Quiz-1 **28th August 2023**

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY

Environmental Science and Technology

Time:45 minutes **SET -A** ***Total Marks: 25***

Roll No: **Programme:**

Answer the following (Write answers as **POINTS** only)

1. Define (**3** marks)

a. Eutrophication

The process in which a water body becomes overly enriched with nutrients, leading to the excessive growth (or bloom) of algae and plankton in a water body.

b. Desertification

Process of turning the productive land into desert

c. Electrofishing

Electrofishing: is a common scientific survey method of using electroshock to sample fish populations to determine abundance, density, and species composition. When performed correctly, ***electrofishing results in no permanent harm to fish,*** *which return to their natural state in as little as two minutes after being caught.*

Electrofishing relies on two electrodes which deliver direct current at high voltage from the anode to the cathode through the water.[2] When a fish encounters a large enough potential gradient on this path, it becomes affected by the electricity

2. Explain the impact of one of the dirty dozen chemicals defined by Stockholm convention treaty on bird's health and population (4 marks)

<u>Eggshell thinning</u>
DDT interferes with metabolism of calcium, Result - thin shells in predator birds such as osprey, bald eagles, brown pelicans Birds unable to brood (aka sit on) their eggs without breaking them.
<u>Feminization</u>: Acts as a hormone disrupter, mimics estrogen: Has impacted sex ratio in some birds

3. Differentiate between (6)

a. Cornucopian and Cassandra thought.

A cornucopian believes that innovation will allow humankind to develop ways to replenish a supposedly endless supply of resources. Cornucopians reject the notion that Earth has finite resources. This directly relates to their stance that technology can regenerate or replace any resources under pressure. Cornucopia, as the name suggests, is the belief that the earth will always have enough resources to provide for humanity and the rest of nature.
Cassandra conversely is the theory that our population will get so large that at some point the earth's resources will be depleted.

b. Bioaccumulation and biomagnification

Bioaccumulation: An increase in the concentration of a pollutant in a biological organism compared to its concentration in the environment. It is how pollutants enter a food chain.

Biomagnification: Increase in the concentration of a pollutant as it passes from one tropic level to the next

4. Explain the impact of (4 relevant points) - 12

a. Aral Sea Degradation on local environment and population

Salt and sand are carried by the wind from the Aral Sea region every day, and dumped within a 300 km radius.

The salt pollution is decreasing the available agriculture area, destroying pastures, and creating a shortage of forage for domestic animals. The number of domestic animals in the region has become so low that the government has issued a decree to reduce the slaughter of animals for food. –

Fishing in the Aral Sea has ceased completely, while shipping and other water-related activities have declined; the associated economic changes have taken a heavy toll on agricultural production.

The quality of drinking water has continued to decline due to increasing salinity, bacteriological contamination, and the presence of pesticides and heavy metals.

Diseases like anemia, cancer and tuberculosis, and the presence of allergies, are on the rise. The incidence of typhoid fever, viral hepatitis, tuberculosis and throat cancer is three times the national average in some areas

b. Acid rains on forest ecosystems

Soil acidification – Damaged to soil fungi
Nutrients loss – cell membrane damage- root damage – impaired water and nutrient uptake
Leaves damage- Effect Photosynthesis
Increases susceptibility to environmental stress-drought, disease, etc – lead to death.

c. Thermal pollution

This increase in temperature—or 'thermal shock'—kills fish and other animals,

As the temperature increases solubility of dissolved gases decreases, like oxygen.

Increases plant growth thereby reducing the oxygen supply in the water. The result is often choking algal blooms and dead lakes and rivers.

Coral Bleaching