N.P.

Q1 Define Environmental science, what do you mean by environment give it's scope and importance. Enlist the various factor's Environment explain any one in details.

→ Environmental science :- Defined as an applied science with multidisciplinary approach to the study and management of environment consisting of biotic and abiotic factors and issues that affect living organisms to make human civillisation sustainable.

Environment :- It is everything that is around us. It can be living or non-living things. It includes physical, chemical & other natural forces.

Scope and relevance :-

1) If we study the natural history of the areas in which we live, we would see that our surroundings were originally a natural landscape, such as a forest, a river, a mountain a desert or a combination of these elements.

2) Most of us live in landscape that have been profoundly modified by human being - in village, towns or cities.

3) But even those of us who lives in cities must get our food supply from surrounding village, towns or cities and these in turn are dependent on natural landscapes such as forests, grass-lands, rivers, seashores for resources such as water for agriculture fuelwood, fodder & fish.

4) We use water to drink & for other day-to day activities. We breathe air, we use resources from which we depend on the community of living plants and animals can form a web of life of

which we are also a part.

5) Everything around us means our environment and our lives depend on keeping it's vital system as intact as possible.

6) Dependence : our dependence on nature is so great that we cannot continue to live without protecting the earth's environmental resources.

7) Environmental degradation :- over the past 200 years, however modern societies began to believe that easy answer to the question of producing more resources could be provided by the indiscriminate application of technological innovation

8) The industrial development and intensive agriculture that provide the goods for our increasingly consumer - oriented society uses up large amounts of natural resource's like water, minerals, petroleum products, wood etc.

9) Non-renewable resources, such as minerals, ~~petroleum products~~, ~~wood etc.~~ & oil are those which will be exhausted in the future if we continue to extract these without a thought for subsequent generations.

Importance :-

1) Environment is not a single subject, it is an integration of several subject that include both science and social studies.

2) To understand all the different aspect of our environment we need to understand biology, chemistry, physics, resource management, economic & population issue.

3) The scope of environmental studies is extremely wide and covers some aspects of nearly every major discipline.

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4) We live in a world wherein natural resources are limited water, air, soil, minerals, oil the products we get from forests, grasslands, oceans & from agriculture & livestock are all a part of our life support systems.
5) Air pollution leads to respiratory disease, water pollution to gastro-intestinal disease & many pollutants are known to cause cancer.
6) This situation will only improve if each of us begins to take actions in our daily lives that will help preserve our environmental resources.
7) We need to do it ourselves, it is a responsibility that each of us must take on as one's own.

Factors of environmental :- Any external force, substance or condition which surrounds & affects the life of an organism in any way is known as factor of it's environment & these factors are called as Environmental factors.

1) Environment provides nutrients water, soil i.e required things at specific time. organism can continue life if it finds suitable environment.
2) Environment always exists but it is not necessary that it is proper.
3) The factor which affects structure or function of plant or influence it's growth is called factor of enviroment or ecological factors.

Factors are :- All environmental factors are ecological factors because they modify the structure & function of an organism.
1) climatic factors.

2) Edaphic factors
3) Topographic factors or physiographic factors
4) Biotic factors.

1) climatic factors :- Vegetation of a place is primarily determined by climatic factors, edaphic factors being next in importance.

climatic factors :-
a) Precipitation or rainfall
b) Atmospheric humidity
c) Temperature
d) Radiation and light.
e) Atmospheric gases
f) Wind.

Q2 What do you mean by natural resources or Resources give it's types of natural resources. Explain any one in details with it's advantage or disadvantages, if any.

→ Natural resources :- The material or substance ~~whic~~ in nature which is required or used to sustain life or livelihood is called as natural resources. e.g air for breathing, water for drinking, land for living etc.

Types of natural resources :-

1) Renewable resources.
2) Non-renewable resources.

