

FOURTH SEMESTER B.Sc.DEGREE EXAMINATION, APRIL 2024

(Regular/Improvement/Supplementary)

CHEMISTRY

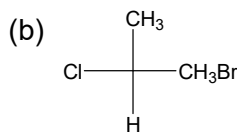
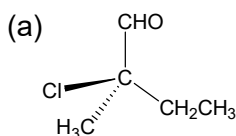
GCHE4B04T: ORGANIC CHEMISTRY– I

Time:2Hours

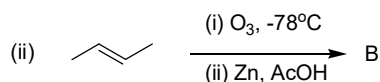
MaximumMarks: 60

SECTION A: Answer the following questions. Each carries *two* marks.
(Ceiling 20 Marks)

1. Arrange the following in order of increasing basic strength: Ammonia, Methylamine and Aniline. Explain your choice.
2. Dichloroacetic acid is a stronger acid than acetic acid. Justify.
3. Mention a method for the conversion of propyne to acetone.
4. Assign the configuration R or S to the following compounds:



5. Draw structures to illustrate: (a) Geometrical isomerism; (b) Meso compound
6. Write the products obtained on ozonolysis of 1-butyne.
7. Give products in the reactions of propyne with the following reagents:
 - (i) Ozone followed by water;
 - (ii) dil.H₂SO₄ in presence of HgSO₄.
8. Define the term Mesomeric (M) effect. Write groups which cause +M and –M effect.
9. Predict the product(s)/ reagent(s) in the following reactions (i) and (ii)



10. Explain why alkenes are more reactive than alkanes?
11. How is thiophene synthesized?
12. Define the terms conformation and configuration.

(PTO)

SECTION B: Answer the following questions. Each carries *five* marks.

(Ceiling 30 Marks)

13. What are carbocations? Discuss the relative stabilities of primary, secondary, and tertiary carbocations.
14. What is conformational analysis? Discuss the various conformations and their relative stabilities by taking the example of *n*-butane.
15. Write a note on cis-trans isomerism in cycloalkanes.
16. Write the preparation of alkanes by (a) Corey-House reaction; (b) Kolbe's electrolytic method.
17. What are electrophilic addition reactions? State and explain Markownikoff's rule with a suitable example.
18. Discuss the mechanism for the addition of bromine to cyclopentene. Comment on its stereo-chemical outcome.
19. Discuss the electrophilic and nucleophilic substitution reactions of pyridine.

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

20. What is meant by resolution of enantiomers? Discuss important methods used for resolution.
21. Discuss the structure and stability of benzene in terms of resonance concept and molecular orbital concept.

(1 x 10 = 10 Marks)