

M.Sc. DEGREE I SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,
DECEMBER 2005

ENV 2102 CHEMISTRY OF THE ENVIRONMENT

Time : 3 Hrs.

Maximum marks : 50

PART – A

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

(5 x 2 = 10)

I

1. Name two nuclides produced by cosmic radiation.
2. Define eutrophication.
3. What is soil humus?
4. Define chelating agent.
5. What characteristic molecular properties of H_2O and CO_2 cause their absorption of infrared radiation?
6. Define residence time of an element.

PART – B

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

(5 x 3 = 15)

II

1. Sketch the structure of the water molecule and explain why it is particularly significant in respect to water's solvent properties. Why is the water molecule called a dipole?
2. Explain the following terms,
Nitrogen fixation, Denitrification and Nitrification
3. What are different classes of radioactive nuclides in the environment?
4. Write a short note on synthetic detergents.
5. Discuss the ion exchange reactions in soil.
6. Explain greenhouse effect.

(Turn over)

PART – C

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

(5 x 5 = 25)

1. Discuss the influence of climatic factors on the residence time of a synthetic organic chemical using suitable examples.
2. Discuss the conditions, which lead to the formation of a photochemical smog.
3. Discuss the influence of microbes in mobilizing heavy metals in the aquatic environment.
4. What are the processes occurring in soil that operate to reduce the harmful effects of pollutants?
5. Explain briefly the biogeochemistry of phosphorus in the environment.
6. Describe the factors, which affect the solubility of gases in water.