

C 41957

(Pages : 2)

Name.....

Reg. No.....

**FOURTH SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY)
EXAMINATION, APRIL 2023**

(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 student "F" test ?
2. Differentiate between determinate and indeterminate error ?
3. What do you mean by confidence intervals ?
4. What is the principle of gravimetric analysis ?
5. What is the principle of chelometric titration ?
6. What are the industrial applications of masking ?
7. Explain the principle of polarography.
8. What is a guard column and why is it used ?
9. Write down the Debye Scherrer formula for calculating grain size.
10. What are the applications of TEM ?

(8 × 1 = 8 weightage)

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

11. Discuss the instrumentation of HPLC ?
12. Explain the principle and instrumentation of AAS.

Turn over

13. Explain the principle and instrumentation for FTIR.
14. Discuss the advantages and disadvantages of using DME in polarography.
15. List the differences between single beam and double beam spectrophotometer. Also point out the advantages possessed by one over the other.
16. What is experimental quantity measure in DSC ? Explain the role of "atmosphere" in TG.
17. Explain briefly different types of redox titrations.
18. Describe the different mode of operation of different detectors in GC ?

(6 × 2 = 12 weightage)

Section C

Answer any two questions.

Each question carries a weightage of 5

19.
 - a) What are the advantages of organic precipitants in inorganic analysis ?
 - b) Discuss the applications of oxine, 1-nitroso -1-naphthol and cupferron in gravimetric analysis of metal ions ?
20.
 - a) What is gas chromatography ?
 - b) Distinguish between GLC and GSC.
 - c) Explain the working principle and instrumentation of gas chromatography with the help of a schematic diagram.
 - d) Illustrate the applications of gas chromatography.
21. Explain the principle, instrumentation and applications of UV Visible Spectroscopy.
22. Explain the following analytical techniques.
 - a) Amperometry.
 - b) Stripping Voltammetry.
 - c) Electrogravimetry.
 - d) Potentiometry.

(2 × 5 = 10 weightage)