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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.

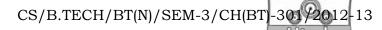
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iv) The water suitable for drinking pure water b) portable water potable water d) c) pungent water. Full form of ESP is v) electrostatic precipitator a) electrostatic producer b) electron source precipitator c) none of these. d) Living organisms are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

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 SO_x and NO_x ?
 - b) Discuss about the emission sources of SO_x and NO_x.
 - c) What is criteria pollutant?
 - d) What are the adverse effect of H_2SO_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

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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
