

**M.Sc. DEGREE II SEMESTER EXAMINATION IN ENVIRONMENTAL TECHNOLOGY,
APRIL 2008**

ENB/ENV 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 2 = 10)

- I. (a) Explain 'ion-selective electrodes' and give examples.
 (b) How does turbidimetry differ from nephelometry?
 (c) Calcium is best estimated by emission or absorption and why?
 (d) Explain the collection of SPM for analysis.
 (e) The half life period of a radioactive element is 140 days. After 560 days, one gram of the element will reduce to.....
 (f) What is meant by the term 'BOD₅' ? What is its implication to aquatic pollution?

PART – B

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

(5 x 3 = 15)

- II. (a) What are the advantages and disadvantages of potentiometry over conventional volumetry?
 (b) Describe the differences between the following:
 (i) Spectrophotometers and photometers.
 (ii) Monochromators and polychromators.
 (iii) Single-beam and double-beam instruments for absorbance measurements.
 (c) What is the principle of a flame photometer? Explain its usefulness.
 (d) Describe in detail the scintillation counter and its applications.
 (e) Describe how CO in polluted air is sampled and estimated.
 (f) Explain the EDTA method for the determination of hardness of water.

PART – C

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

(5 x 5 = 25)

- III. (a) What is the principle of Atomic Absorption Spectrophotometer? Describe the method of estimation of dissolved trace metals.
 (b) How will you determine chloride by potentiometric titration? Devise the cell indicating the signs of the electrodes.
 (c) Describe the principle and method involved in the determination of dissolved oxygen by Winkler method. What are the agents which can cause interferences?
 (d) Explain various sampling devices used in air quality analysis.
 (e) Write short notes on any two of the following:
 (i) Gamma ray spectroscopy
 (ii) Chemical oxygen demand
 (iii) Electrostatic precipitator
 (f) Explain in detail the spectrophotometric estimation of nitrite and nitrate in water.