(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2020-21 ONLY)

SUBJECT CODE 20 UCY 5E1

REG.NO.

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : DECEMBER – 2022

B.Sc. CHEMISTRY **MAXIMUM MARKS: 70**

V SEMESTER **TIME : 3 HOURS**

PART - III
ANALYTICAL CHEMISTRY - I

SECTION – A (10 X 1 = 10 MARKS)

ANSWER THE FOLLOWING QUESTIONS.
MULTIPLE CHOICE QUESTIONS. (K1)

1. Name the reagent used in the detecting Nickel ion.....
   a. DMG b. KIO_3
   c. NH_4CNS d. Aluminon

2. Differential thermal analysis (DTA) is a plot between .....
   a. Δ_t vs temperature b. ΔH vs temperature
   c.dw/dt vs temperature d. Temperature vs volume

3. The variation of optical rotation value with wavelength of light is termed as ……..
   a. Molecular rotation b. Specific rotation
   c. Optical rotatory dispersion d. Circular polarization

4. The colour of sodium in flame photometer is ……..
   a. Red b. Blue
   c. Yellow d. Green

5. Paper chromatography is based on the principle of .....
   a. Adsorption chromatography b. Partition chromatography
   c. Gel chromatography d. Ion-exchange chromatography

ANSWER THE FOLLOWING IN ONE OR TWO SENTENCES. (K2)

6. Define error.
7. What is inferred from a thermogram?
8. Depict a polarogram.
9. Define half-wave potential.
10. Assess column efficiency.

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(CONTD.....2)

SECTION – B (5 x 4 =20 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a. Account for significant figures in analysis.

(OR)

b. Washing precipitates before drying in gravimetric analysis is mandatory.Why?

12. a. With help of a block diagram of DTA, explain the components of the instrument.

(OR)

b. Draw the DTA curve for $Ca(CH_3COO)_2 \cdot H_2O$ in air and explain.

13. a. What is flame photometry. Explain the principle involved in analysis of sodium ions.

(OR)

b. Polarimetry is used in the quantitative analysis of sugars. Comment.

14. a. Write short notes on Amperometric titrations.

(OR)

b. Write the Ilkovic equation and explain the terms involved in it.

15. a. Draw and explain column chromatography in detail.

b. Illustrate and explain thin layer chromatography.

SECTION - C (4 x 10 =40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTION
16th QUESTION I COMPULSORYAND ANSWER ANY THREE QUESTIONS FROM Qn.No . 17 to 21 (K4/K5)

16. Give reasons for using DME in polarography with a neat sketch.

17. Certain organic precipitants that form complexes with divalent ions Ni, Mg and Cu. Write the mode of action.

18. Discuss the principle and applications of Thermo Gravimetric Analysis (TGA) with a diagram.

19. Differentiate between nephelometry and turbidimetry.

20. (i) With a neat sketch, detail the concept of half-wave potential. Mention its importance.
(ii) State residual current.

21. Sketch and explain paper chromatography. How is Pb^{2+} and Ag^{+} separated by this method.

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