M.Sc. DEGREE I SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY, NOVEMBER 2008

ENV/ENB 2102 CHEMISTRY OF THE ENVIRONMENT

Time: 3 Hours Maximum marks: 50

PART - A

(Answer ***ANY FIVE*** questions)
(All questions carry ***EQUAL*** marks)

(5 x 2 = 10)

I. 1 How is photochemical smog formed? What are its constituents?
2 Distinguish between BOD and COD.
3 Explain the term "eutrophication".
4 What is meant by macro and micronutrients in soil? Give examples.
5 Mention the important sources of radioactive nuclides in water.
6 The pH expected for rainwater under unpolluted conditions is around 5.6. Explain why this value is expected?

PART - B

(Answer ***ANY FIVE*** questions)
(All questions carry ***EQUAL*** marks)

(5 x 3 = 15)

II. 1 What are the causes and consequences of ozone layer depletion?
2 Explain the principle of atomic absorption spectrophotometry. How is it useful in the analysis of environmental samples?
3 How does fertilizer use contribute to water pollution?
4 What are the environmental problems associated with nuclear waste disposal?
5 Which are the main causes of imbalance in the carbon cycle?
6 How does volatile organic compounds cause air pollution?

PART - C

(Answer ***ANY FIVE*** questions)
(All questions carry ***EQUAL*** marks)

(5 x 5 = 25)

III. 1 Describe the principle and procedure for the determination of any **two** of the following:
(i) Carbon monoxide in air samples
(ii) Dissolved oxygen
(iii) Fluoride in water samples
(iv) Nitrate in water samples.

2 Explain with a schematic diagram, the important aspects of nitrogen cycle.

3 Discuss the important sources, chemical reactions and environmental/health effects of carbon monoxide and sulphur dioxide in the atmosphere.

4 Explain the methods used to control air pollution.

5 Write notes on:
(i) Cation exchange capacity of soils
(ii) Organic pollutants in soil.

6 Discuss the principle and applications of any **two** of the following methods:
(i) Flame photometry
(ii) Gas chromatography
(iii) Fluorimetry.

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