22U406 (Pages: 2) Name: .....

Reg.No: .....

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2024

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CHE4 C04 - PHYSICAL AND APPLIED CHEMISTRY

(Chemistry - Complementary Course)

(2019 Admission onwards)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. What is the essential difference between an emulsion and a gel?
2. Should the % atom economy of a synthesis be greater or lower for a synthesis in accordance with green chemistry principles?
3. Comment on the mechanism by which differential migration of sample components is elected in adsorption column chromatography.
4. What is meant by the fingerprint region in an IR spectrum of an organic compound?
5. What are auxochromes?
6. What is a copolymer? Give an example for one.
7. Name and formulate the monomer of PVC.
8. Write briefly on the water pollution caused by sewage.
9. What is meant by radioactive pollution?
10. What is CNG? Mention its important use.
11. Give the chemical names of (i) a narcotic analgesic (ii) a non-narcotic analgesic
12. What are dyes? Name two dyes.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. How do charges originate on colloidal particles?
14. Explain the size dependence of the optical properties of nanomaterials.
15. What is Rf value? Explain its significance.

16. How can the NMR method be used to distinguish between the structures of propan-1-ol and propan-2-ol?

17. Define the terms: (i) Pollution, (ii) Pollutant. What are the different types of pollution?

18. Explain the role of antioxidants as food additives.

19. Explain how Portland cement is manufactured.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. Illustratively distinguish between multimolecular, macromolecular and associated colloids .

21. Explain the term nanocatalysis, its significance from the catalytic efficiency point of view, and its applications

(1 × 10 = 10 Marks)

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