

B.Sc. Semester - 5 (Remedial) (CBCS) Examination

Feb/Mar. -2021 (OLD COURSE)

ORGANIC CHEMISTRY AND SPECTROSCOPY (CORE)

Time: 1:30 Hours

Marks: 42

Instructions:

1. Figures to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
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- Q – 1 (a) Answer the following question. 4
What is carbohydrate? Discuss the classification of carbohydrates.
- Q – 1 (b) Answer any two questions. 10
(1) Write osazone formation of Glucose and Fructose.
(2) Explain step up synthesis of carbohydrates: Killiani's method
(3) What is epimer and explain epimerization with example.
- Q – 2 (a) Answer the following question. 4
Give point group of (1) CO₂ (2) NH₃ (3) PCl₅ (4) Allene
- Q – 2 (b) Answer any two questions. 10
(1) Construct multiplication table for C_{2v} 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. 4
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 synthesis (a) Hantzsch synthesis for pyridine (b) Paal-knorr synthesis for pyrrole
- Q – 4 (a) Answer the following question. 4
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. 4
Explain the constitution of Coniine
- Q – 5 (b) Answer any two questions. 10
(1) Explain: Types of electronic transitions.
(2) Explain: Absorption shifts & intensity effects.
(3) Give the synthesis of Papaverine.
