

**B.Sc. Semester - 5 (Remedial) (CBCS) Examination**  
**March/April-2026 (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 essential and non-essential  $\alpha$ -amino acids?
- (2) Give the synthesis of Ala-Gly (dipeptide) by Bergmann Method
- (3) Explain stereochemistry of compounds with two asymmetric carbon atoms.

Que.2(A) Answer the following question. (04)

- (1) Construct multiplication table for  $C_{2v}$  point group.

Que.2(B) Answer the following questions. (Any two) (10)

- (1) Give synthesis of Coniine.
- (2) Write difference between  $C_n$  and  $S_n$
- (3) Write note on Arndt Eistert reaction.

Que.3(A) Answer the following question. (04)

- (1) Explain in detail formation of triplet and quartet in NMR.

Que.3(B) Answer the following questions. (Any two) (10)

- (1) Write a short note on TMS
- (2) Give the synthesis and uses: (1) Ibuprofen (2) Orange -II
- (3) Explain mass spectra of alkanes.

Que.4(A) Answer the following question. (04)

- (1) Explains in detail oxidation of papaverine

Que.4(B) Answer the following questions. (Any two) (10)

- (1) Give the synthesis of Thyroxine
- (2) Construct multiplication table for  $C_{2h}$  point group.
- (3) Deduce the structure of an organic molecule having molecular formula  $C_6H_{14}O$  from the following NMR data.

| Type of Signals | No. of Proton | Multiplicity | $\delta$ ppm |
|-----------------|---------------|--------------|--------------|
| a               | 12H           | d            | 1.1          |
| b               | 2H            | m            | 3.7          |

Que.5(A) Answer the following question. (04)

- (1) Give difference between Enantiotopic and Diastereotopic protons in NMR spectra with an example.

Que.5(B) Answer the following questions. (Any two) (10)

- (1) Give the classification of  $\alpha$  amino acids on the basis of chemical nature.
- (2) Write note on Benzil-Benzilic acid rearrangement.
- (3) Give the synthesis and uses of (1) Adrenaline (2) Auromine O

\*\*\*\*\*