

NATIONAL INSTITUTE OF TECHNOLOGY, SILCHAR  
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**Q1. Define environment. Describe the components of environment.**

**Ans:** The environment refers to those surroundings that surrounds living beings from all sides and affect their lives in daily life. The place which surrounds us by various components such as water, air, land etc is known as environment.

The four major components of environment include lithosphere, hydrosphere, atmosphere and biosphere, corresponding to rocks, water, air and life respectively.

a-Lithosphere - The lithosphere refers to the solid, rocky crust that covers the entire planet.

b-Hydrosphere- The hydrosphere refers to the most important resource. The hydrosphere includes all forms of water in the Earth's environment. The forms of water include things such as the ocean, lakes, rivers, snow and glaciers, water underneath the earth's surface and even the water vapour that is found in the atmosphere.

c-Atmosphere- The atmosphere refers to the air that surrounds the earth. The atmosphere is always in motion and constantly changing. It's believed that there are about 14 different gases that make up the atmosphere.

d-Biosphere- The biosphere is composed of all living organisms, including; plants and animals. It is believed that all life exists in the biosphere.

**Q2. Types of Environment. Objective of Environmental education.**

**Ans.** Well there are basically 2 types of accepted environments, which are:

**a. Natural or geographical:** The natural environment or natural world encompasses all living and non-living things,

meaning in this case not artificial. This environment encompasses the interaction of all living species, climate, weather and natural resources that affect human survival and economic activity.

Eg. Rivers, lakes, mountains, Trees etc

**b. Manmade:** Man-made environment is the environment created by humans. It includes permanent human settlements like villages, towns, cities, and transport and communication facilities, besides various other communities.

Eg. city, metro, malls etc.

The objectives of environmental studies are:

(a) Creating the awareness about environmental problems among people.

(b) Imparting basic knowledge about the environment and its allied problems.

(c) Developing an attitude of concern for the environment

### **Q3. How are Environmental studies multidisciplinary in nature?**

**Ans:** EVS is a multidisciplinary academic field that is involved with the exploration, research, and expansion of an understanding of the living and physical environment. It also helps in a better understanding of the natural, political, technological, economic, social, and cultural aspects of environments. It can also be said that Environmental Studies or EVS is the science of physical phenomena in the environment.

**Q4. What are major causes of environmental crisis?**

Ans. There are various causes for environmental crisis such as tremendous increasing rate of population, personal greed, becoming rich fast etc. some reasons may also include Pollution of air, land and water through excessive deforestation, industrialization and overfilling landfills which emits CO<sub>2</sub> and adds to greenhouse gas emissions are all topmost causes of these environmental issues and also some reason includes poverty, extreme urbanisation, and food insecurities.

The outcomes of environmental crisis can be:

- a) Climate change
- b) Depletion of Ozone layer
- c) Depletion or lowering levels of ground water.
- d) Land contamination
- e) Soil erosion etc

**Q5. What is the importance of environmental studies?**

Ans: Importance of environmental studies:

Environmental Education helps students understand how their decisions and actions affect the environment, builds knowledge and skills necessary to address complex environmental issues, as well as ways we can take action to keep our environment healthy and sustainable for the future generation yet to come. Also, its important to conserve our environment as its not completely ours it also belongs to other creatures on this planet earth so that even they can feel the environment.

Also environmental Studies assists in understanding the current environmental problems by providing knowledge of physical, chemical, social, and biological processes. It is not a

hidden fact that development resulting in Urbanization;  
Industrial growth has a negative impact on the environment.

**Q6. Enumerate the major types of natural resources?**

**Ans.** The major types natural resources are renewable, living, non-renewable.

**Q7. Briefly explain the types of natural resources?**

**Ans.**

**a. Renewable:** A renewable resource, also known as a flow resource, is a natural resource which will replenish to replace the portion depleted by usage and consumption, either through natural reproduction or other recurring processes in a finite amount of time.

eg. Biomass, water, air, soil etc.

**b. Non-renewable:** A non-renewable resource is a natural resource that cannot be readily replaced by natural means at a pace quick enough to keep up with consumption.

eg. Fossil fuels, petroleum, coal, heavy metals.

**c. Living:** These are those resources who are living creatures who perform some activities such as moving, grazing, eating etc.

eg. Hens, cattle, plants etc.

**Q8. Why forest is considered as natural resources?**

**Ans.** Forest are considered to be natural resources because natural resources mean 'from nature' and forest is full of natural resources like wood, leaves, fruits, timber etc.

