Sustainable Management of Natural Resources

CHAPTER 16

EXAM DRILL

ANSWERS

1. (i) IBWL - Indian Board of Wildlife
   (ii) CITES - Convention on International Trade in Endangered Species of Wild Fauna and Flora

   OR

   Afforestation is the plantation of indigenous or exotic species to develop forests in all the available land from villager's fields, road/rail sides to waste lands.

2. Carbon and hydrogen

3. **(b)**

4. Ganga Action Plan was launched in 1986 to improve the water quality of river Ganga to acceptable standards by preventing the pollution load reaching the river.

5. Biodiversity refers to the different species of flora and fauna present in an area.

6. Kattas, Kuhls and Surangams are ancient water harvesting structures found in Karnataka, Himachal Pradesh and Kerala, respectively.

   OR

   Deforestation is removal, decrease or deterioration of forest cover of an area. It is caused due to jhum cultivation, hydroelectric projects, forest fires, human establishments, road construction, overgrazing, mining and for timber production.

7. Crocodile

8. Making of check dams across flooded gullies holds water and prevent soil erosion. It also helps to recharge groundwater. The groundwater provides moisture for the vegetation cover, thus prevents soil erosion.

9. Salinity is a measure of how much salt there is in water. It affects the density of sea water. Sea water has a salinity of about 3.5% which means that in a 100 gm of sea water there is 3.5 gm of salt. About 90% of sea salt is sodium chloride or table salt.

   OR

   Gir lion project was launched in India in 1972.

10. Van Mahotsav is celebrated in July Month every year.

11. Rainwater harvesting

    OR

    Water is polluted with acidic wastes.

12. Coal

    OR

    Petroleum

13. Sustainable management is meeting the needs of present generation without compromising the ability of future generations to meet their own needs.

14 **(b) :** Wildlife includes all those naturally occurring plant and animal species which are neither cultivated, domesticated nor tamed. Wildlife occurs in forests. It is a renewable resource. Over a period of time, many wildlife organisms have become extinct due to various human activities. The reasons are :- (i) deforestation, (ii) hunting, (iii) poaching, (iv) excessive extraction from medicinal plants, (v) disturbing of biological control, (vi) over exploitation for other plant products.

15. **(b) :** The major energy sources are fossil fuels such as coal, petroleum and natural gas. They are an important source of energy for the modern technology.

16. **(b) :** Rainwater harvesting is the technique used to capture and store rainwater for future use by making special water harvesting structures. It is one of the most promising method of water conservation. With passage, the ancient rainwater harvesting structures of India fell into misuse and garbage started piling into them. However, due to increased water scarcity, there is a move to revive the ancient water harvesting structures at some places in India.

    OR

    (b) : The popular Chipko Andolan was started in Reni village, in Tehri, Garhwal district of Uttarakhand. The villagers pledged that they would not permit any more felling of trees. A group of women of Reni village also stopped the contractor from cutting the trees by hugging the trees whenever they were tried to cut. Chipko Andolan advocates the slogan of planting 5F's - food, fodder, fuel, fibres and fertilisers trees to make communities self sufficient in all their basic needs.

17. **(i) (c) :** The given structure is representing a khadin system. It is a traditional water harvesting system.

(ii) (d) : Water harvesting is an age-old concept in India. Khadins, tanks and nadis in Rajasthan, bandaras and tals in Maharashtra, bandhis in Madhya Pradesh and Uttar Pradesh, kuhls in Himachal Pradesh, ahars – pynes in Bihar, ponds in the Kandi belt of Jammu region and eris (tanks) in Tamil Nadu, surangams in Kerala, and kattas in Karnataka are some of the ancient water harvesting, including water conveyance, structures still in use today.

(iii) (b) : A check dam is a small dam, which can be either temporary or permanent, built across a minor channel, swale, bioswale or drainage ditch. They reduce erosion and gullying in the channel and allow sediments and pollutants to settle. They also recharge the groundwater beneath. They also lower the speed of water flow during storm events. Check dams can be built with logs, stone or sandbags. Of these, the former two are usually permanent or semi-permanent and the sandbag check dam is usually for temporary purposes. The dam is either constructed straight across the gully or in a crescent shape with its open end upstream.

(iv) (d) : The various advantages of water stored in the ground are as follows :

(i) The water stored in ground does not evaporate.

(ii) The water stored in ground spreads out to recharge wells and provides moisture for crops over a wide area.

(iii) The water stored in ground does not promote breeding of mosquitoes (unlike stagnant water collected in ponds or artificial lakes).

