibres contract with more speed in comparison to the muscles which have lower percentage of fast twitch fibres. In fact, the muscle composition is genetically determined and cannot be changed by training. Different muscles of the body have different percentages of fast twitch fibres. So, different parts of body have different speed performances.

(iii) Explosive strength : For every quick and explosive movement, explosive strength is indispensable. For example, a quick punch in boxing cannot be delivered if the boxer lacks explosive strength. Explosive strength further depends on muscle composition, muscle size and muscle coordination. It also depends on metabolic process. Except muscle composition, the remaining factors can be improved through training which ultimately improve the speed up to limited extent.

(iv) Flexibility : Up to some extent, flexibility also determines the speed. In fact, good flexibility allows maximum range of movement without much internal resistance. Flexibility also enables complete utilisation of explosive strength.

(v) Bio-chemical reserves and metabolic power : For maximum speed performance the muscles require more amount of energy at a very high rate of consumption.

Q. 50. Define Projectile and explain the factors affecting projectile.

Ans. A body projected or propelled upwards that continues its motion due to its own inertia is called a projectile.

Factors Affecting Projectile

(i) Air Resistance : As a projectile moves through the air it is slowed down by air resistance. Air resistance will decrease the horizontal component of a projectile. The effect of air resistance is very small but needs to consider surface area, volume ratio, speed of object, mass. For example, a badminton shuttle will have much more air resistance than a golf ball.

(ii) Gravity : It is the force of attraction exerted by the earth towards its centre on a body or an object. The greater the weight of an object, the greater the influence of gravity on it. Gravity affects a projectile as it decreases the height of projectile can obtain. The force of gravity acts on the object to stop its upward movement and pulls it back to earth, limiting vertical component of the projectile.

(iii) Initial Velocity : The distance covered by an object depends on the initial velocity of the projectile. If the initial velocity is more, the object covers maximum distance. On the other hand, if initial velocity is less, the object covers less distance.

(iv) Angle of Release : The angle of release change the relationship between the horizontal and vertical components of the projectile. The ideal 'angle of release is 45 degree. A golfer hitting a ball from the top of hill would hit it further than a golfer at ground level. The ball will stay in air for longer time so it will have greater chance to gain distance.

(v) Spin : The amount and direction of spin acting on a projectile will directly affect the distance projectile while travel.

Q. 51. Explain Linear movement, Angular movement and their use in sports.

Ans. Linear Movement: Linear movement describes a situation in which movement occurs in straight line. Linear motion can also be called translation movement, but only if all parts of the object or the athlete move in the same distance, in the same direction and in the same time frame.

Angular Movement: The angular movement occurs around the axis. It is rotation of body around its axis. The athletes produce angular movement around its joint. It occurs when all Points on a body or object move in circles (or parts of circles) about the same fixed central line or axis. The upper arm rotates at shoulder joint; the lower arm rotates at elbow joint; the hip joint acts as axis for the leg; the knee joint for the lower leg. Movement like walking and running depends upon the rotatory motion of each segment.

Linear and Angular Movements in Sports:

Human movement is combination of linear and angular motions. In sport skills, the set position involves various levels of linear motion. A gymnast balancing on a beam prior to take off is example of linear motion. Actions of skills involve angular motion as it involves joints which rotate to provide movement.

Q. 52. Discuss the mechanical analysis of walking in detail.

Ans. Mechanical analysis of walking can be studied in two phases:

1. Stance phase
2. Swing phase

1. Stance Phase: Stance phase is the time when the foot is on the ground. It is considered that it consists of maximum percent walking cycle. For a part of the stance both feet have a contact to the ground period of time. The stance phase of walking further be divided into the following stages:

(i) Heel strike : This stage begins the heel first touches the ground and con until the complete foot is on the ground *i.e.* flat-foot stage.

(ii) Early flat-foot : The starting early flat-foot stage is that moment when complete foot is on the ground. The end flat-foot stage occurs when the body's central gravity (COG) passes over the top of the centre of gravity of the body is located approximately in the pelvic area of the 1 spine while walking. The main purpose stage is to allow the foot to act as a absorber.

(iii) Late flat-foot : An athlete comes late flat-foot stage when his body's C.O.G. in front of the neutral position. This stage when the heel lifts off the ground. Dun stage, the foot needs to go from being a absorber to being a rigid lever which can to propel the body in forward direction.

