

B. E. Part I 1<sup>st</sup> Semester Examination, 2007

Environment and Ecology (CE 101)

Full Marks: 35

Time: 2 h

Use separate answerscript for each half

Answer three questions from each half

All questions carry equal marks (5.5)

One mark is reserved for neatness in each half

FIRST HALF

1. At what average height from earth's surface, is the stratosphere located? Why stratospheric ozone is considered so beneficial for human? How do the CFC molecules assume a destructive role for stratospheric ozone layer? What are the major uses of CFC? Name few more benign or environment-friendly substitutes of CFC.
2. (a) What is a 'biome'? In which parts of the world, tropical rainforest and tundra can be located?  
  
(b) How may we benefit from biodiversity? What are the human-induced causes for reductions in biodiversity?
3. (a) If the biomass of each trophic level is put together, it assumes the form of a pyramid; i.e. biomass decreases as we go up the food chain. Explain the reason.  
  
(b) Explain bioaccumulation and bio-magnification as related to chemical pesticides
4. (a) The ozone concentration sometimes reaches a value of 0.15 ppm in urban areas with photochemical smog problems. Determine by what percentage this level exceeds the ambient standard of  $240 \mu\text{g}/\text{m}^3$ , if the temperature is  $25^\circ\text{C}$ .  
  
(b) What are the primary and secondary air pollutants? What are the major sources of  $\text{SO}_2$  in the lower atmosphere?

SECOND HALF

1. It is observed that average global temperature is increasing over past several decades. Name the gases that have potential to cause global warming. How these gases cause warming of the lower atmosphere? What are the possible adverse effects of global warming?
2. (a) What is sound pressure level? If two sound sources are emitting sound of 70 dB and 80 dB, simultaneously. What will be the resultant sound pressure level?  
or  
(b) What is  $L_N$ ? How the background noise level in a locality may be assessed? What is  $L_{eq}$  in connection with noise level measurement? What is dBA?
3. (a) How the biodegradable and non-biodegradable organics are distinguished? Assess the impacts of biodegradable organics on environment.  
or  
(b) What are BOD and COD?
4. a) What are the most common constituents of alkalinity? Define hardness of water. Would hard water be acceptable in most drinking water supplies?  
or  
(b) What is an indicator organism? Discuss the health impacts of nitrate in drinking water.
5. (a) State the various solid waste disposal methods and mention their advantages and disadvantages.  
Or  
(b) Discuss how would you manage technically the solid waste management operation in your city.