(iv) The water stored in ground is protected from contamination by human and animal wastes.

(v) The water stored in ground is utilised for the benefit of local population.

(v) (d) : Khadins – Rajasthan

Ponds – Kandi belt of Jammu region

Surangams – Kerala

18. **(i) (b) :** Car battery manufacturing factories make use of sulphuric acid in the production of batteries. The sulphuric acid released from these factories into nearby river will cause lowering of pH. Diluted sulphuric acid as a battery acid has pH = 2.

(ii) (c)

(iii) (a)

(iv) (c) : pH paper is an indicator which is compared with the standard chart and used to assign the pH to the given compound.

(v) (c) : The given graph shows that sewage is emptied into the river at point C. After point C, the concentration of dissolved oxygen decreases.

19. **(i) (a)**

(ii) (b) : Deforestation increases CO_2 concentration in atmosphere, so increases air pollution.

(iii) (d)

(iv) (d)

(v) (d) : Management and conservation of forests is necessary for maintaining healthy environment and to obtain forest products. Conservation of forests involves two aspects – prevention of deforestation and extension of our forest wealth by comprehensive programme to protect all the physical and biological components.

20. **(i) (a)**

(ii) (c) : Petrol, diesel, LPG, kerosene, gasoline, paraffin oil, etc. are petroleum products.

(iii) (b) : Synthetic fuels or synfuels are the fuels which are synthesised or manufactured from varieties of fossil fuels which cannot be used conveniently in their natural forms e.g., substitute natural gas (SNG) which is manufactured from coal, peat or oil shales, and synthetic liquid fuels produced from coal, oil or tar sands.

(iv) (c) : Biogas is not a fossil fuel.

(v) (d) : It is necessary to check the quality of stoves regularly. Good quality stoves should be used to save fuels like kerosene and LPG.

21. Watershed management emphasises scientific soil and water conservation in order to increase the biomass production. The aim is to develop primary resources of land and water so that they can be used to produce secondary resources of plants and animals without causing the ecological imbalance.

Benefits derived from watershed management are:

(i) It identifies degraded area of land and emphasises the need of the improvement of quality and quantity of clean water to the local community and thus ensures their participation.

(ii) Construction of a series of long trenches and mounds to hold rainwater and allow it to percolate into the ground, thus increasing the groundwater.

OR

Biodiversity refers to the variety and variability of living organisms on earth or in a particular habitat. Biodiversity forms the foundation of the vast array of ecosystem services (pollination, food, timber, spices, etc.) that critically contribute to human well being. Biodiversity boosts ecosystem productivity where each species, no matter how small, has an important role to play. Hence, biodiversity is required for maintaining ecological balance. Loss of biodiversity will disturb ecological balance and create an ecological imbalance. Moreover, it will deprive humans of some important ecological services.

22. Biogas is a methane rich fuel gas produced by anaerobic breakdown or digestion of biomass with the help of bacteria. Biogas has turned out to be a significant source of energy due to following reasons :

(i) It is an alternative source of energy, especially in rural areas.

(ii) It is an environment-friendly technology as it does not add to pollution.

(iii) It helps in conservation of coal and firewood.

(iv) It provides utilisation of animal excreta that minimises the chances of spread of faecal pathogens. Sanitation and health are therefore improved.

23. Hydroelectric energy is a non-polluting renewable source of energy. It is the electrical energy generated by use of gravitational force of falling or flowing water. Dams are constructed to produce hydroelectric energy. Its production produces no direct waste and has considerably lower emission of carbon dioxide.

OR

Hotspots are areas with high density of biodiversity or megadiversity which are also the most threatened ones. Ecologically hotspots are determined by four factors – number of species/species diversity, degree of endemism, degree of threat to habitat due to its degradation and fragmentation, and degree of exploitation. Forests are reservoirs of diversity. They contain different species of plants, animals and all sorts of living organisms. Forests are also under severe threat due to habitat loss, climate change and extensive species loss. Hence, they are considered as biodiversity hotspots.

24. Conservation may be defined as the management for the benefit of all life including human kind of the biosphere so that it may yield sustainable benefit to the present generation while maintaining its potential to meet the needs and aspiration of the future generation.

Aims of conservation : The two basic aims of conservation are: to increase the preservation of a quality environment that have aesthetic and recreational values, and to ensure a continuous yield of useful plants, animals and materials by establishing a balanced cycle of harvest and renewal.

