B.Tech/AEIE/ECE/EE/ME/4th Sem/CHEM-2001/2016

2016

BASIC ENVIRONMENTAL ENGINEERING & ECOLOGY

(CHEM 2001)

Time Alloted : 3 Hours   *Full Marks : 70*

Figures out of the right margin indicate full marks.

Candidates are required to answer Group A and **any 5 (five)**
from Group B to E, taking **at least one** *from each group.*

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

GROUP - A
(Multiple Choice Type Questions)

1. Choose the correct alternatives for the following :   **[10×1=10]**

    i)   Methyl Isocyanate is a

         (a) primary pollutant

         (b) secondary pollutant

         (c) criteria pollutant

         (d) Contaminant

    ii) Montreal protocol is related to

         (a) disarmament

         (b) freeze on use of CFC

         (c) water pollution

         (d) land pollution

    iii) The main constituent of London smog is

         (a) carbon monoxide   (b) hydrogen sulphide

         (c) carbon dioxide   (d) oxides of sulphur

    iv) The unit of intensity of sound is

         (a) Watt/m^2 (b) N/m^2

         (c) Decibel   (d) Bel

    v)   The best method of radioactive waste disposal is

         (a) chemical processing   (b) storing under water

         (c) encapsulation   (d) all of these

    vi) The maximum sustainable yield is obtained when the population is

         (a) at the carrying capacity

         (b) half of the carrying capacity

         (c) double the carrying capacity

         (d) one fourth of the carrying capacity

    vii) The cause of eutrophication is the

         (a) increase of nutrient load

         (b) increase of temperature

         (c) increase of pathogens

         (d) increase of DO

    viii) The atmosphere is neutrally stable under the condition of

         (a) ELR > ALR   (b) ELR < ALR

         (c) ELR = ALR   (d) none of these

ix) The best method of waste disposal is

(a) incineration   (b) composting

(c) landfill   (d) all of these

x) Minamata disease is caused due to _____ pollution.

(a) mercury   (b) cadmium

(c) lead   (d) tin

GROUP - B

2. (a) Define food web with examples.

(b) Write the definitions and examples of three types of food chains.

(c) Define Hot spots of Biodiversity with example.

(d) Write about four major sources of threats to biodiversity.

$$2+(3\times2)+2+2 = 12$$

3. (a) Explain renewable and non-renewable resources with example.

(b) What is carrying capacity of a population?

(c) What is saprophytic food chain? Give example.

(d) Define biogeochemical cycle. Briefly discuss phosphorus cycle showing schematic diagram.

$$(3)+(1)+(2)+(2+4) = 12$$

GROUP - C

4. (a) Explain the term green house effect. Write down the name of green house gases. Why existence of life is not possible in venus?

(b) What is acid rain? Write down the causes and effect of acid rain?

$$(2+2+3)+(1+4) = 12$$

5. (a) What are primary pollutants and secondary pollutants?

(b) What are the sources, effects and control measures of Carbon monoxide pollution in the atmosphere?

(c) Write down the reactions of ozone layer depletion. Deduce the chemical formula of CFC-115.

$$2+(2+2+2)+(2+2) = 12$$

Group - D

6. (a) What are the affects of eutrophication? How can eutrophication be controlled?

(b) What do you mean by thermal stratifiction in lakes? What is activated sludge?

(c) Write the different types of noise according to the source. Mention the different physiological and psychological effects of noise pollution.

$$(3+2)+(2+1)+(2+2) = 12$$

7. (a) What do you mean by hardness of water? Why hard water cannot be used in laundries and boilers?

(b) Describe how a "Trickling Filter" is used in secondary treatment of waste water.

(c) Write the biochemical effects of arsenic.

(d) What will be the net noise level, when two machines each creating a noise of loudness 120dB?

$$(2+2)+3+2+3 = 12$$

GROUP - E

8. (a) What is land pollution? Discuss the major sources of land pollution.

(b) What do you mean by energy audit? What are the objectives of energy audit/energy management?

(c) Write the effects of industrial solid waste. How is modern agricultural practice affecting the soil pollution?

$$(1+3)+(1+2)+(3+2) = 12$$

9. (a) Write short note on Bhopal gas tragedy.

(b) What is green solvent? Give examples.

(c) Write down the name of main sources of green energy. Explain about any one of them.

(d) Write short note on Environment Protection Act in India.

$$3+(2+1)+(1+2)+3 = 12$$