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(FOR THE CANDIDATES ADMITTED DURING THE ACADEMIC YEAR 2021 ONLY)

SUBJECT CODE 21PCY414

REG.NO.

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

END-OF-SEMESTER EXAMINATIONS : MAY – 2023

M.Sc. – Chemistry **MAXIMUM MARKS: 70**

IV SEMESTER **TIME : 3 HOURS**

ANALYTICAL TECHNIQUES

SECTION – A (10 X 1 = 10 MARKS)

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

1. With an increase in absolute error, the value of the relative error ----------.
   a) decreases b) increases c) no change d) first decreases then increases
2. In Thin layer chromatography, the stationary phase is made of ---------- and the mobile phase is made of ----------.
   a) solid, liquid b) liquid, liquid c) liquid, gas d) solid, gas
3. In DSC, ΔE is plotted against ---------.
   a) temperature b) pressure c) work done d) time
4. ESR spectroscopy is a branch of ------ spectroscopy.
   a) adsorption b) absorption c) nucleation d) reflection
5. Among the following compounds which one exhibits fluorescence?
   a) Quinoline b) iso Quinoline c) Indole d) All

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

6. What do you mean by relative standard deviation?
7. Name the detector used in GC.
8. Write the principle of Differential Thermal Analysis (DTA)?
9. Define the selection rule of NQR spectroscopy.
10. Explain the Octant rule.

SECTION – B (5 X 4 = 20 MARKS)

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

11. a) Write a note on significant figures.

(OR)

b) Discuss Q-test with suitable example.

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12. a) Write a short note on column packing used in HPLC.

(OR)

b) Explain any two applications of ion exchange chromatography.

13. a) What are the factors affecting DSC thermogram ?

(OR)

b) Describe the instrumentation of Auger electron spectroscopy (AES).

14. a) Give a brief note on isotropic and anisotropic system in ESR spectroscopy.

(OR)

b) Explain briefly the applications of NQR spectra.

15. a) Explain axial halo ketone rules.

(OR)

b) Discuss the applications of phosphorometers.

SECTION – C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS
(16th QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS
(K4 (Or) K5)

16. Discuss briefly the principle and theory of Mossbauer spectroscopy.
17. Compare and contrast T-test and F-test.
18. Illustrate the principle, instrumentation and applications of UPLC.
19. Explain Flame emission spectroscopy.
20. Describe Kramer's degeneracy and zero field splitting in ESR spectroscopy.
21. Write the applications of ORD and CD.

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