(iv) Heel rise : This stage starts w heel begins to leave the ground. The functions as a rigid lever to move the forward direction. During this stage of w the ground forces that go through the f very significant.

(v) Toe off : This stage begins w toes leave the ground completely. This continues until the beginning of swing p

2. Swing Phase : Swing phase is with toe off of left foot and ends with contact stage with right foot. The swing is longer in running in comparison to phase.

Q.53. Discuss the mechanical analysis of running in detail ?

Ans. RUNNING : Running is a toe action movement. For running the focus is on the three or producing actions—Push off, Knee-drive and Paw-back. These three phases are done in a ential manner to provide efficient running action.

(1) 'Push off is the primary toe action movement needed to supply the *driving* force in *forward ction*. The force comes from the powerful contraction of Calf (Gastrocnemius) muscles by ion of ankle joint. The slight flexion of knee joint provides horizontal force instead of verticale. Body is also bent forward.

ii) 'Knee-drive' is coordination and knee joint with push off. It provides additional forward momentum. In knee-drive, the thigh is driven forward from a position behind the body to the front of body. The knee is raised high to generate maximum force by the contraction of hip flexor muscles. Hihger knee-drive causes longer strides and uses less energy.

(iii) Paw-back' : In this action the leg is straightend and brought backward and downward action to make contact with the ground. The opposite hands are alternately swung up and down with half flexion. Hands remain in relaxed position during this movement. It also provides sideward balance, moreover, provides direction during running.

Q. 54. What is energy ? Explain Kinetic energy and Potential energy.

Ans. Energy is the capacity to do work. However, there are various forms of energy but in the field of games and sports our main concern is about mechanical energy. Mechanical energy is the combination of kinetic and potential energy. These forms of energy are stated below :

(i) Kinetic Energy : The energy an object has because of its motion is called kinetic energy. The kinetic energy of a moving object depends on its speed. The faster the object moves, the greater the kinetic energy it has. For example, if a javelin travels with maximum speed then it has more kinetic energy. When it slows down it loses its kinetic energy and when it touches the ground, it has no kinetic energy. Kinetic energy also depends on the mass of the object. If a shot of 16 lbs and a shot of 8 lbs travel at the same speed, the 16 lbs shot has more kinetic energy than the 8 lbs shot.

(ii) Potential Energy : Potential energy is the energy stored in an object because of its position or condition. For example, when you stretch a bow, it acquires the ability of releasing an arrow with speed. It means that the stretched bow also has potential energy. The more it is stretched, the greater the speed with which it can release the arrow. It has the potential energy because of its stretched condition. Energy can be changed from potential to kinetic and from kinetic to potential. Example when a basketball bounces up, it gains height and loses speed *i.e.*, it gains potential energy and loses kinetic energy. When it stops for a fraction of a second at a certain height its kinetic energy reduces to zero and it only has potential energy.

Q. 55. Explain the meaning and effects of stress.

Ans. Meaning : Stress consists of bodily changes produced by physiological conditions that tend to upset the homeostatic balance.

Effects : The effect of stress depends on the intensity of the stressor. In the same situation, one individual may interpret a stressor as a non-stressor, another individual as a moderate stressor and yet another individual as a major stressor. So the effect of the stressor depends on the perception and intensity of the stressor. If the effect of a stressor is severe, it can cause severe health problems and in extreme cases it can even cause death. Generally, it causes headaches, eating disorders, allergies, insomnia, backaches, frequent cold, fatigue, hypertension, asthma, diabetes, heart ailments and cancer, etc. Today, with the rapid diversification of human activity maximum number of adults are facing stress related problems. In the situation of stress, the brain prepares the body to take defensive action (the fight or flight response) by releasing stress hormones which are called cortisol and adrenaline. These hormones raise the blood pressure and the body prepares to react to the situation. This is called fight response. These hormones get used up in blood and finally effects of stress are reduced. When we fail to face a stressful situation, the hormones remain unused in the blood for a long time. It results in stress related physical symptoms, such as tense muscles, anxiety, dizziness and fast heartbeats. This state of accumulated stress can increase the risk of psychosomatic illness. It also weakens the immunity power of the body. It may lead to the loss of potassium, white blood cells and body weight of the person.