25. Underground water availability has decreased due to following factors :

(i) Loss of vegetation cover

(ii) Diversion for high water demanding crops

(iii) Pollution from industrial effluents and wastes

26. Large dams can ensure the storage of sufficient water for

(i) irrigation purposes

(ii) generating electricity

27. Some basic practices required to conserve natural resources are :

(i) Avoiding wasteful use of natural resources

(ii) Judicious utilisation of all natural resources

(iii) Conserving all non-renewable resources and promoting their sustainable use through recycling and reuse

(iv) Discovering new alternate resources to fulfill the requirements in order to conserve the exhaustible resources

(v) Prevention of all types of pollution (air, water, soil, noise, etc.) in order to conserve and utilise the natural resources judiciously

OR

Three R's to save natural resources are as follows :

Reduce: Natural resources can be saved by their lesser or reduced use. We should avoid unnecessary use of electricity, wasting of food and water, cutting of trees, too much use of automobiles, etc.

Recycle: There are certain resources which can be recycled to be used again. It includes recycling of materials like paper, plastic, glass, metals, etc. which may be recycled to convert them into desired objects.

Reuse: The reuse strategy comprises using things again and again. For example, newspapers and magazines can be used to make envelopes. The process of reuse is considered better than recycling because the process of reuse does not require any energy as in the case of recycling.

28. Despite of good rains, we are not able to meet the demand of water for all the people because :

(i) Our population is increasing rapidly.

(ii) Due to lack of sufficient vegetation cover on ground, only a little rainwater seeps into the ground and gets stored as groundwater.

(iii) The high yielding varieties of crops require much more water for irrigation.

(iv) Discharge of untreated sewage and industrial wastes into rivers and lakes reduces the availability of usable water.

(v) The changing life-style of people, especially in urban areas, is consuming more water.

29. The *Chipko Andolan* (tree hugging movement) is an example of the contribution of common people towards the conservation of forests. The *Chipko Andolan* originated from an incidence in a remote village of Garhwal, high up in the Himalayas in the early 1970s. A logging contractor had been allowed to cut down trees in a forest close to a village. The people of the village did not want this forest to be cleared because it would spoil their healthy environment. One day, when the men folk of the village were out for work, the contractor's workers came in the forest to cut down the trees. In the absence of men, the women of the village reached the forest quickly and clasped the tree trunks with their arms, preventing the workers from cutting them down. The forest trees were thus saved. The *Chipko* movement quickly spread across all the communities and helped in the conservation of forests thereby contributing to the service of mankind. Both local people and environment were benefitted due to conservation of food, fodder, fuel fibre and fertiliser.

30. Productive functions :

(i) Forests provide timber, fuel wood, fruits, nuts, seeds, medicines, etc.

(ii) Forests provide plant fibres to be used in making ropes and mattresses.

Protective functions:

(i) Forests protect the chemical and physical nature of the soil environment and prevent the water loss from soil.

(ii) Forests protect public health by preventing air and noise pollution.

Regulatory functions:

(i) Forests influence factors like temperature, humidity and precipitation in order to maintain a conducive natural environment.

(ii) The trees and plants of forests help to maintain a balance between atmospheric oxygen and carbon dioxide.

31. Indian Board of Wildlife (IBWL) in 1980 launched a national wildlife action plan for wildlife conservation in India. Following measures were considered necessary for conservation programme.

(i) Establishment of protected areas, such as national parks, sanctuaries, biosphere reserves where wildlife gets protection from damage.

(ii) Rehabilitation of endangered and threatened species.

(iii) Wildlife education and awareness programmes.

(iv) Providing medical facilities in case of epidemics, drought, flood, etc.

(v) Launching special conservation projects for conserving threatened and endangered species, such as project tiger, Gir lion project, project Hangul.

32. Some measures that could help to improve water quality of river Ganga is as follows :

(i) Treatment of sewage waste of cities/towns before its disposal into the river water.

(ii) Enforcement of setting up of effluent treatment plants by the industries.

(iii) Establishment of electric crematoria for the disposal of dead bodies.

(iv) Development of ghats and interceptions at strategic locations.

(v) Construction of community toilets.

33. **(a)** (i) Use CNG or clean fuel in automobiles.

(ii) Do not burn litter. Use it for preparation of manure.

(iii) Use less petrol.

(iv) Afforestation, *i.e.*, excessive plantation should be done.

(v) Remove the harmful gases from smoke, before discharging into atmosphere.

