

Answer any three questions from each half

One mark is reserved for neatness in each half

First Half

1. What is root mean square sound pressure? What is sound pressure level? Five sound sources are emitting sound simultaneously with sound level of 60, 65, 70, 75 and 80 dB, respectively. What will be the resultant sound pressure level? On what factors the perception of the loudness of a sound depend?
(5.5)
2. Discuss about the phenomena of bioaccumulation and biomagnifications with example.
(5.5)
3. Discuss how the location of major biomes is related to the climatic condition. Can their locations be related with the altitude and latitude also?
(5.5)
4. What is a food web? Why there is so much less energy in each successive level of the biomass pyramid? Can the biomass pyramid be inverted?
(5.5)
5. Depict the global nitrogen cycle. Discuss about the human impacts to the nitrogen cycle.
(5.5)

Second Half

6. How we benefit from biodiversity? What factors threaten biodiversity?
(5.5)
7. Distinguish between oligotrophic and eutrophic lakes. What the critical nutrients for eutrophication? How the eutrophication of a lake can be controlled?
(5.5)
8. What are primary and secondary air pollutants? What are the major pollutants in the exhaust of a petrol-driven vehicle? A power plant stack gas at 440°C contains 1400 ppm of SO₂. If the volume rate of gas emitted is 1500 m³/min, what is the SO₂ emission rate in grammes per second? The stack pressure is 1 bar.
(5.5)
9. What are the health effects associated with intake of excess fluoride and arsenic with drinking water? What are the permissible standards for these contaminants in drinking water? Why BOD is considered as an important pollution parameter for wastewater? What is hardness of water and discuss its implications as water quality.
(5.5)
10. Name four gases that cause increased temperature of the atmosphere. What are the principal sources of these gases? Why presence of ozone in the atmosphere is considered essential for survival of species on Earth? Draw the temperature profile of the atmosphere showing four major layers. Explain the typical temperature profile of the atmosphere.
(5.5)