



Name :

Roll No. :

Invigilator's Signature :

CS/B.TECH/CHE(N)/SEM-3/CH(CHE)-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 any *ten* of the following :

10 × 1 = 10

i) Acid rain is caused by oxides of

- | | |
|--------------------|--------------------|
| a) SO ₂ | b) NO ₂ |
| c) CO ₂ | d) (a) & (b) both. |

ii) CFC is

- a) Chlorofluorocarbon
- b) Centre for fuel control
- c) Carcinogenic fluoride compound
- d) Carcinogenic fuel chemical.



- iii) Montreal Protocol signed in September 1987, aims at the control of
 - a) Use of greenhouse gases
 - b) Use of chemical pesticides
 - c) Use of ozone depleting substance
 - d) Use of carbon dioxide gases.
- iv) Converting solid waste into new products by using resources contained in the discarded material is
 - a) Waste management
 - b) Reuse
 - c) Recycling
 - d) Hazardous waste management.
- v) El Nino is a Spanish word which means
 - a) Climate change
 - b) Earth's rotation
 - c) Little boy
 - d) Extremely hazardous.
- vi) According to United Nations the World Environment Day 2012 is dedicated to
 - a) Water Management
 - b) Forests
 - c) Green Economy
 - d) Bio-diversity.
- vii) Haemoglobin is a protein.
 - a) Catalytic
 - b) Protective
 - c) Regulatory
 - d) Transport.
- viii) The size of RSPM is
 - a) 10 μ
 - b) 20 μ
 - c) 100 μ
 - d) $< \text{or} = 10 \mu$.
- ix) Glycolysis is a process.
 - a) Catabolic
 - b) Anabolic
 - c) Regulatory
 - d) Transport.



8. a) State Darcy's law. 2
- b) What are the probable cause of water pollution – be arsenic ? 2
- c) What remedial measures may be taken to control arsenic pollution ? 3
- d) What do you mean by water softening. What are the different methods of water softening ? 2 + 2
- e) The dilution factor P for an unseeded mixture of wastes and water is 0.030. The DO of the mixture was initially 9.0 mg/l and after 5 days it has dropped to 3.0 mg/l. The reaction rate constant is 0.22/day. Calculate
 - i) The 5 day BOD of the wastes
 - ii) C_0
 - iii) The remaining oxygen demand after 5 days. 4
9. a) Define noise pollution. 1
- b) Discuss its various sources. 2
- c) Suggest two methods of controlling the noise pollution. 2
- d) What is the noise threshold limit value ? 2
- e) Calculate the intensity of 50 dB sounds. (given reference intensity - 10^{-12} Wm^{-2}). 3
- f) What is the composition of lithosphere ? 3
- g) What are the different types of solid wastes ? 2
10. Discuss the methodology of Collection and transfer of Solid Waste practiced in the urban city of India. State how incinerator is helpful in solving solid waste management problem in a crowded city. What is e-Waste ? 5 + 5 + 5
11. Write brief notes on any *three* of the following : 3 × 5 = 15
 - a) Cyclone separator
 - b) Ventury Scrubber
 - c) Hydraulic gradient
 - d) Trickling filter
 - e) Hzardous waste management.