(b) (i) Total use of CFL or fluorescent tubes

(ii) To use solar radiation and use of solar cookers, solar water heating system, etc.

(iii) To put off fans and lights, when they are not in use.

34. Significance of rainwater harvesting are as follows :

(i) It reduces run off loss and avoid flooding.

(ii) It meets the increasing demand of water.

(iii) It reduces contamination of groundwater and raises the water table.

(iv) It supplements groundwater supplies during lean period.

(v) It reduces power consumption.

(vi) It arrests sea water-ingress as during groundwater deficiency in coastal areas, there is landward movement of fresh water-sea water interface and contamination of freshwater sources.

(vii) It improves soil moisture and decreases soil erosion.

OR

Groundwater is safe for the use in following ways:

(i) It provides soil moisture for plant growth.

(ii) It is commonly used for human consumption.

(iii) It supplements water in streams.

(iv) This water is used by human beings for drinking, cooking, bathing, cleaning, etc. It is relatively protected from contamination by human and animal waste.

(v) Freshwater is also required for various types of industries.

(vi) It is required for irrigation purpose (agriculture).

(vii) Groundwater does not evaporate but spreads out to recharge wells and provides moisture for vegetation over a large area.

(viii) It does not provide breeding ground for mosquitoes like stagnant water collected in ponds or artificial lakes.

35. **(a)** Coal is composed of carbon, oxygen and hydrogen.

(b) Peat is a dark brown organic matter formed before plant material is converted into coal. It is inferior quality of coal. Anthracite is the last stage of coal formation. It is hardest form of coal with maximum carbon content and is superior type of coal.

(c) Uses of coal:

(i) Coal is used as a fuel.

(ii) It can be converted into other useful forms of energy like, coal gas, electricity and oil.

(iii) Coal is used in the manufacture of synthetic petrol and synthetic natural gas.

(iv) Coal is used to manufacture many organic compounds like benzene, toluene, phenol, aniline, napthalene, anthrancene, etc.

(v) Coal is used as reducing agent in industries in the extraction of metals.

(vi) Coal is used to make coke.

36. **(a)** Coal and petroleum are called fossil fuels formed from degradation of organic fossilised matter (remain of animals and plants biomass) under great pressure and heat beneath the earth. They took millions of years to form. Coal and petroleum are the natural resources which are important sources of energy for us. Coal is used as a fuel in homes and industries and to generate electricity at thermal power plants. Petroleum products such as petrol and diesel are used as fuels in transport. Kerosene and LPG obtained from petroleum are used as domestic fuels. We have been using these resources at such a rapid rate that they will get exhausted in the near future. It has been estimated that petroleum and coal, if continued to be used at a rate, as they are being used these days, they would be available for about 40 years and 200 years respectively. Once exhausted, coal and petroleum will not be available to us in near future. It is therefore necessary to conserve coal and petroleum resources by reducing their consumption so they may last for as long as possible. Thus, it is also essential to find the alternative sources of energy at the earliest.

(b) Petroleum is obtained by fractional distillation of crude oil.

Advantages of petroleum : (i) It is cleaner fuel than coal. (ii) It is easy to transport.

OR

(a) Local people depend on forests for :

(i) Large quantities of firewood, small timber and thatch.

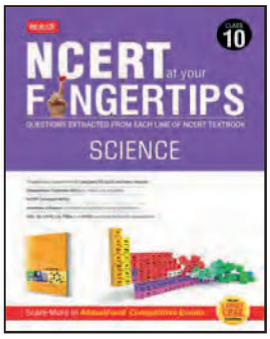
(ii) Bamboo is required to make slats for huts and baskets for collecting and storing food materials.

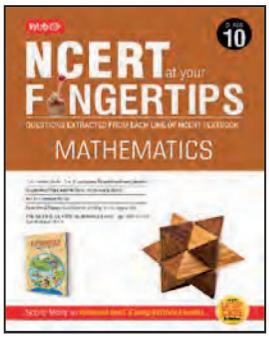
(iii) Implement for agriculture, fishing and hunting are mainly made from forest wood.

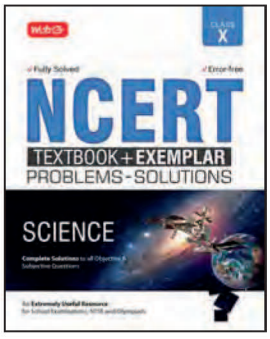
(iv) Local people collect fruits, nuts and medicines from forest area.

