

**CHAPTER 26**

**Q.1 How is ecological balance disturbed in a eutrophic lake?**

**Ans.** Most of the trophic levels in the fish eliminate. Thus only bacteria and blue, green, alga, dominate the community.

**Q.2 Differentiate between weather and climate.**

**Ans.** Short-term fluctuations in temperature, humidity, cloud cover, wind and precipitation over periods of hours or days is called weather. The overall patterns of weather in a year in a particular region is called climate.

**Q.3 How can productivity of an ecosystem be measured?**

**Ans.** The productivity can be indicated by consumption of  $\text{CO}_2$  and release of oxygen in the process of photosynthesis. The productivity of aquatic ecosystem is basically determined by the light and nutrients.

**Q.4 Give role of water in lithospheric ecosystem.**

**Ans.** The soil provides abundant nutrients. However water is present in limited amount and is very unevenly distributed both in place and in time.

**Q.5 Give impact of temperature on terrestrial ecosystem.**

**Ans.** Favourable temperature is very unevenly distributed on land in place and time. The average temperature is below freezing on poles while in temperature zones, it become favourable only during certain seasons of the year.

**Q.6 Differentiate between arctic and alpine tundra.**

**Ans.** The tundra present on the high latitude is called arctic tundra. The tundra present at high altitude is called alpine tundra.

**Q.7 Give flora of tundra.**

**Ans.** The ground is carpeted with small perennial flowers and dwarf willows. These are only a few centimeters tall. Often large lichens called reindeer moss is also present.

**Q.8 Give animal life in tundra.**

**Ans.** The standing pools provide habitat to mosquito. The mosquitoes and other insects are food of numerous birds (ducks and geese). Most of these birds migrate to a long distance.

**Q.9 What are the human impacts on tundra?**

**Ans.** Human activities have produced adverse affects on tundra. The affects persist for centuries. These affects are around oil drilling sites, pipelines, mines and military bases.

**Q.10 What is the affect of scum on life in a lake?**

**Ans.** The scum blocks penetration of light in lake. Thus submerged plants cannot get sunlight. As a result these plants die.

**Q.11 What is scum? How is it formed?**

**Ans.** The added nutrients increase the growth of phytoplanktons like blue green algae. These producers form a scum on the surface of lake.

**Q.12 What types of plants are present in the littoral zone of lake?**

**Ans.** The littoral zone communities have most diverse plants. Some of these plants are water lilies, submerged vascular plant and algae. These plants flourish at the deepest of the littoral zone.

**Q.13 What are planktons?**

**Ans.** The microscopic floating organisms are called planktons.

**Q.14 Differentiate between phytoplanktons and zooplanktons.**

**Ans.** The photosynthetic planktons are called phytoplankton. The non-photosynthetic planktons are called zooplanktons.

**Q.15 Differentiate between marine and fresh water hydrospheric ecosystems.**

**Ans.** Salt-water ocean and sea are marine ecosystem and are the largest ecosystems on the earth. They constitute about 71% of the surface of earth. Fresh, water ecosystem covers less than 1%.

**Q.16 Give effects of temperature in aquatic ecosystem.**

**Ans.** Water changes its temperature slowly than air. So temperature in aquatic ecosystem remains moderate to support life.

**Q.17 How much light energy in aquatic system can water absorb?**

**Ans.** Water can absorb a considerable amount of the light energy. This energy sustains life on the earth. The intensity of light decreases rapidly with depth in clearest water. So at the depth of 600 feet or more, a little light is left to power photosynthesis.

**Q.18 Give productivity of grassland ecosystem.**

**Ans.** In temperate grassland the rate of primary production is about 700 – 1500 g/m annually. In sub-humid tropical grassland it is more than 4000 g/m.

**Q.19 Give impacts of humans on grassland ecosystem.**

**Ans.** The natural grasslands in world are used for crop production and livestock management. Over-grazing causes reduction in herbage cover. It results in soil erosion. Many lands are converted into desert by process called desertification due to over grazing.

**Q.20 What is a desert?**

**Ans.** The driest ecosystem with less than 30 cm (10 inch) annual rain is called desert.

**Q.21 What are thal, cholistan and thar?**

**Ans.** The desert ecosystem present in western Punjab is known as “Thal”. In southern Punjab, desert is called cholistan. In Sind this desert ecosystem is called “Thar”.

**Q.22 What is desertification?**

**Ans.** The spreading of desert to green areas is called desertification. The human activities are reducing many biomes. So they are causing the spread of deserts. This process is called desertification.

**Q.23 What is a grass land ecosystem?**

**Ans.** The ecosystem with grassy lands and with annual rain fall 250 to 750 mm is called grass land ecosystem.

**Q.24 Differentiate between prairies and savanna.**

**Ans.** The grass land without woody trees is called prairies. The grassland with scattered woody trees is called savanna.

**Q.25 How are layering of grasses formed in the grassland ecosystem?**

**Ans.** Tall grasses (Andropogon, Panicum) form the first layer. Mid high grasses (Stipa, Sporobolus, Oryzopsis) form the second layer.

**Q.26 Differentiate between alpine and boreal coniferous forests.**

**Ans.** Alpine forests are located at high altitude. So they are called alpine forest. Boreal coniferous forest are located at high latitude are called boreal.

**Q.27 Give animals present in the alpine and boreal coniferous forests.**

**Ans.** Large mammals are bison, wolf, black bear, deer, Marco polo sheep. The small animals are small Kashmir flying squirrel, snowshoe hare, wolverine and crossbills.

