

(For candidates admitted from 2015–2016 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Chemistry

ANALYTICAL CHEMISTRY

Time : Three hours

Maximum : 100 marks

SECTION A — ($10 \times 2 = 20$)

Answer ALL questions

1. What are the limitations of AAS?
2. Describe the principle of turbidimetry.
3. Differentiate between Accuracy and Precision.
4. Write a note on (brief) curve fitting.
5. Define R_f value and explain the significance of it.
6. Write any two qualities of a good adsorbent.
7. Define DTA and write their applications.

8. What are the advantages of thermobalance?
9. Define Gas sensors. Give example.
10. Describe the principle and applications of cyclic voltametry.

SECTION B — ($5 \times 7 = 35$)

Answer ALL questions, Choosing either (a) or (b)

11. (a) Describe the types of burners used in AAS.

Or

- (b) Write a detailed notes on SEXAFS techniques.

12. (a) Explain the methods of Hypothesis testing.

Or

- (b) Define significant figures. What is the rule to determine the significant figures?

13. (a) Write a detailed notes on the steps involved in TLC.

Or

- (b) Write the principle and identification techniques in column chromatography.

14. (a) Draw the simultaneous DTA curves of $\text{Ca}(\text{C}_2\text{O}_4) \cdot \text{H}_2\text{O}$ in air and CO_2 atmosphere.

Or

- (b) Write the instrumentation techniques in thermometric titrations.

15. (a) Explain the working techniques of ISFETs.

Or

- (b) Describe DME with a neat sketch.

SECTION C — ($3 \times 15 = 45$)

Answer any THREE questions

16. Describe the principle and instrumentation of FES.
17. Explain the aspects of multiple linear regression analysis.
18. Discuss the principle and instrumentation of GC-MS.
19. Define TGA and explain the factors influencing TGA.
20. Write notes on the following:
 - (a) Linear sweep voltametry
 - (b) Chrono amperometry.