

Reg. No. :

Name :

Third Semester B.Sc. Degree Examination, March 2022

First Degree Programme under CBCSS

Chemistry

Complementary Course for Zoology

CH 1331.4 : ORGANIC CHEMISTRY

(2019 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer all questions. Each question carries 1 mark.

1. Give an example of basic amino acid.
2. Suggest the monosaccharide which contains aldehydic group.
3. What is meant by inversion of sugar?
4. What is inductive effect?
5. Explain peroxide effect with an example.
6. What do you understand by the term resolution?
7. Define metamerism.
8. Give an example for a condensation polymer.

9. Name the pyrimidine base present in RNA, but not in DNA.
10. Give the classification of polymers on the basis of formation.

(10 × 1 = 10 Marks)

SECTION – B

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

11. What is prosthetic group? Give two examples.
12. Write the structure of a tripeptide and name the compound.
13. What are phospholipids?
14. What are fats and oils? How do they differ from each other?
15. Define epimers.
16. Draw the structure of L-Glyceraldehyde and L-Erythrose.
17. What do you understand by the terms +E and -E effects?
18. Between methylamine and ammonia, which is the stronger base and why?
19. Discuss the relative stabilities of 1°, 2° and 3° carbocations.
20. What is mutarotation?
21. Compare the acidic strength of acetic acid and chloro acetic acid. Justify.
22. What do you understand by the term polarity of a covalent bond?
23. Discuss the optical isomerism of tartaric acid.
24. Define conformational analysis.

25. Give an example for addition polymerization.

26. State isoprene rule

(8 × 2 = 16 Marks)

SECTION – C

Answer any six questions. Each question carries 4 marks.

27. Discuss about vulcanization of rubbers.

28. What do you understand by the terms homolytic fission and heterolytic fission of a covalent bond? Describe the intermediate species formed by such cleavages.

29. Discuss the ring structure of glucose.

30. What is meant by racemization and resolution?

31. Explain the requirements for a compound showing optical activity. Explain your answer with examples.

32. Define the following terms used in lipid chemistry:

(a) Saponification value

(b) Iodine value

33. Write the differences between DNA and RNA.

34. Discuss the preparation of fructose.

35. What is steric hindrance? Explain in detail with examples.

36. Discuss the mechanism of anti-Markovnikov addition to alkenes.

37. How will you explain the existence of two optically active lactic acids?

38. Write a note on thermoplastics and thermosetting plastics.

(6 × 4 = 24 Marks)

SECTION – D

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

39. Give an account of primary, secondary, tertiary and quaternary structure of proteins.
40. Write an essay on mechanism, kinetics and stereo chemistry of S_N reactions of alkyl halides.
41. Describe the functions of RNA and DNA.
42. How are the following conversions made?
 - (a) D-glucose to D-fructose
 - (b) D-fructose to D-glucose
43.
 - (a) Discuss about different conformations of ethane and cyclohexane.
 - (b) Write a note on the configuration of aldoxime and ketoxime.
 - (c) Configuration of aldoxime and ketoxime - E/Z isomers - explanation - give full credit
44. Discuss the preparation and applications of the synthetic rubbers Buna S and Neoprene.

(2 × 15 = 30 Marks)