

## COMPONENTS OF ECOSYSTEM

**Q1.What is an ecosystem? Mention its basic components? /Q2.Discuss the function of the biotic components of an ecosystem .**

Ecosystem term was first proposed by **A.G. Tansley** (1935). Any unit that includes all of the organisms in a given area interact with the physical environment so that a few energy leads to clarify defined trophic structure, biotic diversity and material cycles within the system is an ecological system or ecosystem (E.P.Odum, 1973).

BASIC COMPONENTS—

| Components of ecosystem |  |
|-------------------------|--|
| <b>Abiotic</b>          | <b>1.Inorganic matter—</b><br>a)Inorganic elements- C,N,P,S,O <sub>2</sub> etc. b)Compound nutrients- H <sub>2</sub> O, CO <sub>2</sub> , NO <sub>3</sub> , PO <sub>4</sub> etc<br><b>2.Organic substances—</b> Protein, lipid, carbohydrate, humic substances etc (Main source: dead organisms)<br><b>3.Physical factors—</b> Temperature, light, air, humidity, soil etc<br><b>4.Energy—</b> Driving force of ecosystem in form of radiant energy of the sun.  |
| <b>Biotic</b>           | <b>1.Autotrophs—</b><br>a)Photoautotrophs<br>b)Chemoautotrophs<br><b>2.Heterotrophs—</b><br><i>A)Consumers (or Phagotrophs):</i><br>a)Primary consumer (e.g;zooplankton, insects, cattle, deer etc)<br>b)Secondary consumer/ carnivore & tertiary consumer (e.g;Tiger, lion, wolf, Preying mantids)<br>c)Omnivores (e.g; Man)<br><i>B)Decomposers (or micro consumers/ sapotrophs/ osmotrophs):</i><br>a)Microflora or primary decomposer (e.g;Bacteria, fungi)<br>b)Detritivores [a)Microfauna (Protozoan), b)Mesofauna (length ranges between 100µ-2mm—mites, springtails etc), c)Macrofauna (length ranges between 2mm -20mm— Nematodes, caddishfly larvae, may fly etc)], d)Megafauna (longer than 20mm— snails, earthworms, millipeds etc)]<br>c)Microvores [Organisms feeding on bacteria and fungi release the energy and nutrients that incorporated into the bacterial and fungal biomass—Protozoan- <i>Amoeba</i> , larval forms of beetles, flies etc]. |

**Q3.Define photoautotroph and chemoautotroph**

| Features   | Photoautotroph   | Chemoautotrophs  |
|------------|--|--|
| Definition | Organisms containing chlorophyll can fix and transducer solar energy into chemical energy in the form of complex organic substances synthesized out of simple inorganic nutrients under process like photosynthesis. | Autotrophs those utilize chemical energy generated from oxidation-reduction process for food manufacturing are called chemoautotrophs. |
| Example    | Trees, grasses, photosynthetic bacteria etc  | Sulphur bacteria   |

**Q4.Describe the role of decomposers in ecosystem.**

These heterotrophs reduce energy rich dead organic compounds into inorganic nutrients through the process of mineralization, thereby making the nutrients accumulated in the reservoir pool and accordingly its reuse and recycling accompanied by fixation, unidirectional flow and unlimited dissipation of energy through the ecosystem maintaining its steady-state existence.