

Important Questions

END SEM

- 1) Write short notes on
 - a) Photochemical smog
 - b) Acid rain
 - c) Global warming
 - d) Salination of soil
 - e) Radioactive pollution
 - f) Composting
 - g) Maximum carrying capacity
 - h) Control method of air pollution
 - i) Disposal of solid waste, Land filling and composting
 - j) Disaster management
 - k) Watershed management
 - l) Role of engineers in sustainable development
 - m) Reasons of loss of biodiversity
- 2) Classify pollutant and explain with examples.
- 3) Explain various effects of water pollution.
- 4) What are the sources of soil pollution?
- 5) Explain the effects of various air pollutants on human being.
- 6) Explain the various sources of ground water pollution.
- 7) Explain the measures adopted for control of noise pollution. State the zone-wise permissible ambient noise level recommended by Central Pollution Control Board.
- 8) Explain the factors affecting population growth rate.
- 9) What are the role of information technology in environment and human health?
- 10) What are the roles of CFCs in global environmental change?
- 11) What are the methods to control soil pollution?
- 12) What are the methods to control noise?
- 13) Enumerate the types of primary and secondary air pollutants?
- 14) Compare Genetic and Species diversity.
- 15) What are the major strategies of biodiversity conservation adopted in India?
- 16) What do you mean by biodiversity? What are their kinds?
- 17) How are deforestation and loss of biodiversity interrelated? Explain

18) Describe benefits of biological diversity.

19) Conservation of biodiversity

20) Gradient of biodiversity

21) Species diversity

22) What do you mean by Alpha, Beta and Gamma diversity?

Answers

1 (a) Photochemical smog is a type of smog produced when ultraviolet light from the sun reacts with nitrogen oxides in the atmosphere. It is visible as a brown haze, and is most prominent during the morning and afternoon, especially in densely populated, warm cities.

Causes: Automobiles, coal-fired power plants and some other power plants.

Effects: When combined with hydrocarbons, the chemicals contained within it form molecules that cause eye irritation. Radicals in the air interfere with the nitrogen cycle by preventing the destruction of ground level ozone. Other effects include reduced visibility and respiratory ailments.

Control:

1. Car pool or public transportation instead of driving.
2. Installation of solar panels at every household.

1 (b) Acid rain includes any form of precipitation that contains acidic components, such as sulfuric acid or nitric acid. The precipitation is not necessarily wet or liquid; the definition includes dust, gasses, rain, snow, fog and hail.

Causes: 1. Manmade pollutants : Sulfur dioxide (SO₂) and nitrogen oxides (NO_x) released into the air by fossil-fuel power plants, vehicles and oil refineries

2. Natural disasters like volcanoes can cause acid rain by blasting pollutants into the air.

Effects: 1. Acid rain has been found to be very hard on trees. It weakens them by washing away the protective film on leaves, and it stunts growth.

2. Acid rain can also change the composition of soil and bodies of water, making them uninhabitable for local animals and plants.

3. It can deteriorate limestone and marble buildings and monuments, like gravestones.

Control: 1. Regulating the emissions coming from vehicles and buildings

2. Restricting the use of fossil fuels and focusing on more sustainable energy sources such as solar and wind power.

3. Using public transportation, walking, riding a bike or carpooling

1 (g) The **maximum carrying capacity** of a biological species in an environment is the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water, and other necessities available in the environment.

Maximum carrying capacity was originally used to determine the number of animals that could graze on a segment of land without destroying it. Later, the idea was expanded to more complex populations, like humans. For the human population, more complex variables such as sanitation and medical care are sometimes considered as part of the necessary establishment.

1 (j) Disaster Management can be defined as the organization and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery in order to lessen the impact of disasters.

In India, Central Relief Commissioner (CRC) in the Ministry of Home Affairs is the nodal officer to coordinate relief operations for natural disasters. The Ministries/Departments/Organizations concerned with the primary and secondary functions relating to the management of disasters include:

- (a) India Meteorological Department, Central Water Commission, Ministry of Home Affairs, Ministry of Defence, Ministry of Finance, Ministry of Rural Development, Ministry of Urban Development, Department of Communications,
- (b) Ministry of Health, Ministry of Water Resources, Ministry of Petroleum,
- (c) Department of Agriculture & Cooperation. Ministry of Power,
- (d) Civil Supplies, Ministry of Railways, Ministry of Information and Broadcasting.

1 (l) Engineers contribute to sustainable development in the following ways:

- By developing, processing and transporting natural resources in closed-loop systems, which can reduce waste and increase the efficient use of resources.
- Harvesting renewable resources such as water, fish and trees within the limits allowed by nature will ensure a continuing supply of resources for humans and natural ecosystems.
- Minimizing use of non-renewable resources, such as petroleum and scarce minerals, and replacing them with environmental friendly substitutes.
- Processing natural resources efficiently and with little or no waste helps to preserve the earth's finite natural resources.
- Reduce waste through the ecosystem cycle by continually recycling and recovering residual byproducts of resource development, industrial processing and meeting consumer needs.
- The effects of developing energy sources on the atmosphere, earth and water can be reduced by more efficient use of power and by production from non-fossil sources.

8) The factors affecting population growth rate are:

1. **Birth Rate:** It is the average number of the children born in a country compared to the rest of the population. In other words, it is the number of births for every 1000 people in the country. Increase in population is directly related to birth rate of the country.
2. **Fertility Rate:** It is measured by the number of children per one woman of child-bearing age. If the fertility rate is larger than 2, the rule of thumb is that the population should rise. On the other hand, if this ratio is below 2, the population of the region may be destined for a decline.
3. **Mortality Rate:** Death rate is the number of people who die every year compared to 1000 people in the population. The factors that affect the mortality rate include the availability and affordability of quality health care and lifestyle habits – for example, whether they smoke or do physical exercises regularly.
4. **Immigration and Emigration:** Cross-border migration is the act of people moving from one country to another. It affects the population size of both the host and destination countries.

20) The increase in species richness or biodiversity that occurs from the poles to the tropics is referred to as the **biodiversity gradient**. Altitude affects the diversity richness inversely. High altitudes are less diverse than lower altitudes. This happens because as we move up, the atmosphere becomes less dense and due to lack of oxygen only a few species are able to sustain life at higher altitudes.

22) **Alpha diversity** refers to the average species diversity in a habitat or specific area. It is the number of species found in a particular area or ecosystem. Alpha diversity is a local measure.

Beta diversity refers to the ratio between alpha diversity and regional diversity. It is the variation of the species composition between two habitats or regions. It takes into account the alpha diversity of the habitats and the number of unique species on each habitat.

Gamma diversity is the total diversity of a landscape and is a combination of both alpha and beta diversity. It is a measure of the overall number of species (the diversity) within a region. It is basically the sum of all the species of all habitats within the region of interest.