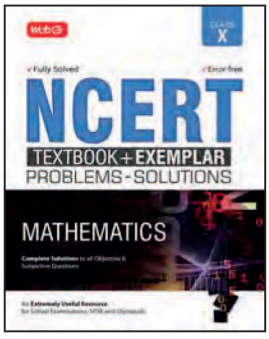
(b) Strict application of conservation strategies may lead to strict ban on tree felling, wood cutting, etc. But such bans will adversely affect human economy. Besides we have been using forest products and other resources from such a long period that now life seems impossible without them, *e.g.*, in absence of timber we will not get furniture. To solve this problem, idea of sustainable development has been developed that harmonises human growth and resource conservation, *e.g.*, it says that we should plant at least as many plants as we cut to maintain that plant population. Hence, it is considered to be an advanced idea of conservation.

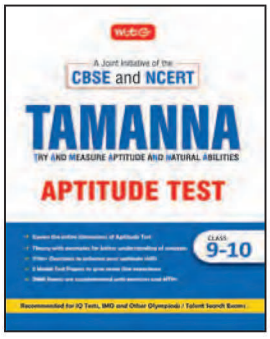
BEST SELLING BOOKS FOR CLASS 10

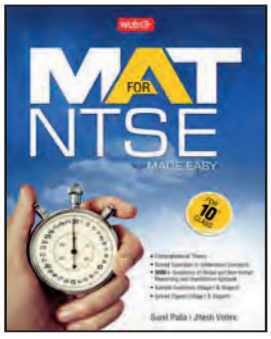


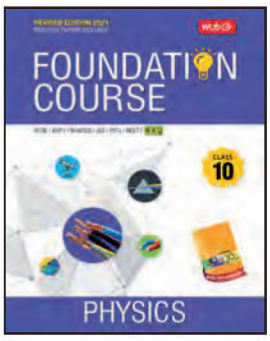


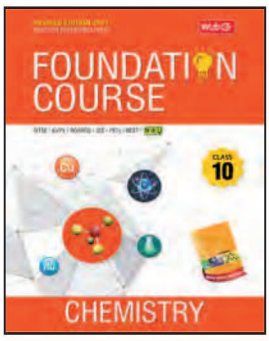


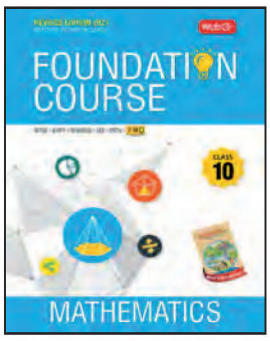


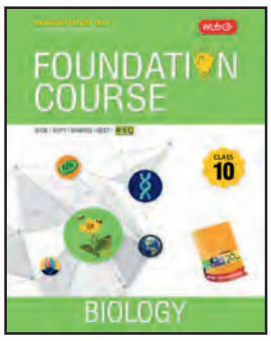


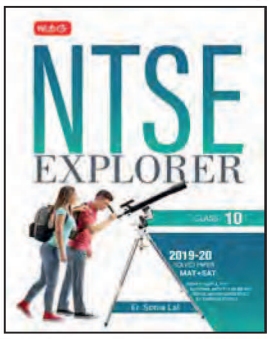


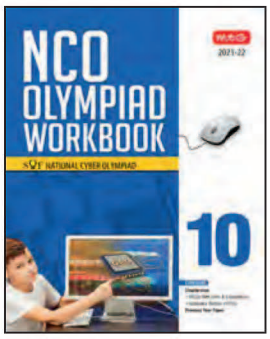


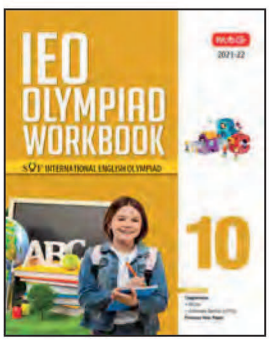


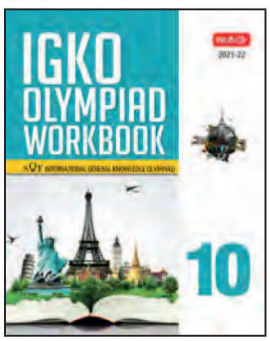


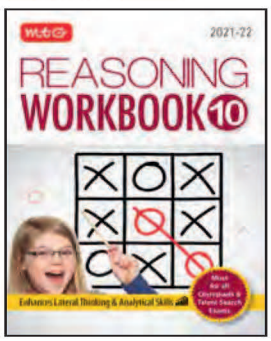












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