SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2025
(CBCSS-UG)

(Regular/Supplementary/Improvement)

CC19U CHE6 B12 - ADVANCED AND APPLIED CHEMISTRY
(Chemistry - Core Course)

(2019 Admission onwards)

Time: 2 Hours   Maximum: 60 Marks

                                                                      Credit: 3

Part A (Short answer questions)

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

1. Classify the following aqueous sols into lyophilic and lyophobic sols (1) Gold sol (2) Gelatin sol (3) $Fe(OH)_3$.

2. Explain why lyophilic sols generally show weak Tyndall effect.

3. What is the green chemistry principle with regard to percentage atom economy of a synthetic reaction?

4. What are the types of combinatorial synthesis?

5. What are synthetic polymers? Give one example.

6. What are the applications of melamine?

7. Mention the most important characteristics of Pyrex glass and it's use.

8. Give the names of two potash fertilizers.

9. Write the main constituents of LPG.

10. What are pesticides?

11. Give two advantages of soap over detergents.

12. What are the constituents of chocolate?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

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

13. Discuss the applications of nanomaterials in medicine.

14. Write a short note on significance of combinatorial synthesis.

15. How are nanomaterials classified on the basis of their dimensionality?

16. Write a note on nanofiltration.

17. Write a note on the preparation and uses of chlorine.

18. Explain the term chromophore and auxochrome with suitable examples.

19. Discuss two types of food additives with suitable examples.

(Ceiling: 30 Marks)

Part C (Essay questions)

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

20. Discuss the electrical, optical and catalytic properties of nanomateirals and their size dependence.

21. Explain with suitable examples the green synthesis under microwave irradiation and ultrasonication.

(1 × 10 = 10 Marks)

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