

**SRI SAIRAM ENGINEERING COLLEGE**

**DEPARTMENT OF CHEMISTRY**

**GE2021 - ENVIRONMENTAL SCIENCE AND ENGINEERING**

**COMMON TO III SEM CSE, IT AND CIVIL ENGINEERING**

**PART – A QUESTION AND ANSWERS**

**UNIT-I : ECOSYSTEM AND BIODIVERSITY**

**ECOSYSTEM**

**1. What is Ecology?**

Ecology is the study of interactions among organisms or group of organisms with their environment. The environment consists of both biotic and abiotic components.

**2. Define Ecosystem.**

An Ecosystem is a group of biotic communities of species interacting with one another and with their non – living environment exchanging energy and matter.

**3. What are the components of ecosystem?**

An ecosystem has two major components

Biotic (Living) component

Abiotic ( Non-Living) components

**4. List any 2 characteristics of ecosystem.**

(i) Ecosystem is the major ecological unit. It consists of both biotic and abiotic components.

(ii) Through the biotic and abiotic components nutrient cycle and energy flow occur.

**5. What are autotrophs and heterotrophs? (A.U. Jan 2006)**

Autotrophs (Producers) are organisms that are capable of making their required food themselves. eg;green plants, shrubs, grasses etc. Heterotrophs (consumers) are those organisms which depend on others for their energy requirements.eg Insects, Deer, Tiger ,Cat etc.

**6. What are Decomposers?**

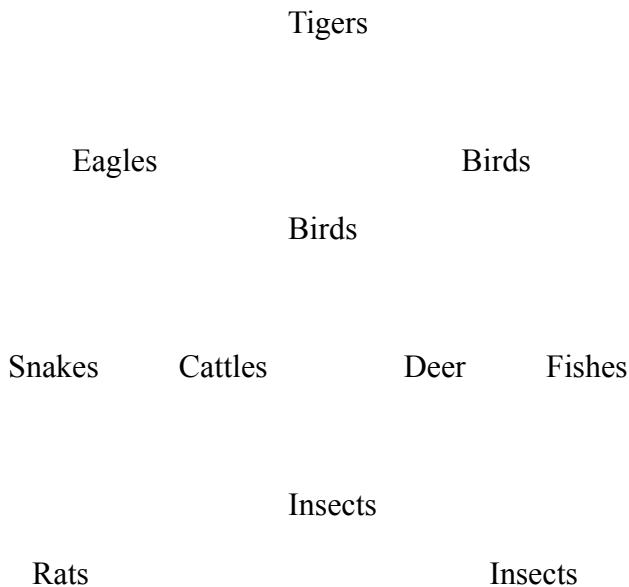
The organisms which derive their nutrition by breaking down the complex organic molecules to simpler organic compounds and ultimately into inorganic nutrients are called decomposers. Example: Bacteria, Fungi etc.

**7. Define food chain and food web. (A.U. Jun &Dec 2006)**

The sequence of eating and being eaten in an ecosystem is known as food chain.

Eg; Grass    Grasshopper    Frog    Snake    Hawk

Food web is the interlocking pattern of various food chains in an ecosystem



Grass

**8. Differentiate grazing and detritus food chain.**

Grazing food chain starts with green plants and goes to decomposer food chain through herbivores and carnivores.

Detritus food chain starts with dead organic matter and goes to decomposer food chain through herbivores and carnivores.

**9. Define Ecological pyramids.**

The graphical representation of structure and functions of trophic levels of an ecosystem, starting with the producer at the base and each successive trophic levels forming the apex is known as ecological pyramids.

**10. Name any four Ecosystems.(A.U. June 2006)**

Forest Ecosystem

Grassland Ecosystem

Desert Ecosystem

Aquatic Ecosystem

**11. What is Ecological succession? (A.U June 2005)**

The progressive replacement of one community by another till the development of stable community in a particular area is called Ecological succession.

**12. What are the characteristics of desert ecosystem?( A.U. Dec 2008)**

a. The average annual rainfall is generally less than 250 mm.

b. Deserts have less humidity

c. High variation of maximum and minimum temperature of a day.

**13. What are Estuaries? Give their characteristics**

The places where fresh water streams or rivers connect together with the salt water are called estuaries.

Characteristics:

- a. The water quality is of moderately salty in this region.
- b. They usually contain rich sediments which are carried by the river water.

## **BIODIVERSITY**

### **14. What is Biodiversity? Give its significance (A.U Dec 2005, June 2006)**

Biodiversity is defined as, The variety and variability among all groups of living organisms and the ecosystem in which they occur.

Significance:

- a. Biodiversity is very important for human life, as we depend on plants, animals, micro-organisms for our food, medicine and industrial products.
- b. Loss of biodiversity has serious economic and social costs for any country.

### **15. What are the three types of biodiversity?**

Genetic biodiversity

Species biodiversity

Ecosystem biodiversity

### **16. What are Endemic and Endangered species? (A.U. Dec 2006)**

A species is said to be endangered when its number has been reduced to a critical level. Unless it is protected and conserved, it is in immediate danger of extinction

The species which are found only in a particular region are known as Endemic species

**17. Give any two extinct species of India.(A.U. June 2009)**

Red Panda, Passenger pigeon, Dodo etc.

**18. India is a Mega Diversity Nation- Account. (A.U Dec 2008)**

It has more endemic species

There are 13 Biosphere reserves, 89 National parks and 497 Sanctuaries.

Diverse climatic conditions

**19. What are the various threats to biodiversity?**

Habitat loss

Poaching of wildlife

Man – Wildlife conflict

Uncontrolled commercial exploitation

**20. What is the need of biodiversity conservation?**

It provides immediate benefits to the society such as recreation and tourism.

Drugs, herbs, food and other important raw materials can be derived from plants and animals.

It also preserves the genetic diversity of plants and animals.

**21. What is in – situ and ex- situ conservation?**

In – situ conservation is defined as the conservation of genetic resources within natural habitat in which they occur.

Ex- situ conservation is defined as the conservation made outside of the habitat of an ecosystem

**22. Enumerate the human activities which destroy the biodiversity (A.U Jan 2006)**

- a. The farmer prefers hybrid seeds, as a result many plant species become extinct
- b. For the production of drugs the pharma companies collect wild plants, so several medicinal plants now become extinct.

**23. What are coral reefs? (A.U. June 2009)**

Corals are animals which contain algae called zooanthellae and tissues of animal polyp. A reef is a rocky outcrop rises from the sea floor which is made up of calcareous material, concealed by coral animals and by red and green algae.

**24. Define biodiversity Hotspots.**

Biodiversity hotspots are areas:

Rich in plant and animal species, particularly many endemic species

Under immediate threat from impacts such as land clearing, development pressures, salinity weeds and feral animals.

**25. Define Biogeography.**

The study of geographical distribution of biological species relating to the geological, geographical, biological and climatological reasons for the distribution is called biogeography.