

M.Sc. (Part-I) (Chemistry) (NEP Pattern) Semester-II
02MSCCH04 - Analytical Chemistry-II

P. Pages : 2

Time : Three Hours



GUG/S/25/15353

Max. Marks : 80

- Notes : 1. All questions are compulsory.
2. All questions carry equal marks.

1. a) Explain sampling of soil for chemical analysis? What are various tools used in the procedure of taking soil sample and preparations? **8**

b) Describe dry and wet ashing method of sample treatment. **8**

OR

c) Write a note on safety aspects in handling hazardous chemicals. **4**

d) A water sample was analyzed for hardness. 100ml of sample was titrated with EDTA solution required 23.4ml. The EDTA solution was standardized against 25ml of 0.2m ZnSO₄ requiring 19.3ml. Calculate the hardness of water in ppm. **4**

e) Outline the analytical procedure Stoichiometry methods and sub stoichiometry method? **4**

f) Describe the term limit of detection? **4**

2. a) Discuss the principle and working of Gas-chromatography? **8**

b) Discuss principle and instrumentation in HPCL using well labeled Schematic diagram. **8**

OR

c) Write Van Deemer equation explain HETP. **4**

d) Explain types of columns used in liquid chromatography. **4**

e) Explain the principle of Gel Permeation? Give its two applications. **4**

f) Write a note on "Supercritical fluid chromatography" and their analytical aspects. **4**

3. a) Explain principle, instrumentation of fluorometry and applications. **8**

b) Explain Principle and discuss various types of interference in flame photometry? **8**

OR

c) Explain concentration dependence Fluorescence intensity. **4**

d) Write a note on turbidimetry. **4**

- e) Discuss standard-addition method in flame photometry. 4
- f) What are fiber optic sensors? Explain its use in different applications? 4
- 4. a) Explain the simultaneous determination of metal ions using polarographic technique. 8
- b) What are amperometric titrations? Explain different types of curve obtain in amperometric titrations. 8

OR

- c) Why maxima appear in polarogram? How it is removed. 4
- d) What are reversible and Quasi-reversible electrode reactions explain? 4
- e) Discuss the technique and advantages of pulse polarography. 4
- f) Explain Adsorption current and Kinetic current. 4
- 5. a) Explain the criteria for representative sample. 2
- b) Convert 0.020 N solution of KOH into parts per million (PPM). 2
- c) Name the detectors used in HPLC. 2
- d) Write the applications of gas chromatography. 2
- e) Give two limitations of flame photometry. 2
- f) Draw Schematic diagram of Nephelometer? 2
- g) Write Ilkovic equation and explain term involved in it. 2
- h) What are limitations of DME. 2
