CHAPTER - 9
ENVIRONMENTAL SUSTAINABLE DEVELOPMENT

Question 1. What is meant by environment?

Answer. Environment is defined as the total planetary inheritance and the totality of all resources. It includes all the biotic and abiotic factors that influence each other. Biotic elements are all living elements — the birds, ainimals and plants, forests, fisheries, etc. Abiotic elements are like air, water, land, rocks, sunlight, etc.

Question 2. What happens when the rate of resource extraction exceeds that of their regeneration?

Answer. Environment includes sun, soil, water and air which are essential ingredients for the sustenance of human life. The carrying capacity of the environment implies that the resource extraction is not above the rate of regeneration of the resources and the waste generated are within the assimilating capacity of the environment. Carrying capacity of the environment helps to sustain life. Absence of carryingjcapacity of environment means absence of life.

Question 3. Classify the following into renewable and non-renewable resources (i) trees (ii) fish (iii) petroleum (iv) coal (v) iron-ore (vi) water.

Answer. Trees and fish are renewable resources.
Petroleum, coal, iron-ore and water are non-renewable resources.

Question 4.Two major environmental issues facing the world today are and .

Answer. Global warming and Ozone depletion.

Question 5.How do the following factors contribute to the environmental crisis in India? What problem do they pose for the government?

1. **Rising population**
2. **Air pollution**
3. **Water contamination**
4. **Affluent consumption standards.**
5. **Illiteracy**
6. **Industrialisation**
7. **Urbanisation**
8. **Reduction of forest coverage**
9. **Poaching**
10. **Global warming.**

Answer.

1. The high rate of growth of population adversely affects the environment. It certainly leads to soil and water pollution.
2. India is one of the ten most industrialised nations of the world. It has led to unplanned urbanisation, pollution and the risk of accidents. The CPCB (Central Pollution Control Board) has identified 17 categories of industries which are significant pollutors.
3. Many states in India are on the edge of famine. Whatever water is available, it is polluted or contaminated. It causes diseases like diarrhoea and hepatitis.
4. With affluent consumption standards, people Use more air conditioners. CFCs are used as cooling agents in air condition which leads to ozone depletion.
5. Illiteracy and ignorance about the use of non-renewable resources, alternative energy sources, lead to environmental crisis.
6. With rise in national income or economic activity, there is rise in industrialisation and urbanisation. This raises pollution of air, water and noise. There are accidents, shortage of water, housing problems, etc. In other words, with rise in national income there is ecological degradation which reduces welfare of the people.
7. Whenever there is large migration of population from rural to urban areas, it leads to fast growth of slum areas. There is excess of load on the existing infrastructural facilities. It causes environmental degradation and ill health.
8. The per capita forestland in the country is only 0.08 hectare. There is an excess felling of about 15 million cubic metre forests over the permissible limit. Indiscriminate felling of trees has led to destruction of forest cover.
   Once forests haye been cut down, essential nutrients are washed out of the soil all-together. This leads to soil erosion. It leads to disastrous flooding since there is no soil to soak up the rain.
9. Poaching leads to extinction of wildlife.
   The long-term results of global warming are:
   (a) Melting of polar ice caps with a resulting rise in the sea level and coastal flooding.
   (b) Disruption of drinking water supplies as snow melts.
   (c) Extinction of species.
   (d) Frequent tropical storms and tropical diseases.

Question 6. What are the functions of the environment?

Answer. The environment performs^four vital functions:

1. Environment Supplies Resources. Resources include both renewable and non-renewable re¬sources. Renewable resources are those which can be used without the possibility of the resource becoming depleted or exhausted. In other words, a continuous supply of the resource remains available. Examples of renewable resources are trees in the forest and fish in the ocean. Non-renew¬able resources are those which get exhausted with extraction and use. Example, fossil fuels.

