D 120544 **(Pages : 2)** **Name.....**

Reg. No.....

FOURTH SEMESTER (CBCSS—UG) DEGREE EXAMINATION
APRIL 2025

Chemistry

CHE4C04—PHYSICAL AND APPLIED CHEMISTRY

(2019—2023 Admissions)

Time : Two Hours Maximum : 60 Marks

Section A (Short Answers)

Answer questions up to 20 *marks.*
Each question carries 2 *marks.*

1. What is an emulsion ? Give an example.
2. Explain electrophoresis.
3. Write any *four* advantages of paper chromatography.
4. Define Rf value ? How can it be employed in the identification of a compound ?
5. Give two examples each for food preservatives and artificial sweeteners.
6. Write the composition of LPG and CNG.
7. Write any *two* uses of Kevlar and Nomex.
8. Which are the monomers of Buna-N and Nylon 66.
9. Explain bio-magnification and bioaccumulation.
10. What is air pollution ? Mention any *two* air pollutants.
11. What is meant by chemical shift ?
12. Explain red shift and blue shift in UV-Visible spectroscopy.

(Ceiling of marks : 20)

Turn over

Section B (Paragraph)

Answer questions up to 30 *marks.*
Each question carries 5 *marks.*

13. Describe the principle and applications of thin layer chromatography.

14. Write a note on the various applications of nanomaterials.

15. State and explain Hardy Schulze rule.

16. What are the different types of electronic transitions in molecules ? Arrange them in the order of increasing energy.

17. Depict the structure and write any *two* applications each of Teflon and Bakelite.

18. What is acid rain ? What are the causes and effects of acid rain.

19. What is a dye ? Draw the structure and mention any *two* applications of alizarin.

(Ceiling of marks : 30)

Section C (Essay)

The any **one** *question.*
Each question carries 10 *marks.*

20. (i) Describe briefly the principle involved in NMR spectroscopy.

    (ii) Explain spin- spin coupling taking an example.

21. Write a note on the sources, effects and control measures of thermal pollution.

(1 × 10 = 10 marks)