



Name : .....

Roll No. : .....

Invigilator's Signature : .....

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

**2012**

**BASIC ENVIRONMENTAL ENGINEERING  
& 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 for the following :  $10 \times 1 = 10$ 
  - i) The best way to dispose plant waste
    - a) burning
    - b) dumping in a water body
    - c) incineration
    - d) composting.
  - ii) Food chain always starts with
    - a) decay
    - b) nitrogen fixation
    - c) photosynthesis
    - d) respiration.
  - iii) Lakes rich in nutrient is known as
    - a) Eutrophic lake
    - b) Atrophic lake
    - c) Mesotrophic lake
    - d) Oligotrophic lake.



- iv) The water suitable for drinking
  - a) pure water
  - b) portable water
  - c) potable water
  - d) pungent water.
- v) Full form of ESP is
  - a) electrostatic precipitator
  - b) electrostatic producer
  - c) electron source precipitator
  - d) none of these.
- vi) Living organisms are good examples of
  - a) closed system
  - b) open system
  - c) isolate system
  - d) none of these.
- vii) The normal audio sense is in the frequency range
  - a) 2,000 - 5,500 Hz
  - b) 20 - 20,000 Hz
  - c) 20,000 - 50,000 Hz
  - d) 20 - 500 Hz.
- viii) CPCB has prescribed permissible sound levels of 75 db (A) for day
  - a) industrial area
  - b) commercial area
  - c) residential area
  - d) hospital area.
- ix) The conversion of ammonium salts into nitrite and nitrate is called as
  - a) nitrification
  - b) denitrification
  - c) ammonification
  - d) all of these.
- x) The conditions for the formation of photochemical smog are
  - a) air stagnation, high amounts of hydrocarbons
  - b) high amounts of nitrogen oxides, high amounts of hydrocarbons
  - c) only high amounts of nitrogen oxides
  - d) both (a) and (b).



**GROUP – B**

**( Short Answer Type Questions )**

Answer any *three* of the following  $3 \times 5 = 15$

2. Differentiate environmental science from ecology.
3. What is acid rain. Write the effects of acid rain.  $3 + 2$
4. a) What are  $\text{SO}_x$  and  $\text{NO}_x$  ?  
 b) Discuss about the emission sources of  $\text{SO}_x$  and  $\text{NO}_x$ .  
 c) What is criteria pollutant ?  
 d) What are the adverse effect of  $\text{H}_2\text{SO}_4$  aerosol ?  
 $1 + 2 + 1 + 1$
5. a) What do you mean by particulate matter ?  
 b) What are the major classification of particulate matter ?  
 c) Name few equipments which are used for particulate matter.  
 d) What is PPOM ?  $1 + 2 + 1 + 1$
6. a) Discuss adverse effect of mercury.  
 b) Discuss adverse effect of cadmium.  
 c) What is berylliosis ?  $2 + 2 + 1$

**GROUP – C**

**( Long Answer Type Questions )**

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

7. a) Briefly describe the abiotic and biotic components of the ecosystem.  
 b) Explain ecological pyramids.  
 c) Write notes on biodiversity.  $(4 + 4) + 4 + 3$
8. a) Write oxygen cycle with diagram.  
 b) What are the factors that cause ozone layer depletion ?  
 c) State the working principle of cyclone separator.

$5 + 5 + 5$

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



9. What do you mean by Ecosystem, Ecology, Sere, Net Primary Production, Gross Primary Production ? Write about the types of Ecosystem on the basis of habitates, spatial scales, uses. Write about the Model Systems of Ecosystem.

5 + 5 + 5

10. a) Write down the schematic diagram of waste water treatment plant. What is sludge volume index ?  
b) Write down about EMP.  
c) Draw sag curve and explain.  
d) What is sustainable development ?

3 + 2 + 5 + 3 + 2

11. Define sources and effects of different pollutants on air and water pollution. Write brief description of water and air treatment process.

6 + 9

=====