

D 101194

(Pages : 2)

Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2024**

(CBCSS)

Chemistry

CHE 4C 12—INSTRUMENTAL METHODS OF ANALYSIS

(2019 Admission onwards)

Time : Three Hours

Maximum : 30 Weightage

Section A*Answer any **eight** questions.**Each questions carries a weightage of 1.*

1. What is significant figure ? How many significant figures are there in the following ?
(a) 0.0032. (b) 2.00005.
2. Differentiate between accuracy and precision.
3. What do you mean by confidence intervals ?
4. What are the different factors favouring organic reagents for gravimetry ?
5. Stripping methods are more sensitive than other voltammetric procedures. Why ?
6. What is meant by amperometry ? How is it different from biamperometry ?
7. What is paper chromatography ?
8. Distinguish between XPS and Auger Electron Spectroscopy.
9. What is the principle of ATR Spectroscopy ?
10. What is NAA ? Give any one use of this technique.

(8 × 1 = 8 weightage)

Section B*Answer any **six** questions.**Each question carries a weightage of 2.*

11. Briefly explain the flame and electrothermal atomization processes in AAS.
12. What is Van-Deemeter equation ? Discuss its utility in chromatography.
13. Write short notes on the followings :
(a) Indicator electrodes. (b) Anodic stripping voltametry.

Turn over

14. Distinguish between Nephelometry and Turbidimetry.
15.
 - a) Explain the theory and applications of TLC.
 - b) Describe the instrumentation and working of a gas chromatograph.
16. Write short note on inorganic precipitating agents
17. What is Photo Electron Spectroscopy ? How is it useful in the study of core binding energy ?
18. Draw the block diagram of SEM and discuss the important applications of SEM.

(6 × 2 = 12 marks)

Section C

*Answer any two questions.
Each question carries a weightage of 5.*

19.
 - a) What are chelometric titrations ? Write down their applications in quantitative analysis.
 - b) What is co-precipitation ? What are the different types of co-precipitation and how it can be minimized ?
20.
 - a) What is F test ? What is its significance in analytical chemistry? What are the major criteria in rejecting an analytical result?
 - b) Differentiate between masking and demasking techniques. Illustrate their selectivity in improving the selectivity of EDTA titrations.
21.
 - a) With a neat diagram, explain the instrumentation of fluorimetry.
 - b) Explain the instrumentation and applications of UV-visible and IR spectroscopy.
22. Explain the principle and applications of the following a) NAA b) Polarography.

(2 × 5 = 10 marks)