

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2025**(Regular/Improvement/Supplementary)****CHEMISTRY****GCHE6B12T: ADVANCED AND APPLIED CHEMISTRY****Time: 2 Hours****Maximum Marks: 60****SECTION A: Answer the following questions. Each carries *two* marks.****(Ceiling 20 marks)**

1. What you mean by potential energy surfaces?
2. Draw the structures of DDT and BHC.
3. Define gold number of a protective colloid.
4. Give an important application of the process of coagulation.
5. Define impact factor.
6. Define % atom economy of a synthesis.
7. What is zeta potential? Give zeta potential range for a stable colloidal solution.
8. Give the basic idea of Molecular mechanics or force field method.
9. What is QSAR in drug design?
10. Where is Travancore titanium products located? Name the important product of the company.
11. What are host-guest interactions?
12. Define the term flash point for a given fuel.

SECTION B: Answer the following questions. Each carries *five* marks.**(Ceiling 30 marks)**

13. What do you mean by global minimum in computational chemistry?
14. Explain the terms "chemical name", "generic name" and "trade name" as applied to a drug with illustrative examples.
15. How are fertilizers classified based on type of primary nutrient supplied? Give examples and their chemical structures.
16. Explain the classification of nanomaterials based on dimensionality with suitable examples.
17. Briefly explain the terms green synthesis and green solvents.
18. Write a note on solid phase synthesis frequently used in combinatorial chemistry
19. How is glass manufactured? Explain three different types of glasses with example.

SECTION C: Answer any *one* question. The question carries *ten* marks.

20. a) Explain the theories of colour and chemical constitution of dye.
b) Classify dyes according to their structures.
c) Classify dyes according to the mode of application to the fabrics.
21. Explain general format of a research report.

(1 x 10 = 10 Marks)