1) Renewable resources :- The resources that can be replenished through rapid natural cycles are called renewable resources. These resources can increases their abundance through reproduction & utilization of simple substances.

Examples of renewable resource are oxygen in the air, fresh water & all biological organism and products viz. forests, wildlife, food etc. (replenished through natural cycles of growth & reproduction)

ii) Non-renewable resources :- The resources that cannot be replenished through natural process are called non-renewable resources. These are available in limited amounts which cannot be increased. Non-renewable resources are further be divided into two categories, viz.

a) Recycleable :- These resources can be collected after they are used and can be recycled. These are mainly the non-energy mineral resources which occur in the earth's crust. viz. ores of aluminium, copper, mercury & other metals, deposits of fertilizer nutrients.

b) Non-recycleable :- These resources cannot be recycled in any way. Example are mineral energy resources such as fossil from & uranium fossil fuel such as oil, gas & coal from the non-renewable sources of energy and account for 90% of the world's production of commercial energy. Hydroelectric & nuclear power accounting for only 10%.

Q. Enlist the various resources & explain any one in details.

→ 1) Natural resources :- There are various natural resources :-

① Forest

② Grassland

(3) wildlife
(4) water
(5) soil
(6) Mineral

2) Energy resources :- Energy is the capacity to do work e.g sunlight, coal, Petrol, wind, water power, nuclear energy etc.

(1) solar energy
(2) Fossil fuels
(3) wind Energy
(4) Hydro electric power.
(5) Tidal power
(6) Geothermal energy
(7) Nuclear energy
(8) Biomass energy

3) Food resources :- Today our food comes almost entirely from agriculture, animal husbandary & fishing. Although India is self-sufficient in food-Production, this is only because of modern patterns of agriculture that are unsustainable & which pollute our environment with excessive use of fertilizer.

4) Land resources.

Explain Land resources :-

(1) Land is a renewable resource.
(2) Land is the home of man.
(3) Plants take root on land.
(4) Land provides shelter for all land animals.
(5) Land provides fresh water for human drinking
(6) forests, mountains, grasslands, wetlands, rivers

plains, etc. remain on land.

(7) Man constructs houses, industries, roads etc. on land

(8) Agriculture is practised on land.

(9) Marble and granite are obtained from rocks.

(10) Minerals are obtained from land.

(11) Gold is mined from land.

(12) coal is mined from land.

(13) water gets minerals & nutrients from the land.

Q4 Define ecosystem classify ecosystem and give the structural & functional attributes of ecosystem.

→ Ecosystem :- The system resulting from the integration of all the living and non-living factors of the environment.

Classification of ecosystem :- Different types of ecosystem of nature, constituting the giant (large) ecosystem - biosphere. They may be artifically categorised as follow :-

- Ecosystem.
  - Natural ecosystem
    - Terrestrial
      - Forest
      - Grassland
      - Desert
    - Aquatic
      - Freshwater
        - Lotic e.g stream, rivers
        - Lentic e.g lake, pond, Pools
      - Marine e.g sea, ocean.
  - Artifical ecosystem e.g Gardens etc.

structure and function of an ecosystem :-

The two major aspects of an ecosystem are the structure and function. structure means

i) the composition of biological community including species number biomass etc.

ii) the quantity & distribution of non-living materials e.g nutrients, water etc. &

iii) the range or gradient of conditions on existance e.g light, temperature, humidity etc.

function means :-

i) the rate of biological energy flow i.e the production & respiration rates of community

i) rate of materials or nutrient cycles, &

iii) biological or ecological regulation including both regulation of organisms by environment (Photoperioclism, trophism etc) & regulation of environment by the organism (nitrogen fixing organisms etc).

structure

- Abiotic
- Biotic (Producers, consumer, Reducer)
  - Autotrophic
  - Heterotrophic
    - Primary
    - secondary
    - Tertiary

Q6. 2) Pond ecosystem

3) Food web :- Food chains in nature are inter-connected in different ways, invariably with a number of intermidiate links & some times with side chains also & such interconnected food chains are called food webs.

i) Food web in grass land :-

- Grass → Grasshopper → Hawk.
- Grass → Grasshopper → Lizard → Hawk.
- Grass → Rabbit → Hawk or vulture or fo
- Grass → Mouse → Hawk.
- Grass → Mouse → snake → Hawk.

