

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2022**(Regular/Improvement/Supplementary)****CHEMISTRY: COMPLEMENTARY COURSE FOR PHYSICS, BOTANY AND ZOOLOGY****GCHE3C03T: ORGANIC CHEMISTRY****Time: 2 Hours****Maximum Marks: 60****SECTION A: Answer the following questions. Each carries *two* marks.****(Ceiling 20 Marks)**

1. Explain the term heterolysis with a suitable example.
2. What are nucleophiles? Give two examples.
3. Explain why chair conformation of cyclohexane is more stable than boat form.
4. What are enantiomers? Give an example.
5. Depict the isomers of dichlorobenzene.
6. How can the meta directing nature of $-\text{NO}_2$ group be explained?
7. Give two examples for monocyclic non-benzenoid aromatic compounds. Draw the structures.
8. Write a method of preparation of secondary alcohol.
9. Which is more acidic $-\text{phenol}$ or para-nitrophenol ? Justify.
10. Explain the reaction of propanal with HCN.
11. Illustrate Kolbe electrolysis.
12. Mention four important applications of carbohydrates.

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

13. Explain the term inductive effect. Briefly discuss its significance in determining the properties of molecules with illustrative examples.
14. Explain the term hyperconjugation and its significance with illustrative example.
15. Briefly discuss the optical isomerism of tartaric acid.
16. Give the mechanism of alkylation and acylation of benzene.
17. What is meant by an $\text{S}_{\text{N}}2$ reaction? Cite an example and explain its mechanism.
18. Explain haloform reaction with suitable example.
19. Explain the source, structure and uses of menthol.

(PTO)

SECTION C: Answer any 1 question. Each carries ten marks.

20. What is meant by diazotization reaction? Explain important synthetic applications of benzene diazonium chloride.
21. (a) Explain the classification of proteins based on their molecular shapes.
(b) Briefly discuss the primary, secondary and tertiary structure of proteins.

(1 x 10 = 10 Marks)