18P409 (Pages: 2) Name: ……..…….

Reg. No…….……

FOURTH SEMESTER M.Sc. DEGREE EXAMINATION, APRIL 2020

(CUCSS - PG)

(Regular/Improvement/Supplementary)

CC15P CH4 C13 – INSTRUMENTAL METHODS OF ANALYSIS

(Chemistry)

(2015 Admission onwards)

Time: Three Hours Maximum: 36 Weightage

Section A

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

1. Differentiate between the terms - confidence limit, confidence interval and confidence level.
2. Find out the number of significant figures in the following.
   i) 0.00271 ii) 23.240
3. What is coprecipitation? How will you minimize it?
4. What is the significance of migration current in polarographic analysis?
5. Write any two disadvantages of amperometric titrations.
6. What is the principle of biamperometry?
7. Draw the structure of cupron. What is its use?
8. What is the difference between nephelomety and turbidomety?
9. Give any two applications of ion exchange chromatography.
10. What are the important requirement of carrier gas in the gas liquid chromatography?
11. What are the basic requirements of the stationary liquid phase in gas liquid chromatography (GLC)?
12. Briefly explain the method of determination of chromium in steel using atomic absorption spectroscopy

(12 x 1 = 12 Weightage)

Section B

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

13. Explain the lest square method of regression analysis in statistical treatment of analytical data
14. Draw the titration curves of: i) weak acid ii) polyprotic acids. Explain its applications in volumetric analysis.
15. Explain why a three electrode system is used in electro chemical measurements.

16. Explain quantitative and qualitative applications of polarograpy,
17. Discuss principle of back and replacement complexometric titrations.
18. Discuss the theory and instrumentation Auger electron spectroscopy.
19. Explain the theory and applications of Gel Permeation Chromatography.
20. Explain the theory and instrumentation of Gas Chromatography (GC)
21. Explain various factors affecting the results in Thermo Gravimetric (TG) analysis
22. Discuss the structure and working of hollow cathode lamp.
23. Explain the devices for the formation of atomic vapors in Atomic Absorption Spectroscopy.
24. Explain various interferences in atomic absorption spectroscopy.

(8 x 2 = 16 Weightage)

Section C

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

25. Explain student t test and f test in statistical treatment of analytical data.
26. Discuss the theory, instrumentation and application of coulometric analysis.
27. Explain the theory, instrumentation and applications of atomic force microscopy.
28. Explain the principle and applications of isotopic labelling method.

(2 x 4 = 8 Weightage)

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