

21P412

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Name:

Reg.No:

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2023

(CBCSS - PG)

(Regular/Supplementary/Improvement)

CC19P CHE4 C12 - INSTRUMENTAL METHODS OF ANALYSIS

(Chemistry)

(2019 Admission onwards)

Time : 3 Hours

Maximum : 30 Weightage

Section A

Answer any *eight* questions. Each question carries 1 weightage.

1. What are protective agents and releasing agents in atomic absorption spectroscopy?
2. Give an account of spark sources used in atomic emission spectroscopy.
3. What is exclusion chromatography? Which are the different types?
4. If the detector is ECD, N₂ should be used as the carrier gas. Why?
5. Which are the common thermal analytical methods? Give the common procedure for these methods
6. Thermometric titrations are called enthalpymetric titrations. Why?
7. What are desirable properties of a precipitate in gravimetric analysis?
8. What are adsorption indicators? Give one example.
9. What is meant by overvoltage in electrolytic cells?
10. What is meant by secondary coulometric titrations?
11. Compare ceramic and nonceramic phases.
12. Describe the basic working principle of an SEM.

(8 × 1 = 8 Weightage)

Section B

Answer any *four* questions. Each question carries 3 weightage.

13. Give an account of various filters used in UV-Visible spectrophotometry.
14. How are qualitative and quantitative analyzes carried out with TLC?
15. Give an account of pumping system in HPLC.
16. Standard deviation from one set of 11 determination was 0.210 and the standard deviation from another 13 determination was 0.641. Is there any significant difference between the precision of these two sets of results ?

17. Give an account of various types of metallic indicator electrodes.
18. Discuss about solvent for non-aqueous titrations.
19. What are the applications of Auger electron spectroscopy?

(4 × 3 = 12 Weightage)

Section C

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

20. Discuss the instrumentation employed in IR spectrophotometry.
21. Explain the instrumentation of polarography with special reference to dropping mercury electrode
22. Explain what is meant by significant figure ? Discuss the rule for rounding off numerical expression involving addition, subtraction, multiplication and division.
23. Describe the principle and instrumentation of biamperometric titrations with respect to (i) Titration of Fe^{2+} vs Ce^{4+} (ii) Titration of I_2 vs sodium thiosulphate.

(2 × 5 = 10 Weightage)
