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Name.....

Reg. No.....

**SIXTH SEMESTER U.G. (CBCSS—UG) DEGREE EXAMINATION
MARCH 2024**

Chemistry

CHE 6B 12—ADVANCED AND APPLIED CHEMISTRY

(2019 Admission onwards)

Time : Two Hours

Maximum : 60 Marks

Section A (Short Answers)*Answer questions up to 20 marks.**Each question carries 2 marks.*

1. What is meant by Brownian motion ?
2. Mention any *two* differences regarding the nature of image obtained in SEM and TEM.
3. What are Green Solvents ? Give two examples.
4. List out the different types of supramolecular interactions ?
5. What is GAMESS ? Give its expansion.
6. Define saddle point.
7. What are thermoplastics ? Give two examples.
8. Name the catalyst used in Zeigler Natta polymerisation. What advantage does it offer over conventional polymerisation ?
9. What are hybrid rocket propellants ?
10. What is meant by generic name of a drug ? Substantiate with an example.
11. What is TFM with reference to soaps ? Why is it important ?
12. Give two examples for artificial sweeteners. Compare their activity with that of sugar.

(Ceiling of marks : 20)

Turn over

Section B (Paragraph)

Answer questions up to 30 marks.

Each question carries 5 marks.

13. Explain Top-down and Bottom-up approaches in nanomaterial synthesis.
14. Explain molecular recognition in supramolecular chemistry giving due importance to its applications.
15. Describe geometry optimisation.
16. Explain tacticity of polymers. How does it affect polymer properties?
17. TiO_2 is a popular white pigment. How is TiO_2 prepared from Ilmenite by sulphate process ?
18. Define octane number and cetane number. Why are they important ?
19. Describe the classification of dyes based on their mode of application.

(Ceiling of marks : 30)

Section C (Essay)

*Answer any **one** questions.*

The question carries 10 marks.

20. (a) Explain the Green Synthesis of Ibuprofen.
(b) What are the different types of glasses based on composition? Mention the use of each.
21. (a) Pesticides play a crucial role in farming. Write notes on the different types of pesticides and discuss on their pros and cons.
(b) Write a note on antioxidants citing examples of natural and synthetic antioxidants.

(1 × 10 = 10 marks)