



BName : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.TECH/FT(N)/SEM-3/CH(FT)-301/2012-13**

**2012**

**BASIC ENVIRONMENTAL ENGINEERING AND  
ELEMENTARY BIOLOGY**

*Time Allotted : 3 Hours*

*Full Marks : 70*

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words  
as far as practicable.*

**GROUP – A**

**( Multiple Choice Type Questions )**

1. Choose the correct alternatives of the following :  $10 \times 1 = 10$ 
  - i) Reactor explosion of uranium releasing radioactive elements into the environment in April 1986 and more than 2000 died in
    - a) Fukushima, Japan      b) Chernobyl, Ukraine
    - c) Hiroshima, Japan      d) Sevego, Italy.
  - ii) The lowest layer of atmosphere is
    - a) Mesosphere      b) Troposphere
    - c) Stratosphere      d) Ionosphere.
  - iii) Activated sludge process is classified under
    - a) Primary treatment      b) Secondary treatment
    - c) Tertiary treatment      d) None of these.





**GROUP – B**

**( Short Answer Type Questions )**

Write short notes on any *three* of the following.  $3 \times 5 = 15$

2. Name two hazardous chemicals present in waste water. Write down their source and biochemical effects.
3. a) What do you mean by the term environment ?  
b) What are the objectives of environmental studies ?  $2 + 3$
4. a) What is black body ?  
b) It took the world about 300 years to increase in population from 0.5 billion to 4.0 billion. If we assume exponential growth at a constant rate over that period of time, what would that growth rate be ?  $2 + 3$
5. a) What do you mean by environmental Impact assessment ?  
b) How is it related to the setting up of a new process industry ?  $2 + 3$
6. a) What is lapse rate ? What do you mean by inversion condition of the atmosphere ?  
b) A sample of air analysed at  $20^{\circ}\text{C}$  and 1.0 atmospheric pressure is reported to contain 10 ppm of CO. Determine equivalent CO concentration in  $\mu\text{g}/\text{m}^3$   $3 + 2$

**GROUP – C**

**( Long Answer Type Questions )**

Answer any *three* of the following.  $3 \times 15 = 45$

7. a) Differentiate between primary and secondary treatment for waste water. 5  
b) Define BOD stating its principle and calculation. 5  
c) State the effects of low DO on aquatic life. State the factors influencing DO. 5



8. a) Briefly discuss the solid waste management procedures. 5
  - b) Mention a few international environmental treaty/agreement/protocol available for environmental management. 5
  - c) Define noise pollution. Write down the effects of noise pollution. 5
  9. a) Define biodiversity. Give a brief account of the biogeographical classification of India. What do you understand by 'hotspots of biodiversity' ? 6
  - b) Distinguish between activated sludge process and trickling filtration process. 4
  - c) Calculate the population equivalent of a city given : 5
    - (i) the average sewage flow from the city is  $90 \times 10^6$  l/day
    - (ii) the average 5 day BOD is 280 mg/l.
  10. a) What do you mean by ozone layer depletion ?
  - b) Which pollutants are responsible for ozone layer depletion and how ?
  - c) What are control methods of ozone layer depletion ?
  - d) What is Montréal protocol ?
  - e) What are the harmful effects of acid rain ?
- 3 + (1 + 3) + 3 + 2 + 3
11. Write notes on any *five* of the following : 5 × 3
    - a) Hydrological cycle
    - b) Trickling filter
    - c) Catalytic converter
    - d) Aquifers
    - e) Temperature Inversion
    - f) Lead Pollution
    - g) Bag House.

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