Q7. What is Biodiversity & Give the significance of Bio-diversity and types of biodiversity. what are the factors affecting & degregating, Biodiversity, what are the conservation of Biodiversity.

→ Bio-diversity :- The term for the variety of life forms & the natural processess of which living things are a part.

Significance of Biodiversity :- Bio-diversity. besides it's ecological significance provides a socio-economic & monetary assets to the nation. Human society depends on biological resources, their diversity & the ecosystem that sustain them provide essential goods & services.

i) Productive use value :- This is assigned to products that are commerically harvested for exchange in formal markets & is, therefore the only value of biological resources that is concerned in national income.

ii) Consumptive use value :- consumption value is related to natural products that are consumed directly i.e the goods which do not come under normal circulation of trade.

iii) Indirect use value :- Indirect use of biodiversity is of much significance because this value is related primarily with the functions of ecosystem & is concerned with national accounting system.

classification or Types :- categorised into three types :-

1) Ecological diversity or species diversity :-
It refers to the variability among the living organisms in different ecosystem or ecological complexes & includes variability within the species and variability among the species of plants, animals & micro-organisms.

2) Genetic diversity :- Genetic diversity pertains to range of diversity in plant & animal genetic resources. It includes diversity among individuals of a specific species & as variability among the species.

3) Ecosystem Diversity :- The variation in species richness in different ecosystem in a geographical area is called as ecosystem diversity.
Ecosystem is an ecological unit. It contain a variety of plants, animals & environmental factors. They interact with each other.

Degradation or depletion of Bio-diversity
1) Habitat destruction :- The loss of biological diversity is mainly due to habitat destruction, over-exploitation of biological resources, pollution & introduction of exotic plants & animal
2) Prominent among them are the expansion of agriculture and industries, urbanisation, road construction and large scale development projects.
3) Biotic interference :- Excessive & uncontrolled biotic interference also results in depletion of biodiversity. The introduction of exotic species has also effected qualitative as well as quantitative changes in India's bio-diversity.

4) Illegal trade :- The threat to their survival is also affected by illegal trade of various endangered plants and animal species & introduction and expansion of selected "high yielding varieties" (HYV) of crops and livestocks.

Factors affecting Bio-diversity :-

The factors responsible for the loss of bio-diversity may be natural or artificial.

1) The natural causes include drought, landslides, flood, storm, earthquakes, disease etc.

2) The ~~natural~~ artifical causes include grazing c industrialization, urbanisation scientific & education research, road & dam construction, all leading to destruction of habitat & overexploitation of plants & animals.

3) Environmental pollution :- At global level, the impacts of environmental pollution, particularly the thining of ozone layer, acid rains and global warmings etc. are bound to affect biodiversity adversely.

Conservation of Bio-diversity :-

Man has been directly or indirectly, dependent on bio-diversity for sustainance to a considerable extent. Increasing population, pressure, urbanization & industrialization, however have led depletion of the natural resources.

conservation of bio-diversity is of two types:-

1) In-situ conservation.

2) Ex-situ conservation.

In-situ conservation :- In situ conservation

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measure are related to the bio-diversity of the ecosystem of the original habitats or natural environment.

Ex-situ Conservation :- Sometimes the population of species may decline or may become extinct due to genetic or environmental factors such as genetic drift, inbreeding, demographic & environmental variations, habitat loss, deteriorating habitat quality, competition with exotic species, diseases & over-exploitation.

Q8 What do you mean by pollution, give the types pollution give the cause & effect and control measure of various pollution?

