

B.Sc. Semester - 5 (Remedial) (CBCS) Examination**March/April-2023(Old 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.

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- Q. 1 (A) Answer the following question. (04)
(1) Giving definition of carbohydrate, write a note on its classification.
- Q.1 (B) Answer the following questions. (Any two) (10)
(1) Glucose and Fructose forms same osazone. Explain giving reactions.
(2) Give justification to prove the constitution of glucose. $\text{CHO}-(\text{CHOH})_4-\text{CH}_2\text{OH}$
(3) Write reaction for conversion of glucose to fructose and fructose to glucose.
- Q. 2 (A) Answer the following question. (04)
(1) Write short note on axis of symmetry with suitable examples.
- Q. 2 (B) Answer the following questions. (Any two) (10)
(1) Give difference between S_n and C_n
(2) Explain various planes of symmetry.
(3) Construct multiplication table for C_{2v} point group.
- Q. 3 (A) Answer the following question. (04)
(1) Give synthesis and uses of anyone drug.
- Q. 3 (B) Answer the following questions. (Any two) (10)
(1) Give Synthesis and uses Saccharin.
(2) Give electrophilic substitution reaction of any five membered Heterocyclic ring.
(3) Give Hantzsch's Pyridine synthesis.
- Q. 4 (A) Answer the following question. (04)
(1) Write a note on types of modes of fundamental vibrations
- Q. 4 (B) Answer the following questions. (Any two) (10)
(1) Discuss IR spectra of CO_2 molecule
(2) Explain Fingerprint region and overtone in IR.
(3) Write a note on LiAlH_4 as reducing reagent giving reaction with mechanism.
- Q. 5 (A) Answer the following question. (04)
(1) Write different types of molecular energies. Also give types of molecular transitions possible.
- Q. 5 (B) Answer the following questions. (Any two) (10)
(1) Explain constitution of Coniine.
(2) Write a note on Hoffmann exhaustive methylation for the degradation of alkaloids.
(3) Write a note on chromophore and auxochrome.