**Q.28 Give human impact on the alpine and boreal forests.**

**Ans.** Most of the coniferous forests remain undistributed due to severity of climate and remoteness. But these forests are major source of timber for construction. So a large number of forests have been cleared in the world.

**Q.29 Give location of temperate deciduous forests in world.**

**Ans.** These forests originally covered India, Southeast Asia, Europe, China, Australia, Japan, North and South America.

**Q.30 What adaptations are present in the plants in temperate deciduous forests for conservation of water?**

**Ans.** They shed their leaves during dry season. Thus they minimize the water loss. Sometime, there is no rain on schedule. Thus these trees delay the formation of new leaves until the drought.

**Q.31 How does life exist in profundal zone?**

**Ans.** Light is insufficient to support photosynthesis in these zone. This area is mainly nourished by detritus. This detritus falls from the littoral and limnetic zone by incoming sediment. Decomposers and detritus feeders eat it.

**Q.32** What is eutrophication of a lake?

**Ans.** The higher rate of biological activity in a nutrient rich lake or pond is called eutrophication.

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**Write about ecosystem.****Ans.**

|                        | (1)<br>Temperate Deciduous<br>Forest                                                                                         | (2)<br>Coniferous Alpine &<br>Boreal Forest                               | (3)<br>Grass land<br>ecosystem                                                          | (4)<br>Desert ecosystem                                                                         | (5)<br>Tundra Ecosystem                                                     |
|------------------------|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| IN PAKISTAN            | Neelum Valley,<br>Shogran                                                                                                    | Upper Kaghan, Dir,<br>Chilas, Malam Jaba &<br>Swat Valley                 | Gilgit, Kashmir,<br>Waziristan, Lower hitral,<br>Nikallat                               | Thal = Mianwall,<br>Bukhar, Fort Abbass,<br>B. Nagar, Bahawalpur<br>(Cholistan) Thar -<br>Sindh | Karakoram, Koh Hindu<br>Kush                                                |
| IN WORLD               | India, Southeast Asia,<br>Eastern North America,<br>Europe, China,<br>Australia, Japan, S &<br>N. America                    | North America Canada<br>(Europe + Asia) =<br>Eurasia                      | Eurasian N. America<br>Argentina                                                        | Central Asia Southern<br>Argentina California,<br>Gobi desert in China                          | N. America, N.<br>European & Siberia                                        |
| ALTITUDE               |                                                                                                                              | At high altitude =<br>Alpine                                              |                                                                                         |                                                                                                 | High altitude = <b>Alpine</b>                                               |
| LATITUDE               |                                                                                                                              | At high latitude =<br>boreals                                             |                                                                                         | 20 to 30 North & South                                                                          | High latitude = <b>Arctic</b>                                               |
| TEMPERATURE            | 4°C – 30°C                                                                                                                   | Below freezing to<br>10°C; winter long                                    |                                                                                         | upto 56°C                                                                                       | Very low, permafrost                                                        |
| RAINFALL               | 750 – 1500 mm                                                                                                                |                                                                           | 250 to 750 mm                                                                           | Less than 25 – 50 cm                                                                            |                                                                             |
| DOMINANT<br>VEGETATION | Taxus baccata, Pinus<br>sp. Berberis sp. s Many<br>Shrubs, herbs                                                             | Ever green coniferous<br>trees i.e., Cheel, Diars<br>Abies etc.           | In temperate climates<br>are also called <b>prairies</b>                                | Bushes & Cacti,<br>Euphorbia                                                                    | Perennial flowering<br>plants                                               |
| PRODUCERS              | (i) Free layer = 8 – 30<br>m tall trees<br>(ii) Shrub layer = 5 m<br>shrubs & bushes<br>(iii) Field layer = Herbs<br>& Ferns | Pinus spp., Abies sp.,<br>Picea sp., Cedrus sp.                           | Grasses, legumes<br>Mosses Lichen etc.                                                  | – Perennial shallow<br>rooted,<br>– Succulent                                                   | Dwarf willows, lichens,<br>perennial flowers                                |
| CONSUMERS              | Rhesus monkey<br>(Macaca mullato) Black<br>Bear, Leopard cat, deer,<br>wolves etc.                                           | Bison, Wolf, black<br>bear, Morcopolo<br>sheep, deer and large<br>mammals | Zebra, horses, Bisorus,<br>Foxes, wolves reptiles<br>amphibians, toads &<br>lizard etc. | Lizard, snakes,<br>reptiles, rat, birds,<br>Kangaroo & Burrowing<br>owl etc.                    | Lemming, wolves,<br>snowy owl, arctic<br>foxes, grizzly bears<br>birds etc. |
| DECOMPOSERS            | Bacteria, Fungi &<br>Earthworms                                                                                              | Bacteria, Fungi etc.                                                      | Bacteria, Fungi etc.                                                                    |                                                                                                 | Bacteria & Fungi                                                            |
| HUMAN IMPACT           | Predator has gone,<br>reduction of forests                                                                                   | Wood used in<br>construction so<br>reduction of forests                   | – Desertification<br>– Soil erosion<br>– Salinity                                       | Desertification                                                                                 | Undisturbed                                                                 |
| MISCELLANEOUS          | Soil grayish Brown                                                                                                           | Snow cover in winter,<br>humus high                                       | Grassland plus woody<br>tree is SAVANNA                                                 |                                                                                                 | Permafrost                                                                  |
| PRODUCTIVITY           | Higher                                                                                                                       | Higher                                                                    | 700 – 1500 g/m <sup>2</sup><br>annually                                                 |                                                                                                 |                                                                             |