



QP CODE: 26019327



26019327

Reg No :

Name :

M.Sc DEGREE (CSS) EXAMINATION, MARCH 2026

Fourth Semester

M Sc ANALYTICAL CHEMISTRY

ELECTIVE - CH820402 - INSTRUMENTAL METHODS OF ANALYSIS

2019 Admission Onwards

7ADC2496

Time: 3 Hours

Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

Weight 1 each.

1. What do you understand by Doppler broadening?
2. What are the advantages of X-ray absorption methods ?
3. What are the important applications of Atomic X-ray spectrometry in qualitative and quantitative analysis?
4. What are photoconducting transducers? Give two examples.
5. Explain the role of shim coils in NMR instruments.
6. What are the applications of refractometry?
7. Mention any 5 applications of polarimetric method.
8. What are the applications hyphenated methods in mass spectrometry?
9. What necessitates the use of ultra-high vacuum during XPS analysis?
10. What is ISS? What information can be obtained from it?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

Weight 2 each.

11. What are the various processes involved in flame atomization?
12. Distinguish between ICP and DCP.
13. Write a note on the different sources for Raman spectroscopy.





14. Describe the principle and instrumentation of nephelometry.
15. Briefly describe the spectrophotometric titrations.
16. Write a note on MALDI.
17. State the differences between SEM and TEM.
18. What is AFM? Describe the various modes in AFM and the corresponding information which can be obtained from them?

(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

Weight 5 each.

19. What are chemical interferences in AAS measurements? How it can be minimized?
20. Discuss (a) the instrumentation of powder X-ray diffraction method (b) determination of sodium chloride structure by powder method.
21. Describe briefly the applications of UV-Vis spectroscopy for quantitative and qualitative analysis.
22. Explain various factors affecting fluorescence.

(2×5=10 weightage)

