

M.Sc. DEGREE II SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,
MAY 2007

ENB 2201 CHEMICAL METHODS IN ENVIRONMENTAL ANALYSIS

Time : 3 Hrs.

Maximum marks : 50

PART – A

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

(5 x 1 = 10)

I

1. Balance the following nuclear reaction



2. Explain the term BOD
3. Give an example of natural air pollution
4. Define an indicator electrode
5. What is the basic principle of atomic emission spectroscopy?
6. Define molar absorptivity

PART – B

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

(5 x 3 = 15)

II

1. A sample of 100mg of a radioactive nuclide decay to 81.5mg of the same in exactly 7 days. Calculate the decay constant for this disintegration and the half life of the nuclide?
2. Explain the principle and methodology involved in the estimation of dissolved oxygen.
3. What are the advantages of a potentiometric titration over a direct potentiometric measurement.
4. Differentiate nephelometry and turbidimetry with suitable examples.

(Turn over)

5. Why is atomic emission more sensitive to flame instability than atomic absorption?
6. How will you estimate the fluoride content in a water sample?

PART – C

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

(5 x 5 = 25)

- III Describe the principles involved in the working of Scintillation counter. What are the merits of Scintillation counter over GM counter?
- IV Explain the principle of colorimetric determination of nitrate in water
- V Describe the sources of error in the measurement of pH. How are the pH data affected by alkaline error?.
- VI Explain the sampling and analytical techniques involved in the estimation of H₂S in polluted air.
- VII Explain the principle involved in atomic absorption spectrophotometry and discuss its application to trace metal determination in water.
- VIII Describe the differences between the following
 - a) spectrophotometers and photometers
 - b) monochromators and polychromators
 - c) single-beam and double-beam instruments for absorbance measurements