UNIT: A-4142

Answer ***any five*** questions.

5. Discuss what happens when a liquid sample (MX) is aspirated to the flame in AAS. Write down the differences between pre-mix and total consumption type of burners in AAS. In general which type of burner is used in AAS and why? $2+1\frac{1}{2}+1\frac{1}{2}$

6. Write the principle of hollow cathode lamp (HCL) and electrodeless discharge lamp (EDL). Explain why and when EDL lamp is used in AAS. 2+2

7. Describe the principle of hydride generation technique used for the estimation of As(III)/As(V) mixture. 5

8. Name the various types of interferences in Flame AAS. Discuss any one of the interferences. How is standard addition method used to eliminate the interferences in AAs. 1+2+2

9. Write down the principle of room temperature AAS technique for the estimation of Hg. Describe the principle of ICPAES. $2\frac{1}{2}+2\frac{1}{2}$

10. Write short notes : $2\frac{1}{2}+2\frac{1}{2}$

    i) Graphite furnace atomic absorption spectroscopy (GFAAS)

    ii) ICP Torch

M. Sc. Chemistry Examination, 2022

(4th Semester)

Analytical Chemistry Special

Paper – XIV-A

Time : Two hours Full Marks : 50

(25 marks for each unit)

Use a separate answer script for each Unit.

UNIT: A-4141

1. What is the principle of centrifugation? What is the difference betweeen a centrifuge and an ultracentrifuge? 2+2

2. What is electrophoresis? What do you mean by cataphoresis and anaphoresis? Write a short note on gel-electrophoresis. What are the most common types of gel electrophoresis? Discuss in brief. 1+(1+1)+2+3

3. What is dynamic quenching? How can we study protein folding using fluorescence spectroscopy? 2+4

4. Pictorically represent a *dual beam* spectrophotometer. How can we calculate rate of enzyme catalyzed reactions spectrophotometrically? 3+4