Also, Timber is used for making furniture, constructing houses, manufacturing paper, plywood and other products. A forest is a complex ecosystem which is predominantly composed of trees, shrubs and is usually a closed canopy. Forests are storehouses of a large variety of life forms such as plants, mammals, birds, insects and reptiles etc. Hence forests are also considered as natural resources.

**Q9. What do you mean by deforestation? How does it affect the ecosystem?**

**Ans.** Deforestation is a term used for cutting of forests precisely the trees for human purposes such as building roads, railways, connectivity, or human fun like places. It's generally done as mass cutting of trees inside a forest.

Sometimes deforestation is done by nearby people for wood collection, hunting purposes etc.

Sometimes even for some construction purposes complete forests are laid down to make the place spacious.

It affects our ecosystem in following manner:

- a. It degrades the soil leading to soil erosion.
- b. Due to this the rainfall is much less than previous.
- c. Groundwater levels become low because forests hold the groundwater through their roots.
- d. It takes away homes of animals.

**Q10. What are the measures that can be adopted for the conservation of forest?**

**Ans:** The following steps can be adopted for conservation of forest:

- a. Regulated planned cutting of trees
- b. Control over forest fire

- c. Reforestation and Afforestation
- d. Protection of forest
- e. Proper utilization of forest products and forest

**Q11. Why is water regarded as natural resource?**

**Ans.** Water is a natural resource because it is a part of nature. It is present on earth before life started. It is natural because it is derived from nature by rain or other natural sources such as lake, river etc.

And the best way to conserve the water is by rainwater harvesting as it gives out the purest form of water.

**Q12. What are problems faced with water resources?**

**Ans.** The problems faced by water resources are as follows:

1. The chemicals released by factories.
2. People bring their animals such as cattle, buffaloes, etc for cleaning them.
3. People wash their clothes and release their detergents and soaps in the water body only.
4. Acid rains affect the water bodies a lot by decreasing their pH by a considerable amount.
5. Maritime fishing is also a great cause in water pollution now a days.

**Q13. What are major environmental issues of water pollution?**

**Ans:** The major issues of water pollution are :-

1. Water pollution depletes aquatic ecosystems.
2. Fishing in polluted waters and the use of waste water for livestock farming and agriculture can toxicate the food which are harmful to our health when eaten.

3. Lack or bad quality of drinking water.
4. Decreases the basicity/alkalinity of water by making it acidic killing tremendous aquatic life.

**Q14. What are main approaches to conserve water?**

**Ans.** First of all we all should by our own try to conserve water by using it precisely or in a less amount. For example, we should install water saving toilet or flush which will save a good amount of water.

Also Digging ponds, lakes, canals, expanding the water reservoir, and installing rain water catching ducts and filtration systems on homes are different methods of harvesting rain water.

Also, in some countries people keep their water storing tank clean to boil and drink this water.

**Q15. Explain values of minerals as natural resources?**

**Ans.** Minerals are natural resources which are limited and non-renewable in nature.

Also, Minerals provide the material used to make most of the things of industrial-based society; roads, cars, computers, fertilizers, etc.

Demand for minerals is increasing worldwide as the population increases and the consumption demands of individual people increase.

The mining of earth's natural resources is, therefore accelerating, and it has accompanying environmental consequences.

Minerals are generally found deep inside earth in form of ores or sometimes pure.



**Q16. What are the effects of Mining and its remedial measures?**

**Ans. Mining** is the extraction of minerals and other geological materials of economic value from deposits on the Earth.

**Effects:** Mining adversely affects the environment by inducing loss of biodiversity, soil erosion, and contamination of surface water, groundwater, and soil. Mining can also trigger the formation of sinkholes.

**Remedial measures** are as follows:

- a. By instead using new, alternative low-impact mining techniques.
- b. Companies can use waste rocks in simple on-site construction, like backfilling voids and reconstructing mined terrain in a way that prevents soil erosion.
- c. By planting more and more trees.

**Q17. What are world food problems?**

**Ans.** Two of the major food problems to the world is because of poor soil quality due to lack of nutrients, acidic nature of soil etc.

And secondly the tremendous increasing population of globe due to which the food is either not reached to people or if it reached then the quality becomes adverse.

The total number of people suffering from a lack of food is over one billion people worldwide. The fact is that population growth outpaces agricultural production and the development of agricultural technologies.

**Q18. What are impacts of overgrazing and impacts of traditional methods of agriculture?**

**Ans.** The major impacts of overgrazing are:

1. The topmost layer soil of soil which is most fertile gets depleted.
2. Reduces productivity of soil.
3. Reduces the number of good bacteria and micro- organisms in soil as they get eaten by animals.