2. Environment Sustains Life. Environment includes sun, soil, water and air which are essential ingredients for the sustenance of human life. The carrying capacity of the environment implies that the resource extraction is not above the rate of regeneration of the resources and the waste generated are within the assimilating capacity of the environment. Carrying capacity of the environment helps to sustain life. Absence of carrying capacity of environments means absence of life.
3. Environment Assimilates Waste. Production and consumption activities generate waste. This occur mostly in the form of garbage. Environment absorbs garbage.
4. Environment Enhances Quality of Life. Environment includes oceans, mountains, deserts, etc. Man enjoys these surroundings, adding to the quality of life.

Question 7. Identify six factors contributing to land degradation in India.

Answer. Some of the factors responsible for land degradation are:

1. Loss of vegetation occuring due to deforestation
2. Unsustainable fuel wood and fodder extraction .
3. Shifting cultivation
4. Encroachment into forest lands
5. Forest fires and over grazing
6. Non-adoption of adequate soil conservation measures.

Question 8. Explain how the opportunity costs of negative environmental impact are high.

Answer. Opportunity cost is the cost of alternative opportunity given up. The country has to pay huge amount for damages done to human health. The health cost due to degraded environmental quality have resulted in diseases like asthma, cholera, etc. Huge expenditure is incurred in treat¬ing the diseases.

Question 9. Outline the steps involved in attaining sustainable development in India.

Answer. Steps and Strategies to Achieve Sustainable Development in India:

1. Use of Non-Conventional Sources of Energy
2. LPG, Gobar Gas in Rural Areas
3. CNG in Urban Areas
4. Wind Power
5. Solar Power through Photovoltaic Cells
6. Mini-Hydel Plants
7. Traditional Knowledge and Practices
8. Biocomposting
9. Biopest Control.

Question 10. India has abundant natural r&ources—substantiate the statement.

Answer. India has rich quality of natural resources in plenty. It is clear from the following points:

1. India has rich quality of soil, hundreds of rivers and tributaries, lush green forests, abundant mineral deposits under the land surface, vast stretch of the Indian Ocean, mountain ranges, etc.
2. The black soil of the Deccan Plateau is particularly suitable for cultivation of cotton. It has lead to concentration of textile industries in this region.
3. The Indo-Gangetic plains — spread from the Arabian Sea to the Bay of Bengal — are one of the most fertile, intensively cultivated and densely populated regions in the world.
4. India's forests provide green cover for a majority of its population and natural cover for its
   wildlife.
5. Large deposits of iron-ore, coal and natural gas are found in the country. India alone accounts for nearly 20 per cent of the world's total iron-ore reserves.
6. Bauxite, copper, chromate, diamonds, gold, lead, lignite, manganese, zinc, uranium, etc. are also available in different parts of the country.

Question 11. Is environmental crisis a recent phenomenon? If so, why?

Answer. Yes, because India is suffering from population explosion. .

1. India has approximately 20 per cent of livestock population on a mere 2.5 per cent of the world's geographical area. The high density of population and livestock and the competing
   uses of land for forestry, agriculture, pastures, human settlements and industries exert an enormous pressure on the country's finite land resources.
2. The per capita forestland in the country is only 0.08 hectare. There is an excess felling of about 15 million cubic metre forests over the permissible limit. Indiscriminate felling of trees has led to destruction of forest cover.

Question 12. Give two instances of:
(a) Overuse of environmental resources
(b) Misuse of environmental resources.

Answer.

1. There is massive overuse and misuse of environmental resources. Examples of overuse of environmental resources are deforestation and land degradation.
2. Example of misuse of environmental resources are ozone depletion and global warming.

Question 13. (a) State any four pressing environmental concerns of India.
(b) Correction for environmental damages involves opportunity costs — explain.

