

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2024

(Regular/Improvement/Supplementary)

CHEMISTRY

GCHE6B10T: ORGANIC CHEMISTRY III

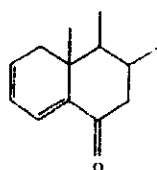
Time:2 Hours

Maximum Marks: 60

SECTION A: Answer the following questions. Each carries two marks.

(Ceiling 20 Marks)

1. Calculate the λ_{\max} for the given structure.



2. What are chromophores? Give two examples.
3. Write the chemistry behind Benedict's test.
4. Differentiate between epimers and anomers.
5. What is meant by Zwitter ion? How does isoelectric point influence the properties of an amino acid?
6. Write a short note on Strecker synthesis.
7. Define saponification value.
8. How steroids are classified? Give examples for each.
9. How are essential oils extracted from plant sources?
10. Comment on the physiological activity of coniine. Draw its structure.
11. Sketch the MO diagram of buta-1,3-diene and indicate the HOMO and LUMO.
12. Which rotatory pathways will be symmetry-allowed for ring closure under thermal and photochemical conditions for an acyclic polyene with an even number of conjugated bonds?

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

(Ceiling 30 Marks)

13. How can you distinguish between benzaldehyde and acetophenone using IR spectroscopy?
14. How does shielding of protons affect the positions of their signals in the NMR spectra?
15. Explain the classification of carbohydrate with suitable examples.
16. How is glucose converted to fructose? Explain with equations.
17. Explain the double helical structure of DNA.
18. How Vitamins are classified? Draw the structure of Vitamin C.
19. Discuss the structural elucidation of Citral.

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

20. Discuss on primary, secondary, tertiary and quaternary structure of proteins.
21. (a) Explain Woodward Hoffmann rules for electrocyclic reactions.
(b) Discuss the electrocyclic reaction of hexa-1,3,5-triene under thermal and photochemical conditions. Explain on the basis of frontier molecular orbital theory.

(1 x 10 = 10 Marks)