17P413 (Pages: 2) Name…….……

Reg. No……..

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2019

(CUCSS - PG)

(Chemistry)

CC15P CH4 C13 – INSTRUMENTAL METHODS OF ANALYSIS

(Regular/Improvement/Supplementary)

(2015 Admission onwards)

Time: Three Hours Maximum: 36 Weightage

Section A:

Answer ***all*** questions. Each question carries 1 weightage.

1. What is students t-test?
2. What is post precipitation?
3. What are adsorption indicators? Give one example.
4. What is residual and limiting current?
5. Why amperometric titration is a better method than polarographic method in quantitative analysis?
6. Distinguish between primary and secondary coulometric titrations.
7. What is the basis of turbidimetric and nephelometric analysis?
8. What is the theory of atomic fluorescence spectrometry?
9. Briefly explain the isotopic dilution method.
10. TG and DTA are complimentary techniques. Justify the statement.
11. Give the applications of neutron activation analysis.
12. Name two detectors used in HPLC.

(12 x 1 = 12 Weightage)

Section B:

Answer any ***eight*** questions. Each question carries 2 weightage.

13. Explain the method of least squares for the treatment of analytical data.
14. What is Q-test? Four results obtained for the normality of a solution are 0.1014, 0.1012, 0.1019 and 0.1016 and apply Q-test to see if the result 0.1019 can be discarded. Given that $Q_{0.90} = 0.76$
15. Explain the various types of EDTA titrations.
16. Discuss the theory of redox indicators with example.
17. Explain briefly principle and application of AES.
18. Discuss theory and instrumentation of Differential scanning calorimetry (DSC).

19. Describe principle and applications of photo electron spectroscopy.
20. Explain TCD, FID, ECD and NPD in gas chromatography.
21. Explain anode stripping voltametry.
22. Explain the basic principle of glass electrode. What are its limitations?
23. Discuss the theory of TEM.
24. Explain the basic principle of coulometric titrations and its advantages.

(8 x 2 = 16 Weightage)

Section C:

Answer any ***two*** questions. Each question carries 4 weightage.

25. Discuss on Gas chromatography, chromatographic columns, detectors and its applications.
26. Discuss the principle and application of polarographic techniques.
27. Explain the basic principle and instrumentation UV-Visible spectroscopy.
28. Explain the principle of titrations in non aqueous media. Discuss about Different solvents and indicators used in non-aqueous titrations.

(2 x 4 = 8 Weightage)

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