Answer. (a) Pressing environmental concerns of India:

1. Global Warming. Global warming is a gradual increase in the average temperature of the earth's lower atmosphere as a result of the increase in greenhouse gases due to industrialisation in recent times.
2. Ozone Depletion. The depletion of ozone layer has been caused by high levels of chlorine and bromine compounds in the stratosphere. It causes skin cancer, and lowers the production of acquatic organisms.
3. Environmental Crisis. The rising population of the developing countries and the affluent • , consumption and production standards of the developed world have put a great stress on the environment in terms of its functions of supplying resources and assimilating waste.
4. Massive Overuse and Misuse of Environmental Resources. There is massive overuse and misuse of environmental resources which results in deforestation, land degradation, ozone depletion and global warming. .

(b) The correction of environmental damages involve huge opportunity cost. It is the cost of alternative opportunity given up. The country has to pay huge amount for damages done to human health. The helath cost due to degraded environmental quality have resulted in diseases like asthma, cholera, etc. Huge expenditure is incurred on treating the diseases.

Question 14. Explain the supply-demand reversal of environmental resources.

Answer. Supply Demand Reversal of Environmental Resources: –
The demand for resources for both production and consumption has gone beyond the rate of regeneration of the resources increasing the pressure on the absorptive capacity of the environment. This reversal of the supply-demand relationship with demand for resources exceeding the supply has led to degeneration of the environment.

Question 15. Account for the current environmental crisis.

Answer.

1. Land Degradation
2. Biodiversity Loss
3. Air Pollution
4. Management of Fresh Water and Solid Waste.

Question 16. (a) Highlight any two serious adverse environmental consequences of development in India.
(b) India's environmental problems pose a dichotomy — they are poverty induced and, at the same time, due to affluence in living standards—is this true?

Answer. (a)

1. Biodiversity Loss
   (i) India has approximately 20 per cent of livestock population on a mere 2.5 per cent of the world's geographical area. The high density of population and livestock and the competing uses of land for forestry, agriculture, pastures, human settlements and industries exert an enormous pressure on the country's finite land resources.
   (ii) The per capita forestland in the country is only 0.08 hectare. There is an excess felling of about 15 million cubic metre forests over the permissible limit. Indiscriminate felling of trees has led to destruction of forest cover.
2. Air Pollution
   (i) In India, air pollution is widespread in urban areas where vehicles are the major contributors. Vehicular emissions are of particular concern since these are ground level sources and, thus, have the maximum impact on the general population. The number of motor vehicles has increased from about 3 lakh in 1951 to 67 crores in 2003.
   (ii) India is one of the ten most industrialised nations of the world. It has led to unplanned urbanisation, pollution and the risk of accidents.

(b) Dichotomy of the Threat to India's Environment
The developmental activities in India have resulted in pressure on its finite natural resources, besides .creating impacts on human health and well-being. The threat to India's environment poses a dichotomy—threat of poverty-induced environmental degradation and, at the same time, threat of pollution from affluence and a rapidly growing industrial sector. Air pollution, water contamination, soil erosion, deforestation and wildlife extinction are some of the most pressing environmental concerns of India.

Question 17. What is sustainable development?

Answer. Sustainable Development implies meeting the basic needs of everyone and extending to all the opportunity to satisfy their aspirations for better life, without compromising on the needs of future.

Question 18. Keeping in view your locality, describe any four strategies of sustainable development.

Answer. Four strategies of sustainable development in my locality can be:

1. Solar energy should be put up.
2. People should use less air conditioners.
3. People should use herbal cosmetics.
4. People should not use polythene bags, instead they must use bags made of paper.

Question 19. Explain the relevance of intergenerational equity in the definition of sustainable development.

Answer. The Brundtland Commission emphasises on protecting the future generations. This is in line with the argument of the environmentalists who emphasise that we have a moral obligation to hand over the planet earth in good order to the future generations, i.e., the present generation should give better environment to the future generations, no less than what we have inherited.
According to the United Nations Conference on Environment and Development (UNCED) sustained development is, “Development that meets the needs of the present generation without compromising the ability of the future generation to meet their own needs.”