The major impacts of traditional methods of agriculture

1. Wastage of tremendous amount of water.
2. Usage of much more labour and manpower.
3. Wastage of time and money as traditional methods require lots of equipments and time.

**Q19. What are impacts of modern agriculture in crop production?**

**Ans.** There are both positive and negative impacts of modern methods which are as listed below: -

**POSITIVE-**

1. Usage of much less amount of water.
2. Saves time and money.
3. Reduces labour work and other members can do other work.

**NEGATIVE-**

1. Usage of lots of fertilizers as people do it in greed of fast production of crops.
2. Kills the important bacteria present in the soil.
3. Installation of the hardware required is not that easy.

**Q20. State the basic principle of soil conservation and brief various methods of conserving it.**

**Ans.** The basic principle of soil conservation is to maintain its fertility and its texture so that the soil remains of work for quite a long period of time.

Some of the methods are:-

- a. **Crop rotation:** It includes changing the production of crops over a season but not repeating the same crop for all seasons as the same crop year after year depletes the soil mineral
- b. Using of natural manure made of cow dung and natural items in place of chemical fertilizers and urea.
- c. Not overflooding the crops but using amount of water only needed because overflooding the crops washes away the fertile part of soil.
- d. **Dry farming:** This practice is useful for croplands grown in low and moderate rainfall areas where ordinary farming is at risk. Crop production, animal husbandry and growing grazing fields are the possibilities of checking erosion.

**Q21. How can we control land degradation?**

**Ans:-** We can control land degradation in following ways:-

- a. Afforestation.
- b. Proper management of grazing to control over grazing.
- c. Planting of shelter belts of plants.
- d. Stabilization of sand dunes by growing thorny bushes.
- e. Control of mining activities.
- f. Proper discharge and disposal of industrial effluents and wastes after treatment.

**Q22. Enumerate various sources of energy for mankind?**

**Ans.** The various forms of energy are as follows:-

- a. Solar energy
- b. Wind energy
- c. Hydro/hydro electric energy
- d. Fossil fuels, coal and petroleum
- e. Natural gas and gobar gas.
- f. Geothermal energy.

**Q23. Describe in brief various natural resources of energy?**

**Ans.** Renewable energy term coins for the energy or source of energy which is easily replenished in less amount of time either naturally or by artificial methods and we can rely on them for lifelong as our sources of energy.

The various renewable sources of energy are as follows: -

**a. Solar energy** is simply the light and heat that come from the sun. People can harness the sun's energy in a few different ways: Photovoltaic cells, which convert sunlight into electricity.

Its best and most reliable source of energy as sun is never going to end in our lifetime.

**b. Wind energy** describes the process by which the wind is used to generate electricity. Wind turbines convert the kinetic energy in the wind into mechanical power or electricity.

**c. Geothermal energy** is a type of renewable energy taken from the Earth's core. It comes from heat generated during the original formation of the planet and the radioactive decay of materials. This thermal energy is stored in rocks and fluids in the centre of the earth.

**d. Biomass energy** is basically produced from the biomass such as cow dung and other animal wastes. It's also renewable source of energy as it takes approximate 5-6 months to

replenish and the best part of this form of energy is it does not cause any pollution by any means.

**Q24. Describe the advantages and disadvantages of**

- A. Solar energy      B. Tidal energy      C. Wind energy**  
**D. Hydropower energy      E. Biomass energy.**

**Ans.**

**a) Solar energy** is the most reliable source of energy as its directly derived from sun itself and its completely free source of energy.

The negative impact of solar energy is the solar cells are way too costly because of use of high-quality silver and silicon inside it. Also, this energy can't be harnessed on cloudy days.

**b) Tidal energy** is a highly predictable energy source. High energy density. Operational and maintenance costs are low. An inexhaustible source of energy. But it can't directly depend on it as its very much depends on prediction and it is not efficient way of energy harnessing.

**c) Wind energy** is a renewable and clean source of energy does not cause any pollution but the building cost and maintenance of windmill is high also its very noise producing source of energy

**d) Hydro plants** is also a renewable source of energy and its safe and reliable source of energy. But it's very expensive to build and it has environmental consequence.

**e) Biomass energy** is also a renewable source of energy and it maintains amount of CO<sub>2</sub> in nature as preparation requires CO<sub>2</sub>. But it requires a lot of space which can lead to deforestation and it's not that clean.