Q. 56. What do you mean by anxiety? Discuss the management of anxiety in detail.

Ans. Meaning of Anxiety : The main aim of physical education teachers, trainers, coaches and sports psychologists is to enhance an individual's performance at optimum level. To achieve this aim, they must consider the effect of anxiety on performances. In fact, anxiety is a psychological and physiological state of an individual. It is characterised by cognitive, emotional and behavioural components. These components combine to create an unpleasant feeling, which is associated with uneasiness, fear or worry.

(i) Breathing Technique : Do deep breathing exercise. Breathing exercises contract the diaphragm, muscles, chest cavity and stomach cavity. It is the best and healthiest way to ingest oxygen, which gives body relaxation and treats anxiety disorders.

(ii) Meditation : Meditation is an effective tool to concentrate. It is very helpful to remove all types of stress, fear, pain and anxiety.

(iii) Goal Settings : Clearly defined goals help to measure success; whereas too lofty goals overwhelm you. Always choose a possible, challengeable and achievable goal. It keeps you away from anxiety.

(iv) Five Breath Technique : This technique can be used in standing, lying or sitting position. First of all, take a deep breath and allow your face and neck to relax as you breathe out. Then take a second deep breath and allow your shoulders and arms to relax as you breathe out. After that take a third deep breath and allow your chest, stomach and back to relax as you breathe out.

Q. 57. What is personality ? Discuss its dimensions. (CBSE 2012)"

Ans. Personality is defined as the enduring personal characteristics of individuals. In other words personality is combination of characteristics or qualities that an individual distinctive character.

Dimensions of Personality :

(i) Emotionality : Emotional stability or control over emotions such as anger, fear, love, hate etc. is another requirement of good personality. Emotionally unstable person can be a threat to himself and the society. Man cannot be free of emotions but emotions of an individual getting out of control can create many problems for the individual and society. In fact emotional control is a sign of good mental health of an individual and is, therefore, an important indicator of personality.

(ii) Sociability : Sociability is a very important quality of an individual's personality. Since an individual and society cannot be separated, an individual is looked upon in the context of society. Moreover social dimensions of a personality such as good habits, attitudes, cooperation, helpfulness, sportsmanship and relationship etc. are developed only in a social environment. Therefore to be acceptable as a member of society, the sociability aspects of an individual personality cannot be ignored.

(iii) Intellect : Man is considered as the supreme creation of God due to his intelligence. His intelligence adds charm to his personality. A good physique without mind and intellect has no meaning. Intellectual qualities of individuals are appreciated by others and help them in becoming leaders in many fields. These qualities enhance his personality.

Q. 58. Discuss the points to improve the body image and self-esteem.

Ans. Methods or points to improve the body image and self esteem are as follow :

(i) To change your life style : Changes in your lifestyle such as adopting a specific diet and well planned exercise programme in order to lose weight, gain muscles or change in body shape and size can be a healthy choice. Such practice will definitely help in improving body image and self-esteem.

(ii) To have a positive and optimistic attitude : A positive and optimistic attitude can help individuals to improve body image and self-esteem. So one should try to have a positive and optimistic attitude in life. Participation in physical activities also enhance positive attitude which ultimately improve body image as well as self-esteem.

(iii) Plastic surgery and using beautifying products : It can be a choice of some individuals to have plastic surgery to change the body parts they don't like such as nose or chin etc. Most of the celebrities go under plastic surgery for improving their body image. Some of the individuals use beautifying products to change the appearance of their skin.

(iv) To think about your positive qualities : If you are having low self-esteem and unhealthy body image you can turn yourself towards healthy body image and high self-esteem by thinking about your positive or good qualities. For this purpose, prepare a list of your positive or good qualities that have nothing to do with your appearance. Thinking about those precious and positive qualities will definitely improve your body image and self-esteem.

Q. 59. Elucidate the factors influencing self-esteem and body image.

Ans. These factors are as follow :

(i) Media Images : During teenage, the teenagers become more aware of celebrities and media images. They usually start to compare themselves with media images and celebrities. Print media as well as electronic media can affect how the teenagers feel about themselves and their body images.

(ii) Life Experience and Natural Ageing Process : Body image and self-esteem are also significant factors which influence the body image and self-esteem. When our body changes due to natural ageing process we have different feelings about our body. Even our experience of life may influence our body image and self-esteem. As a matter of fact, individuals may experience negative comments about the way they look from any person. Such experience of life may influence the body image and self-esteem.