→ Pollution :- Pollution is an un-desirable change in the physical, chemical and biological characteristics of air, water & soil that may or will harmfully affect human life, industrial progress, living conditions, cultural assets & also the climate.

Types of pollution :- Following are the different types of pollution :-

1) Water pollution :- By mixing of water in undesirable quantities of metallic ions, radioactive wastes, industrial wastes etc.

2) Air pollution :- By smoke, motor vehicles, radiation from atomic blasts, Pesticides, herbicides & fungicides etc.

3) Soil pollution :- By pesticides, fungicides, herbicides, sewage sludge, industrial wastes etc

4) Noise pollution :- By aeroplanes, motor vehicles, workshops and factories, radio, T.V & Public address system.

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1) Water pollution :- water is essential for all the forms of life and none can survive on this earth without water. The surface of earth measures 50,000 billion hectare of which about 40% is covered by water and the rest is land.

Types of water pollution :- Pollution of water occuring through different substances & sources as follows :-

1) Nutrients & eutrophication
2) Infectious agents.
3) organic compounds.
4) Inorganic compounds.
5) sediment.
6) Thermal discharge.
7) Nuclear wastes.

Control of water pollution :- In India, most of the states have already constituted the pollution control boards under the water Act (1974). Water polluted with sewage ~~have~~ ed is a major sources of illness & death in developing countries.

2) Air pollution :- Air pollutants are those chemicals in the atmosphere added either directly or indirectly by man's activity. The air pollutant's are generally categorized into two parts viz. gases & particulate pollutants.

* causes of air pollution :-

(1) over population and increasing urbanization.

(2) Increasing traffic (3) Industrialization &

Q10 What is Environmental ethics, what is climate change, what you know about global warming explain ozone layer deplation

→ Environmental ethics :-

It is the discipline in philosophy that studies the moral relationship of human beings to and also the value and moral status of the environment & it's non-human contents.

climatic change :- A change in global or regional climate patternsim particular a change apparent from the mid to late 20th century onwards & attributed largely to the increased levels of atmospheric carbon dioxide produce by the use of fossil fuels.

Global warming :-

The phenomenon of increasing average air temperatures near the surface of earth over the past one to two centuries climate scientists have since the mid-20th century gathered detailed observation of

various weather phenomena (such as temperatures, precipitation & storms) & of related influences on climate (such as ocean currents & the atmosphere's chemical composition)

ozone layer depletion:- The earth's ozone layer is mainly found in the lower portion of the stratosphere from approximately 20 to 30 km (12 to 19 m)

ozone depletion describes two related events observed since the late (1970's) a steady lowering of about four percent in the total amount of ozone in earth's atmosphere & a much larger springtime decrease in stratospheric ozone around Earth's polar regions.

Short Notes on.

1. Environment (Protection) Act (1986)

→ It is an act of the Parliament of India In the wake of the Bhopal tragedy, the government of India.

The purpose of the act is to implement the decisions of the united nations Conference on the human environments.

The act is an "umbrella" legislation designed to provide a framework for Central government co-ordination of the activities of various central & state authorities established under previous laws, such as the water Act & the air act.

2) Wildlife Protection Act (9th sept. 1972)

→ It is an act of the parliament of India enacted for protection of plants & animal species.

The act provides for the protection of wild animals, birds & plants; & for matters connected there with or ancillary or incidental there to.

The specified endemic plants in schedule are prohibited from cultivation & planting.

3) Air prevention & Control of pollution Act (1981)

→ An act to provide for the prevention, control & abatement of air pollution, for the establishment, with a view to carrying out the aforesaid Purposes, of boards, for conferring on and assigning to such boards powers & functions relating there to and for matters connected there with.

4) Forest Conservation Act (27th Dec. 1980)

→ It is an act of the parliament of India to provide for the conservation of forests and for matters connected there with or ancillary or incidental thereto. It was further amended in 1988. This law extends to the whole of india except the state of Jammu & Kashmir. It was enacted by Parliament of India to control further deforestation of forest areas in India. The act came into force on 25 oct. 1980.

