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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2020-21 ONLY) **SUBJECT CODE 20UCY6E2**

REG.NO.

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

END-OF-SEMESTER EXAMINATIONS : MAY – 2023

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

VI SEMESTER **TIME : 3 HOURS**

PART – III
ANALYTICAL CHEMISTRY
SECTION - A (10 X 1 = 10 MARKS)

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

1. What is the wavelength range of the UV spectrum?
   (a) 100 nm to 500 nm (b) 200 nm to 800 nm
   (c) 300 nm to 1000 nm d) 400 nm to 1600 nm
2. Solvent extraction is a _____ analytical technique.
   (a) Separating (b) Qualitative (c) Quantitative (d) Identification
3. IInd A group cations are called as---------- group cations
   (a) Tin (b) Cadmium (c) Arsenic (d) Copper
4. The pH range of methyl orange as an indicator is _____.
   (a) 3.3 to 5.1 (b) 8.1 to 9.8 (c) 2 to 4 (d) 6.1 - 8.9
5. The _____ can detect the endpoint of a titration involving the reaction of MnO_4^- to Mn^{2+}.
   (a) Use of OH probe
   (b) Disappearance of the pink colour of the MnO_4
   (c) Addition of an indicator like methyl orange
   (d) Use of red or blue litmus

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

6. Illustrate the main components of a UV visible spectrophotometer.
7. Name and write the law used for Solvent extraction.
8. Relate which complex gives blood red colouration to ferric ion.
9. Explain the term normality.
10. Define redox titration.

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ETHICAL PAPER

SECTION – B (5 X 4 = 20 MARKS)

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

11. a) (i) Illustrate the difference between UV visible and IR spectroscopy.

(ii) Explain Lambert- Beer's Law.

(OR)

b) (i) Describe the Principles of IR Spectroscopy.

(ii) List the solvents are used in IR spectroscopy.

12. a) Compile the Basic Principles of Solvent Extraction Method.

(OR)

b) Write short note on methods of extractions

13. a) Discuss the basic principles involved in the semi-micro qualitative analysis.

(OR)

b) Explain the Separation of CO^{2+} from $Ni^{2+:}$.

14. a) Make a note on Systematic error and random errors

(OR)

b) Explain about the Indicators.

15. a) Describe a note on complexometric titration.

(OR)

b) List the different types of redox titration and explain with suitable example.

SECTION – C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS
(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS (FROM Qn. No : 17 to 21) (K4 (Or) K5)

16. Illustrate the Instrumentation of IR Spectroscopy

17. Discuss the instrumentation of UV Spectrometry.

18. Explain the different Solvent extraction methods.

19. Write a precise note on the following. i) Solubility product

ii) Common ion effect

iii) Complex formation

20. Explain and Differentiate the Primary and Secondary Standard Solutions.

21. Write the estimation of chlorides by Volhard's method.

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