

B.Sc. Semester - 5 (Remedial) (CBCS) Examination**March/April-2024 (NEW COURSE)****Organic Chemistry and Spectroscopy(Core)****Time: 2:30 Hours****Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

- Que-1(A) Answer the following question. (04)
 (1) Give synthesis and uses of Saccharin.
- Que-1(B) Answer the following questions. (Any two) (10)
 (1) What are amino acids? Discuss its classification.
 (2) Explain Bergmann synthesis for synthesis peptide.
 (3) Explain stereochemistry of compounds with two asymmetric carbon atoms.
- Que-2(A) Answer the following question. (04)
 (1) Write note on Benzil-Benzilic acid rearrangement.
- Que-2(B) Answer the following questions. (Any two) (10)
 (1) Give synthesis of Nicotine.
 (2) Write difference between C_n and S_n
 (3) Construct multiplication table for C_{2v} point group.
- Que-3(A) Answer the following question. (04)
 (1) Explain mass spectra of alkanes.
- Que-3(B) Answer the following questions. (Any two) (10)
 (1) Give synthesis (I) Adrenaline from catechol and (II) Orange II from Sulphanilic acid.
 (2) Explain in detail formation of triplet and quartet in NMR.
 (3) Explain anisotropic effect in ethene, acetylene and 18-Annulene.
- Que-4(A) Answer the following question. (04)
 (1) Give difference between Enantiotopic and Diastereotopic protons in NMR with an example.
- Que-4(B) Answer the following questions. (Any two) (10)
 (1) Prove constitution of Coniine.
 (2) What are the alkaloids? Discuss its classification.
 (3) Write differences between chemical shift and coupling constant.
- Que-5(A) Answer the following question. (04)
 (1) Explain molecular ion peak and base peak in Mass spectroscopy.
- Que-5(B) Answer the following questions. (Any two) (10)
 (1) Discuss Gabriel phthalimide synthesis for amino acid synthesis.
 (2) Write a note on chair, boat and twist boat conformations of cyclohexane
 (3) Deduce the structure of an organic molecule having molecular formula C_8H_{10} from the following NMR data.

Types of proton(s)	No. of proton(s)	Multiplicity	δ ppm
a	6H	s	2.5
b	2H	d	7.3
c	1H	t	7.5
d	1H	s	6.9