5) water pollution Act 1974

→ It was enacted in 1974 to provide for

the prevention and control of water pollution & for the maintaining or restoring of whole someness of water in the country. The act was enacted in 1988. The water act was enacted in 1977, to provide for the levy & collection of a cess on water consumed by persons operating and carrying on certain types of industrial activities.

Q12 What is Natural Disasters, meaning & nature of natural disasters give their types & effects.

→ Natural disaster :- It is an occurrence or event that causes sudden great loss, to wealth, or life or both.

Types of disaster :-

1) Flash floods :- Among all the disasters that occur in the country, floods are the most frequently occuring natural disasters, due to irregularities of the indian moonsoon.

2) Tropical cyclones :- India has a long coastline of 5700 km, which is exposed to tropical cyclones arising in the bay of bengal & the arabian sea.

3) Droughts :- Droughts are a perennial feature in some states of india 16% of the country's total area is drought-prone

4) Earthquakes :- Earthquakes are considered to be one of the most destructive natural hazards.

5) Tsunami :- The term 'Tsunami' comes from the Japanese language, meaning harbor (tsu) and wave (nami). It is in harbors that Tsunami is do the most damage.

Q13. What is man made Disaster. Enlist various man-made disaster management. Explain any 3.

→ A disastrous event caused directly and principally by one or more identifiable deliberate or negligent human action is known as human-made disaster.

Man-made disasters :-

1) Economic collapse.
2) Terrorist Attacks.
3) Power outages.
4) chemical threat
5) Biological threat
6) Nuclear Accident
7) wars.
8) Explosion
9) oil & chemical spills.
10) Dam failure

1) Economic collapse :- many people are wondering if there is a total economic collapse in our near future, something equal to or greater than the great depression.

2) Power outages :- As we become more & more dependent on electricity for everything we do, a long term Power outage can

quickly turn from a momentary inconvenience to an outright disaster.

3) chemical threat :- A chemical threat is fear of a release of poisonous vapors, aerosols, liquid & solids being dispensed into the air or water ways which would have toxic effect on people, animals and plants.

Q14 - What is human population, give it's cause and effects of population on environment and human health.

= Human Population refers to the numbers of people living in a particular area, from a village to the world as a whole.

Q15 - What is the role of various NGO's at the time of disaster management.

= The role of the NGO's during a disaster is to have quick response and to try & save as many lives as it can with the given funds.

The main role performed by the NGO's were providing relief materials, organizing health camp, involved in rescue operation, arranging temporary shelters and so on.

Q16. Defination

1) Biome

→ A large naturally occuring community of flora & fauna occupying a major habitat

e.g forest or tundra

2 Symbiosis
= " Interaction between two different organisms living in close physical association, typically to the advantage of both".

3 Phenology
= " The study of cyclic and seasonal natural phenomena, especially in relation to climate & plant & animal life".

4) Autecology
= " The ecological study of a Particular species".

5) Immigration.
= " The action of coming to live permanently in a foreign country".

6) Xeric condition
= " A hydric habitat having or characterized by moderate or a well-balanced supply of moisture".

7) Xerophytes
= " A plant which needs very little water".

8) Succession
= " A number of people or things of a similar kind following one after the other".

9) Pollution
= " The presence in or introduction into the

10) Commensalism

→ " An association between two organisms in which one benefits and the other derives neither nor harm.

11) Ecosystem.

= " A biological community of interacting organisms & their physical environment".

12) Mesophytes

= " A plant needing only a moderate amount of water".

13) Halophytes.

= " A plant adapted to growing in saline conditions, as in a salt marsh.

14) omnivorous.

Feeding on a variety of food of both plant and animal origin".

) carnivorous.

" Feeding on other animals".

Nehrunagar
N.P.