

Environment and Ecology

Environment

Environment refers to the surroundings or conditions in which a person, animal, or plant lives. It consists of atmosphere, hydrosphere lithosphere and biosphere.

Ecology and Ecosystem

- The word ecology is derived from greek words oikos and logos. Oikos meaning house and logos meaning to study.
- Ecology is defined as the study of interrelationship of different organisms with each other and their environment.
- An ecosystem is a community made up of living organisms and non-living components such as air, water and mineral soil, all interacting as a system.
- There are three components of ecosystem
 - (i) **Producers** are organisms that can make organic energy resources from abiotic components of environment.
 - (ii) **Consumers** are those organisms that gather energy by consuming material from others.
 - (iii) **Decomposers** are organisms that break down dead or decaying organisms.

Climate Change, Greenhouse Gases and Global Warming

- Climate Change refers to long-term change in the Earth's climate, especially a change due to an increase in average atmospheric temperature.
- The Greenhouse Gases (GHGs) in the atmosphere absorbs and emits radiation within the thermal infrared range. The process is the fundamental cause of the greenhouse effect. The primary greenhouse gases are: water vapour, carbon dioxide, methane, nitrous oxide and ozone.
- Global Warming is the increase of Earth's average surface temperature due to effect of greenhouse gases.

Pollution

- Environmental pollution is the effect of undesirable changes in our surroundings that have harmful effects on plants, animals and human beings.
- There are four types of pollution namely
 - (i) Air pollution is the contamination of air by a variety of substances causing health problems. Some important air pollutants are carbon monoxide, carbon dioxide, chlorofluorocarbons, ozone etc.

- (ii) **Water pollution** is the contamination of water bodies such as lakes, rivers, oceans, aquifers and ground water.
- (iii) **Land pollution** refers to degradation or destruction of Earth's surface and soil, directly or indirectly as a result of human activities.
- (iv) **Noise pollution** refers to non-harmonious sounds or vibrations that are unpleasant and irritating to ear.

Biodiversity

- It refers to the variety within the living world. It can be preserved by setting up biosphere reserves, wildlife and bird sanctuaries as well as national parks.
- National park is a reserved area for preservation of its natural vegetation, wildlife and natural beauty.
- Wildlife sanctuary is a reserved area for preservation of endangered species.

Important Sanctuaries and National Parks

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|----------------------------|---------------|--|--|--|--|--|
| Name of Sanctuary/Park | Location | Important Species Tiger, Elephant, Panda | | | | |
| Corbett National Park | Uttarakhand | | | | | |
| Dudhwa National Park | Uttar Pradesh | Tiger, Cheetah, Sambar | | | | |
| Kaziranga National Park | Asom | One Horned Rhinoceros | | | | |
| Gir National Park | Gujarat | Asiatic Lions | | | | |
| Kanchenjunga National Park | Sikkim | Red Panda, Musk Deer | | | | |
| Simlipal Sanctuary | Odisha | Gaur, Chital, Tiger, Cheetah | | | | |
| Ghana Bird Sanctuary | Rajasthan | Siberian Crane | | | | |
| Bhitarkanika Sanctuary | Odisha | Crocodile, Sea turtle | | | | |
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Practice Exercise

- **1.** What are the three components of ecosystem?
 - (a) Producers
- (b) Consumers
- (c) Decomposes
- (d) All of these
- **2.** Humans can pollute the environment
 - (a) deforestation
 - (b) urbanisation
 - (c) burning of fossil fuels
 - (d) All of the above
- **3.** Which of the following is not a Greenhouse Gas?
 - (a) Carbon dioxide
- (b) Methane
- (c) Nitrous Oxide
- (d) Oxygen

- **4.** Which of the following is not a form of pollution?
 - (a) Excessive radioactivity
 - (b) Too much noise
 - (c) Plastic particles in food items
 - (d) Generation of oxygen by plants while making food
- **5**. The non-living environment in an area will not include
 - (a) people living there
 - (b) the atmosphere
 - (c) the soil
 - (d) the Sun

- **6.** Which of the following factors causes pollution by natural means?
 - (a) Eruption of a volcano
 - (b) A forest fire
 - (c) Dispersal of poller from flowers
 - (d) All of the above
- **7.** Which of the following can be called as noise pollution from commercial or industrial activities?
 - (a) Throwing poisonous waste into rivers
 - (b) Loud speakers playing music at parties and marriages
 - (c) Running of a printing press to print newspapers during early morning hours
 - (d) Running a water pump in a home
- **8.** Which of the following is the meaning of 'biodiversity'?
 - (a) The contamination of soil by diverse products of biological nature
 - (b) All living things in an area
 - (c) The variability among living organisms of all types in an area
 - (d) Major changes in organisms in an area
- **9.** How can we preserve places on Earth that are biologically rich but are also threatened due to human activity or other reasons?
 - (a) By building fences around them
 - (b) By making them biosphere reserves or national parks
 - (c) By not allowing wild animals to enter them
 - (d) By cutting the trees inside them

- **10.** Which of the following activities will threaten biodiversity in an area?
 - (a) Building a house
 - (b) Planting tree saplings
 - (c) Prohibiting killing of animals
 - (d) All of the above
- **11.** Kaziranga National Park is famous for which species?
 - (a) Asiatic Lion
 - (b) One Horned Rhinoceros
 - (c) Tiger
 - (d) Red Panda
- **12.** In which state is the Bhitarkanika Sanctuary located?
 - (a) Sikkim
- (b) Asom
- (c) Odisha
- (d) Uttarakhand
- **13.** When the Earth's average surface temperature is increased due to increase in greenhouse gases, we call it
 - (a) Global heating
 - (b) Atmospheric contamination
 - (c) Pollution
 - (d) Global warming
- **14.** Which of the following is the actual cause of global warming?
 - (a) People breathing out carbon dioxide
 - (b) Cows exhaling methane while digesting food
 - (c) Greenhouse gases absorbing heat from the atmosphere
 - (d) All of the above

Answers

| 1 | (d) | 2 | (d) | 3 | (d) | 4 | (d) | 5 | (a) | 6 | (d) | 7 | (c) | 8 | (c) | 9 | (b) | 10 | (a) |
|----|-----|----|-----|----|-----|----|-----|---|-----|---|-----|---|-----|---|-----|---|-----|----|-----|
| 11 | (b) | 12 | (c) | 13 | (d) | 14 | (c) | | | | | | | | | | | | |