

M. Sc. CHEMISTRY EXAMINATION, 2017
(4th Semester)
ANALYTICAL CHEMISTRY SPECIAL
PAPER-XIV-A

Time : Two hours

(25 marks for each Unit)

Full Marks : 50

Use a separate answerscript for each Unit.

UNIT – A- 4141

Answer question no.1 and any four from the rest:

1. Answer any **five** questions: 1×5
- (a) Define intrinsic fluorophore and give one example.
 - (b) Draw the structure of Ethidium Bromide.
 - (c) Mention the use of refrigerated centrifuge.
 - (d) What is RPF?
 - (e) How 'g' is calculated in centrifugation?
 - (f) Name one organophosphorous pesticide.
 - (g) What is ANS? Give the full form of it.
2. Discuss how will you follow a biological reaction by spectrofluorimetric method. 5
3. Suggest a spectrophotometric method for the determination of nucleic acids in biological samples. 5
4. Describe in detail the method of determination of DNA in presence of RNA. 5
5. What are the different types of centrifuges used in the laboratory? Derive an expression for the determination of RPF. 5
6. What are preparative ultracentrifuges and where are they used? How would you determine the molecular mass of any biological sample by "Sedimentation Equilibrium" method ? 5
7. What are organophosphorous pesticides? Discuss one method for the quantification of it. 5

[Turn over

UNIT – A- 4142Answer *any five* questions

5×5

8. Discuss the advantages and disadvantages of flame photometry. What are the differences between pre-mix and total consumption type of nebulizers?
9. What is chemical interference in AAS? How it can be removed?
10. Describe the principle of hollow cathode lamp (HCL) and electrodeless discharge lamp (EDL). What are the differences between them? Explain why and when EDL lamp is used in AAS.
11. Write short note on any one of the following :
 - i) Graphite furnace atomic absorption spectroscopy (GFAAS)
 - ii) ICP Torch
12. Describe the principle and method of cold vapour technique for the estimation of Hg.
13. Describe the principle of Inductively Coupled Plasma Atomic Emission Spectroscopy (ICPAES).
14. (a) Discuss about the choice of flame and furnace in AAS method.
(b) Explain why As(V) has to be reduced to As(III) before the formation of hydride in hydride generation technique for the determination of As.