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. 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.

4(i) Water of Kannauj, Kanpur and Varanasi have the highest levels of coliform. It is somewhere around 1200-1400 (MPN/100mL).

4(ii) Coliform in the water indicates pollution. More the number of coliform bacteria are present, more polluted the water is.

4(iii) **(a) :** Water from Rishikesh and Haridwar will have the maximum shelf life, because the level of coliform in the water of these two cities is the least as compared to the other cities. It is nearly 600-700 (MPN/100mL).

4(iv) **(d) :** Following are the important aspects of GAP:

- Treatment of sewage waste of cities/towns before its disposal into the river water
- Enforcement of setting up of effluent treatment plants by the industries
- Establishment of electric crematoria for the disposal of dead bodies
- Development of ghats and interceptions at strategic locations
- Construction of community toilets

5(i) X is a National Park, Y is sanctuary and Z is a Biosphere Reserve.

5(ii) Biosphere Reserve (Z)

5(iii) **(d)**

5(iv) **(d) :** *Ex-situ* conservation is conservation of selected rare or threatened animals and plants in places outside their natural homes. It includes offsite collections like botanical gardens, zoological parks, cryopreservation, tissue culture, wildlife safari parks and gene banks.

6. **(b) :** Sargam is not an ancient water harvesting structure while Kattas, Kuhls and Surangams are ancient water harvesting structures found in Karnataka, Himachal Pradesh and Kerala, respectively.

OR

(c) : 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.

It results in soil erosion, desertification, drought, flash floods, loss of plant, animal and tribal habitats, ecosystem disturbance, loss of biodiversity and germplasm, global warming, etc.

7. **(b)**

8. **(b) :** 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

(a) : Gir lion project was launched in India in 1973.

9. **(c)**

10. **(d)**

11. **(b) :** 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.

12. **(c)**

13 **(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.

14. **(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.

15. 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.

16. 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.

17. 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.

18. 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.

19. 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.

OR

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, foder, fuel fibre and fertiliser.

20. 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.

21. 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.

22. 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 of wildlife 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.

23. 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.

24. 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.

25. **(a)** 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

(b) Large dams can ensure the storage of sufficient water for

(i) irrigation purposes

(ii) generating electricity

26. Significance of rainwater harvesting are as follows :

(i) It reduces run off loss and avoids 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.

27. **(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.

28. **(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.

29. **(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

30. In recent years, many parts of our country have been facing crisis of groundwater availability. Thus, there is a greater need of surface water collection, storage, treatment and supply at household level for domestic use.

Many indigenous water saving methods have been used by local communities to capture water wherever it falls on their land, like digging small pits and lakes, building small earthen dams and reservoirs and setting up roof top rainwater harvesting units.

In different parts of our country, rainwater harvesting was practised in different ways. In Madhya Pradesh, check dams, tanks and community lift irrigation schemes were used to overcome drought. As a result, food production got increased in between 1990 and 1995.

In Andhra Pradesh also, percolation tanks and check dams were constructed to overcome drought. Even in Maharashtra, percolation tanks were used to convert drought prone areas into green lands.

In Jodhpur (Rajasthan), Gramin Vigyan Vikas Samiti motivated people to build storage tanks. Water harvesting techniques are highly specific for specific areas and the benefits are also localised.

These days, rooftop rainwater harvesting is practiced. It is a method of direct collection of rainwater on the rooftop of building, houses as well as those of industries buildings.

The rainwater collected can be stored for direct use or can be allowed to reach under the ground, once the water reaches the groundwater table is raised. It is thus, a solution to the problem of depleting groundwater.

OR

(a) Differences between inexhaustible and exhaustible resource are:

S. No.	Inexhaustible resources	Exhaustible resources
(i)	These resources have an ability to renew themselves in a given period of time	These resources cannot be renewed after exhaustion
(ii)	These are renewable or replenishable resources.	These are non-renewable or non-replenishable resources.
(iii)	They do not require conservation steps to be taken as they can be, renewed, *e.g.*, sunlight water, etc.	They required conservation steps to be taken, so that they can be used in future also, *e.g.*, petroleum, coal, etc.

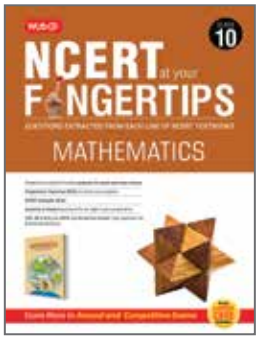
(b) Activities that have led the contamination of the river Ganga are:

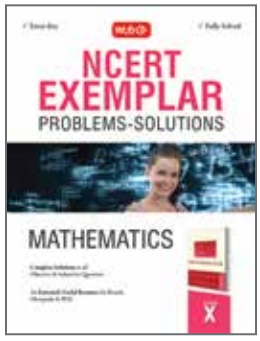
(i) Largely untreated sewage is dumped into the Ganga everyday.

