

M. SC. CHEMISTRY EXAMINATION, 2019

(4th Semester)

ANALYTICAL CHEMISTRY SPECIAL

PAPER - XIV-A

Time : Two hours

Full Marks : 50

(25 marks for each unit)

Use a separate answerscript for each unit.

UNIT - A - 4141

1. Answer *any four* questions :
 - a) What is the effect of pH in the absorption spectra of tyrosine ? 3
 - b) Define intrinsic and extrinsic chromophores. Give examples. 2+1
 - c) Derive Stern-Volmer relationship. 3
 - d) Define different types of external quenching. What is the effect of viscosity on external quenching ? 1+2
 - e) What do you mean by resonance energy transfer ? Using this concept how will you measure distance in proteins ? 2+1
2. a) Write a short note on analytical Ultracentrifugation. 4

- b) What are the advantages and disadvantages of Polyacrylamide gel electrophoresis and Agarose gel electrophoresis? 5
- c) The separated DNA species in the gel may be made visible to the human eye by ethidium bromide staining. Explain in brief. 4

UNIT - A - 4142

Answer *any five* questions.

5×5=25

3. Discuss what happens when a liquid sample (MX) is aspirated to the flame in AAS. What are the differences between pre-mix and total consumption type of nebulizers? 4. Name the various types of interferences in Flame AAS. Discuss about any two of the interferences. 5. Write the principle of hollow cathode lamp (HCL) and electrodeless discharge lamp (EDL). Explain why and when EDL lamp is used in AAS. 6. Write short note on any one of the following
- Graphite furnace atomic absorption spectroscopy (GF AAS)
 - Standard addition method in AAS

7. Describe the principle of hydride generation technique for the estimation of As. 8. Describe the principle of ICPAES. What is ICP Torch ? 9. a) GFAAS method is preferred over Flame AAS in analysis—comment b) Write down the principle of room temperature AAS technique for the estimation of Hg.