QUESTION BANK

PAPER IV (*ANALYTICAL* CHEMISTRY)

2022 - 2023

M.SC 2nd SEMESTER

1. Explain sampling of ambient air for suspended particulates and gaseous pollutants.

2. Explain the terms 'substoichiometric titrations' and 'hazards in sampling'.

3. A 50 mL wastewater sample was titrated with EDTA solution using EBT indicator requiring 27.3 mL. The EDTA solution was standardized with 20.0 mL of 0.050 M zinc acetate solution requiring 10.2 mL. Calculate the hardness of water sample in terms of ppm of $CaCO_3$ equivalent.

4. Write short notes on :

(i) Noise and detection limit

(ii) Dry ashing process of sample treatment.

5. Explain any two types of detectors in HPLC.

6. Explain construction and working of flame ionization detector in Gas Chromatography.

7. Explain how will you estimate two dyes in a mixture using spectrophotometry.

8. Explain amperometric titration of sample containing chromate ions with standard solution of lead nitrate. Give its advantages over palarography.

9. A dye solution absorbs 20% of light incident on it in 1 cm cell. If the molar extinction coefficient is 104 , calculate the concentration of dye.

10. Draw well labelled schematic diagram of double beam spectrophotometer.