

B.Sc. Semester - 5 (CBCS) Examination

Oct/Nov. - 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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- Que-1(A) Answer the following question. (04)
❖ What are carbohydrates? Give difference in properties between Sugar and Asugar with one example of each.
- Que-1(B) Answer the following questions. (Any two) (10)
1. Explain osazone formation and its use in establishing structure of monosaccharides.
2. Write oxidation reaction of glucose with Br_2 , con HNO_3 .
3. Explain methylation method to prove the furanose structure of glucose.
- Que-2(A) Answer the following question. (04)
❖ Write name, symbol and associated operations for all symmetry elements.
- Que-2(B) Answer the following questions. (Any two) (10)
1. Prove that $C_n^n = E$ always but $S_n^{2n} = E$ when n is odd.
2. Write difference between σ_h , σ_v and σ_d .
3. Construct multiplication table for C_{2h} point group.
- Que-3(A) Answer the following question. (04)
❖ Give Synthesis and uses of Saccharin or Dulcin.
- Que-3(B) Answer the following questions. (Any two) (10)
1. Draw constitution of Pyrole, Furan, Thiophen, pyrazole, imidazole, thiazole, pyrimidine, oxazine, thiazine, dioxan.
2. Give one electrophilic substitution reaction of Pyrole, Furan and Thiophene.
3. Compare basicity of aliphatic amines with Pyridine and pyrrole.
- Que-4(A) Answer the following question. (04)
❖ Write a note on various stretching and bending vibrations in IR.
- Que-4(B) Answer the following questions. (Any two) (10)
1. Discuss Fries rearrangement.
2. Explain fingerprint region and overtone.
3. Explain factors affecting IR spectra of carbonyl group.
- Que-5(A) Answer the following question. (04)
❖ Explain in one sentence chromophore, auxo chrome, bathochromic shift and hypochromic shift.
- Que-5(B) Answer the following questions. (Any two) (10)
1. Write note on Hofmann exhaustive methylation method used for the degradation of alkaloids.
2. Write any five physical or chemical method used for the determination of functional group in alkaloid.
3. Explain types of electronic transition in molecules.
