

**Total number of printed pages – 4**      **B. Tech**  
**PEBT 8404**

**Eighth Semester Examination – 2008**

**POLLUTION CONTROL, ENVIRONMENTAL  
BIOTECHNOLOGY AND BIODIVERSITY**

**Full Marks – 70**

**Time : 3 Hours**

*Answer Question No. 1 which is compulsory  
and any **five** from the rest.*

*The figures in the right-hand margin  
indicate marks.*



1. Briefly answer the following questions : 2 × 10
  - (i) Give examples of biotic and abiotic components in an ecosystem.
  - (ii) What is the importance of microbial biodiversity ?
  - (iii) What are the differences of prokaryotic and eukaryotic organisms ?

- (iv) Show the different layers in our atmosphere in a diagram.
  - (v) What are the health effects of carbon monoxide ?
  - (vi) How do you classify pollutants in the water and waste water ?
  - (vii) What is an extended aeration ?
  - (viii) What is an aerated lagoon and where it is used ?
  - (ix) How metals can be recovered from the wastewater ?
  - (x) Discuss the method by which the oil pollution can be treated with the microorganisms.
2. (a) What do you mean by ecological balance and why it is necessary in an environment ? 5
  - (b) Draw a schematic tolerance curve for a single species population existing on a single environmental gradient. 5

**P.T.O.**

**PEBT 8404**

**2**

**Contd.**

3. (a) What are the different diversity indices ?  
Discuss any one diversity index. 5
- (b) What are the qualities of the ambient air  
and how the air sampling is done using  
a high volume sampler ? 5
4. (a) What are the primary and secondary  
pollutants in our atmosphere and what  
are their sources ? 4
- (b) Explain briefly the working principle and  
removal efficiency of about the following  
air pollution control equipments. (any two)  
6
- (a) ESP
- (b) Cyclone
- (c) Bag house
5. (a) Briefly discuss the laboratory procedure  
of determination of dissolved oxygen  
BOD<sub>5</sub> and COD. What is the importance  
of BOD<sub>5</sub> and COD tests ? 7
- (b) Compare the composition of municipal  
sewage with industrial waste water. 3
6. (a) Draw the mass balance diagram of an  
activated sludge process. Which type of  
aeration tank commonly used in the  
activated sludge process ? 6
- (b) What are the basic advantages of high  
rate trickling in compare to conventional  
trickling filters ? 4
7. (a) Distinguish between aerobic and anaero-  
bic composting and their suitability. 5
- (b) Discuss the principle and step by step  
procedure for the growing a suitable  
vermiculture and also mention the different  
operational conditions. 5
8. Write short notes on the following (any *four*) :  
2.5×4
- (a) Wet land management
- (b) Nitrification and denitrification
- (c) Bio scrubbers
- (d) Membrane based water treatment
- (e) Waste stabilization ponds.