BASIC ENVIRONMENTAL ENGINEERING & ECOLOGY
(CHEM 2001)

Time Allotted : 3 hrs **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 alternative for the following: **10 × 1 = 10**

(i) The main constituent of London smog is
(a) carbon monoxide (b) hydrogen sulphide
(c) carbon dioxide (d) oxides of sulphur.

(ii) Wildlife sanctuary is one kind of
(a) ex situ conservation (b) hot spot
(c) artificial ecosystem (d) in situ conservation.

(iii) 'Itai Itai' disease is cause due to poisoning of
(a) Cd (b) Hg (c) As (d) Pb

(iv) Human ear frequency response is related to the network
(a) dBA (b) dBB (c) dBC (d) none of these.

(v) A greenhouse gas is
(a) H_2S (b) CO (c) SO_2 (d) H_2O vapour.

(vi) In the oligotrophic lake the nutrient status and productivity of aquatic plants are
(a) very high (b) high (c) moderate (d) low.

(vii) The recommended maximum TDS concentration of drinking water according to WHO is
(a) 100mg/l (b) 500mg/l (c) 150mg/l (d) 250mg/l.

(viii) Radioactive waste disposal method usually involve
(a) incineration (b) sanitary landfill
(c) window composting (d) encapsulation.

(ix) Reverse Osmosis is a technique to remove from water the
(a) oxygen demanding waste (b) pathogen
(c) salinity (d) thermal pollution

(x) Which of the following poisonous gas was released during Bhopal Gas Tragedy?
(a) Arsenic pentafluoride (b) Chlorine
(c) Methyl isocyanate (d) Carbon monoxide

Group – B

2. (a) The increase in population from 1 million to 10 million took 200 years. For exponential growth at constant rate find out the growth rate and the doubling time.

(b) What are the endemic species to biodiversity? Give example.

(c) Give one example of each in situ and ex situ conservation to biodiversity.

(d) Give a brief account of sulphur cycle showing schematic diagram.

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

3. (a) Explain renewable and non-renewable resources. Give two examples of each kind.

(d) According to logistic growth of population explain the term 'Carrying Capacity'.

(c) What is food pyramid? Give one example of each upright and inverted food pyramid.

(d) Give a brief account of biological nitrogen fixation.

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

Group – C

4. (a) What is atmosphere? What are the major regions of atmosphere? Draw the temperature profile curve of the atmosphere.

(b) What are the main constituents of photochemical smog?

(c) Write a short note on (i) Bag house filter (ii) Maximum mixing depth.

(d) Give a brief account of green house effect.

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

5. (a) What are the effects of ozone layer depletion?

(b) What are the sources, effects, and control measures of oxides of nitrogen pollution in atmosphere.

(c) What is acid rain? Write down the effects of acid rain.

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

Group – D

6. (a) What do you mean by Biological Oxygen Demand (BOD)?

(b) Explain 'Hydrologic Cycle' with the help of a diagram.

(c) What is human acoustics?

(d) How the loudness of a sound is expressed in terms of intensity?

(e) What are the sources of mercury (Hg) contamination in water? Describe the biochemical effects of the above heavy metal.

2 + 3 + 2 + 2 + 3 = 12

7. (a) By drawing figure discuss in detail the water treatment process by Oxidation Pond.

(b) What do you mean by 'Eutrophication'? Discuss the effects of Eutrophication on water pollution.

(c) Discuss about the methods of water softening?

(d) How much a sound of 150dB is louder than a sound of 100dB?

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

Group – E

8. (a) Write a short note on 'Chernobyl Disaster'.

(b) What is cancer? How does cancer develop?

(c) Discuss incineration process mentioning advantage and disadvantage.

(d) What is waste pile?

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

9. (a) What do you mean by green building?

(b) What do you mean by Green Solvent? Give example.

(c) Differentiate between garbage and rubbish?

(d) What are the main objectives of Environment Protection Act, 1986 of India?

(e) What are the teratogens? Give examples.

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

Department & Section	Submission Link
Classroom link	https://classroom.google.com/c/Mzc0NjIxMTQ3ODQ5?cjc=jfcc4hc
Answer Script Submission link	https://classroom.google.com/w/Mzc0NjIxMTQ3ODQ5/tc/Mzc0OTk0NTc0ODcw