23P410 (Pages: 2) Name : .....

Reg. No : .....

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2025

(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 the specifications of sample holders used in UV-Visible spectrophotometry?
2. Differentiate between nephelometry and turbidimetry.
3. Give an account of spark sources used in atomic emission spectroscopy.
4. Give an account of stationary and mobile phases inTLC.
5. What are the important characteristics of support materials used in GLC?
6. How is scintillation produced in NaI(Tl) scintillator?
7. Give an idea about liquid membrane electrodes.
8. What is meant by the term precision?
9. Explain post precipitaion with suitable example.
10. Explain masking and demasking with suitable example.
11. Explain Ilkovic equation in amperometric titrations.
12. What is meant by kinetic polarization?

(8 × 1 = 8 Weightage)

Section B

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

13. Give an account of various thermal detectors used in IR spectrophotometry.
14. What are the characteristics of stationary phases used in ion exchange chromatography.
15. Give an account of the instrumentation and working of DTA.
16. Which are the various polarographic techniques? Explain.
17. The following values were obtained for the determination of cadmium in a sample of dust: 4.3, 4.1, 4.0 and 3.2 μgg-1. Should the value 3.2 be rejected ? Q critical is 0.831 for a sample of size of 4.

18. Explain the theory of absorption indicators.

19. Discuss the applications of Atomic Fluorescence Spectroscopy.

(4 × 3 = 12 Weightage)

Section C

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

20. Discuss about the sources and various atomization techniqus used in atomic absorption spectroscopy.

21. Give an account of column packing and detectors used in HPLC.

22. (a) For titrating 10ml of a solution with the help of microburette, the volumes of the titrant used are 9.98, 9.99, 9.98, 9.95 amd 10.00 ml. Calculate the standard deviation.
    (b) Wtite a notes on (a) F-test, (b) t-test

23. Explain the principle and instrumentation of TEM.

(2 × 5 = 10 Weightage)

****