

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH/APRIL 2018

(CUCBCSS—UG)

Chemistry

CHE 6B 10—ORGANIC CHEMISTRY—III

Time : Three Hours

Maximum : 80 Marks

Section A

*Answer all questions.
Each question carries 1 mark.*

1. Name the *four* bases present in RNA molecule.
2. What is the name given to the linkage which holds together two monosaccharide units in a disaccharide ?
3. Give the name and structure of optically inactive α -amino acid.
4. Draw the structure of Citral.
5. Give an example of a peptide hormone.
6. What is the monomer unit present in natural Rubber ?
7. What is Tollen's reagent ?
8. Give the name of a non-reducing disaccharide.
9. How many proton signals would you expect to find in the $^1\text{H-NMR}$ spectrum of propanoic acid ?
10. Name the heterocyclic residue present in coniine.

(10 \times 1 = 10 marks)**Section B**

*Answer any ten questions.
Each question carries 2 marks.*

11. What is meant by inversion of sugar ?
12. What are derived lipids ?
13. What is the basic structural difference between starch and cellulose ?
14. Why aldehyde proton appears much downfield in the PMR spectrum ?
15. Discuss in brief the denaturation of proteins.
16. Define the term chemical shift.
17. What is meant by drying of oils ?

18. Why are vitamin A and vitamin C essential to us ? Give their important sources.
19. What is mutarotation ?
20. Explain the Hopkins - Cole test for proteins.
21. Explain Diels Alder reaction.
22. What is iodine number ?

(10 × 2 = 20 marks)

Section C

*Answer any five questions.
Each question carries 6 marks.*

23. Explain the classification of amino acids.
24. Discuss on secondary and tertiary structure of proteins.
25. Write a short note on steroid hormones.
26. Explain the structure and physiological functions of coniine and piperine.
27. Discuss on the cyclic structure of glucose.
28. Explain the double helical structure of DNA.
29. Write briefly on Solid Phase Peptide Synthesis.
30. What are essential oils ? How are they extracted from plants ?

(5 × 6 = 30 marks)

Section D

*Answer any two questions.
Each question carries 10 marks.*

31. (a) Explain DNA finger printing and its applications.
(b) Write short note on epimers and anomers.
32. (a) Explain the Strecker and amino malonate synthesis of amino acids
(b) What are enzymes ? Explain the main characteristic features of enzymes.
33. Explain with suitable examples : (a) Killiani Fischer synthesis ; (b) Ruff degradation.
34. (a) Sketch the MO diagram of 1, 3-butadiene and show the HOMO and LUMO in the ground state.
(b) Using the Frontier orbital diagram show the mode of cyclisation of 1, 3-butadiene under photochemical conditions.

(2 × 10 = 20 marks)