

B.Sc. Semester - 5 (Remedial) (CBCS) Examination
March/April-2022(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)
Write osazone formation of Glucose and Fructose.
- Q.1(B) Answer any two questions. (10)
(1) Explain step up synthesis of carbohydrates: Killiani's method
(2) What is epimer and explain epimerization with example.
(3) What is carbohydrate? Discuss the classification of carbohydrates.
- Q.2(A) Answer the following question. (04)
Give point group of (1) H₂O (2) NH₃ (3) BCl₃ (4) ethene
- Q.2(B) Answer any two questions. (10)
(1) Construct multiplication table for C_{2h} point group.
(2) What is proper rotational axis? Explain different types of proper rotational axis with examples.
(3) Prove that in eclipsed ethane $S_3^6 = E$
- Q.3(A) Answer the following question. (04)
Discuss structure and aromaticity of Pyridine
- Q.3(B) Answer any two questions. (10)
(1) Give the reason: thiophene is more aromatic than pyrrole and furan
(2) Give preparation and uses of (a) Ibuprofen (b) Chrysodine-G
(3) Give the Hantzsch synthesis for pyridine
- Q.4(A) Answer the following question. (04)
Give the Arndt Eistert reaction with mechanism and applications.
- Q.4(B) Answer any two questions. (10)
(1) Explain in detail: Overtone band and Fermi-Resonance.
(2) Determine the structure of given IR data:
M.F. C₁₀H₁₂O;
IR: 3030, 2965, 2845, 2750, 1735, 1660, 1380, 1365, 850 cm⁻¹
(3) Discuss: factors affecting on frequency of >C=O bond in IR spectroscopy.
- Q.5(A) Answer the following question. (04)
Explain: Types of electronic transitions.
- Q.5(B) Answer any two questions. (10)
(1) Explain: Absorption shifts & intensity effects.
(2) Give the synthesis of Papaverine.
(3) Explain the constitution of Coniine