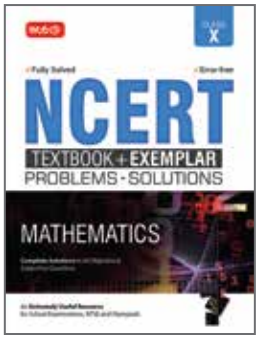
(ii) Other human activities like bathing, washing of clothes, immersion of ashes or unburnt dead bodies have also lead to the contamination of Ganga.

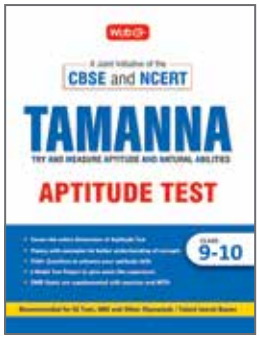
(iii) Toxic chemical effluents are also added to Ganga and their toxicity kills large number of fishes.

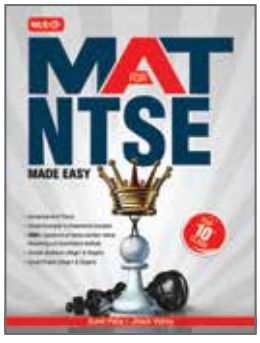
mtG BEST SELLING BOOKS FOR CLASS 10

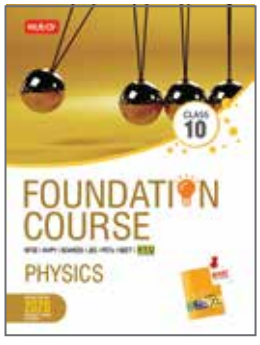


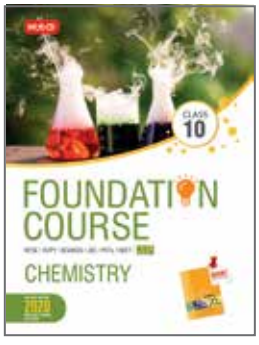


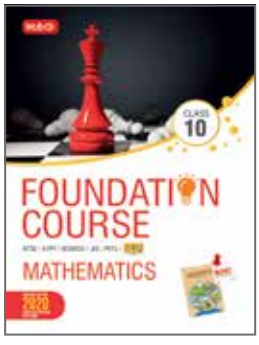


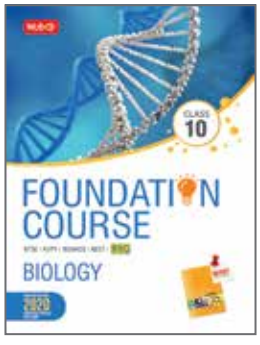


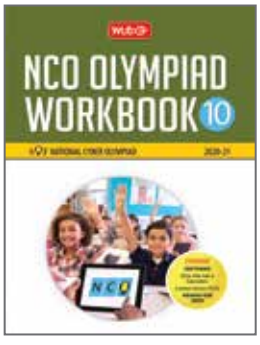


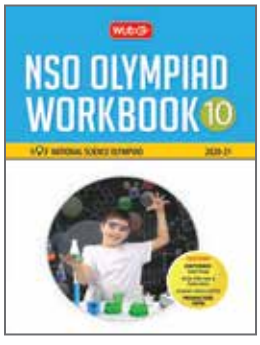


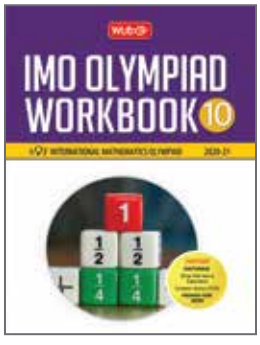


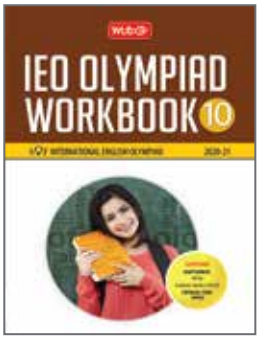


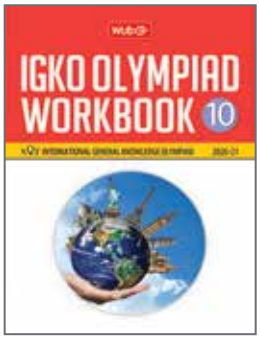


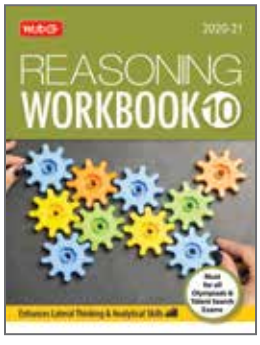












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