

Reg. No. :

Name :

Third Semester B.Sc. Degree Examination, March 2022

Career Related First Degree Programme under CBCSS

Group 2(a)-Biochemistry and Industrial Microbiology

Complementary Course

CH 1331.7 : BIO-ORGANIC CHEMISTRY

(2019 & 2020 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. What is the monomer of Cellulose?
2. Give an example of the Pentose sugar.
3. Give an example of a Polyester.
4. What are Homopolymers?
5. Suggest an example for neutral electrophile.
6. What is TMS?
7. What are stoke lines?
8. Write any two elements of symmetry.

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9. What are the geometrical isomers of but-2-ene.
10. Suggest an example for liquid-solid-chromatography

(10 × 1 = 10 Marks)

SECTION – B

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

11. How will you convert Glucose into Fructose?
12. What are epimers? Give example.
13. Explain disaccharides with examples.
14. Distinguish thermoplastics and thermosetting plastics with examples.
15. Explain Vulcanization and its importance.
16. What are Biodegradable polymers? Give an example
17. Why 2-butene is more stable than 1-butene?
18. Differentiate between singlet carbene and triplet carbene.
19. Define Electromeric effect.
20. Compare δ (delta) or τ (Tau) scale in NMR spectroscopy.
21. Explain the Rule of mutual exclusion with respect to Raman and IR.
22. How will you distinguish acetaldehyde and acetone using HNMR?
23. Draw the two conformations of cyclohexane.
24. What do you mean by racemization?
25. Write the general applications of chromatography.
26. What are the two basic principles of chromatography?

(8 × 2 = 16 Marks)

SECTION – C

Answer any **six** questions. **Each** question carries **4** marks.

27. Explain the reducing action of Glucose.
28. Write a short note on Mutarotation.
29. Explain the preparation and properties of any two Synthetic rubbers.
30. Discuss the preparation, structure and properties of Urea-formaldehyde resin.
31. Draw the resonance structure of nitrobenzene and aniline.
32. Arrange methylamine, dimethylamine and trimethylamine in the increasing order of basicity and justify your answer.
33. What is the principle behind NMR spectroscopy, and the advantages of using TMS?
34. How can you interpret aliphatic and aromatic compounds using HNMR?
35. What is resolution? What are the different methods involved?
36. Prepare a note on paper chromatography.
37. Explain ion-exchange chromatography.
38. Write a short note on gas chromatography.

(6 × 4 = 24 Marks)

SECTION – D

Answer any **two** questions. **Each** question carries **15** marks.

39. Explain the classification of Carbohydrates.
40. Give the mechanism of the free radical addition polymerization reaction.

41. Define the inductive effect and give applications with suitable examples.
42. Discuss the optical isomerism of tartaric acid.
43. Explain chemical shift. What are the factors affecting chemical shift.
44. Explain TLC and its applications. Mention R_f value and its importance.

(2 × 15 = 30 Marks)

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