(iii) Puberty and Development : A number of teenagers struggle with their self esteem and body image when they begin puberty because during this period, the body goes on a number of changes. They compare their body with others. They confront with the problem that not everyone develops at the same time or in the same way. Their development takes place differently which may create a negative body image and low self-esteem for some of the teens.

(iv) **Family and School** : We do not develop our body image all on our own. The family, school and other members of society can influence self-esteem and body image. Sometimes, family members may criticize their children about their looks and due to that children may develop a negative body image. In this way family school can influence children's self esteem body image, specially if they are more sensitive.

Q. 61. Define Speed and discuss the types of speed in detail.

Ans. Ballow and Mcgee defines speed as the capacity of an individual to perform successive movement of the some pattern at a fast rate. Speed plays a very uital role approximately in every game and sport.

Types of Speed :

1. Movement Speed : It is the ability to do a movement in minimum time. It depends upon techniques, explosive strength, flexibility and coordinative abilites.

2. Acceleration Ability : It is the ability to achieve maximum speed from a stationary position or from low speed state. Generally, sprinters achieve their maximum speed after approximately six seconds. This ability mainl depends upon explosive strength, technique an fexibility. This ability is important in all gamed and sports in which maximum speeds are to be achieved in quickly such as sprint races, swimming (short distance), hockey, football and gymnastics etc.

3. Starting Speed : It is the ability of an athlete to go from a stopped or non moving state to a moving or mobile state. Starting speed is a crucial opponent of sports and it is always considered as the 'first step'. For many sports, it is the first step to blow by your opponent. So, proper training for starting speed is very important in sports.

4. Speed Endurance: It is the ability of athlete to maintain top levels of speed while performing repeated bouts of your sports skill without becoming fatigued. Usually, it is dictated by the three energy systems of the body.

Q. 62. Explain methods to improve fexibility? (CBSE 2012)

Ans.1. If the exercises are performed with the help of a partner, the partner should have proper knowledge about the exercise of flexibility.

2. Dynamic flexibility depends on static flexibility. Dynamic flexibility is more beneficial than static flexibility in the field of games and sports

3. For effective improvement of flexibility, sufficient number of repetitions should be performed. It is recommended that at least 10-15 repetitions of each exercise should be performed.

4. Jerky movements should be avoided while doing the exercises for improving flexibility.

5. The exercises for improving flexibility should be performed after a complete warm-up. If proper warm-up is not performed, there may be maximum chances of overstretching the muscles. There may be injury of the muscles, ligaments or joint.

6. Exercises for the development of fexibility should be performed when the sportsperson is fresh. Under the stage of fatigue, the muscles cannot be stretched to their maximum limit.

7. Exercises for the improvement of dynamic flexibility should be related to sports activity.

Q. 63. What do you mean by Dynamic Strength and Static Strength?

Ans. (a) **Dynamic Strength:** Dynamic strength can be called isotonic strength because itis related to the movements. In pull-ups and push-ups we require dynamic strength. In performing such workout, there is a diminishing tendency in dynamic strength and as a result, after some time, muscles refuse to do work. At this juncture, man is not able to do even one extra pullup or push-up. Movements are clearly visible when someone uses dynamic strength. In each sports movement, strength appears in a different form.

(b) **Static Strength** : Static strength is also called isometric strength. It is the ability of muscles to act against resistance. Static strength can, be measured by dynamometer. This type of strength is not seen directly. Static strength is not usually applied in sports but in weightlifting it is applied in phases.

Q. 64. What is a continuous Training method. Write its advantages.

Ans. Continuous training is one of the best methods for improving endurance. In this method of training an exercise is performed for a long duration without any break. In this method, intensity remains low because the exercise is done for a longer period. Cross-country race is the best example of continuous method. In this method, the rate of heartbeat remains in between 140-160 beats per minute. The total duration of the exercise should not be less than 30 minutes. This duration of exercise can be increased according to endurance ability of the sportsperson or athlete.

Advantages :

1. It increases glycogen in muscles and liver.
2. It increases the number and size of mitochondria.
3. It also increases the efficiency of heart and lungs.
4. It improves willpower and makes the individual well-determined under the condition of fatigue.
5. For better results intensity can be increased.
6. It makes the individual self-disciplined and self-confident.
