



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.

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

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8. a) State Darcy's law. 2
 b) What are the probable cause of water pollution by 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_o
 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.

