

B.Sc. Semester - 5 (CBCS) Examination

Oct/Nov. - 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.

- Q.1(A) **Answer the following question.** (04)
Explain giving examples: Monosaccharides and Oligosaccharides.
- Q.1(B) **Answer the following questions. (Any two)** (10)
A. Explain step up kiliani reaction with suitable example.
B. Write a note on osazone formation.
C. Giving methylation method, prove the pyranose structure of glucose.
- Q.2(A) **Answer the following question.** (04)
Explain symmetry and symmetry elements with suitable examples.
- Q.2(B) **Answer the following questions. (Any two)** (10)
A. Construct multiplication table for C_{2v} point group by giving example of H_2O .
B. Give difference between C_n and S_n .
C. Give difference between σ_h , σ_v and σ_d .
- Q.3(A) **Answer the following question.** (04)
Give Synthesis and uses of Saccharin.
- Q.3(B) **Answer the following questions. (Any two)** (10)
A. Give Hantzsch's pyridine synthesis.
B. Give electrophilic substitution reaction of Pyrrole.
C. Compare basicity of pyridine, pyrrole and aliphatic amines.
- Q.4(A) **Answer the following question.** (04)
Give and explain stretching and bending vibrations in IR.
- Q.4(B) **Answer the following questions. (Any two)** (10)
A. Discuss IR spectra of CO_2 molecule.
B. Explain fingerprint region and overtone in IR.
C. Explain Curtius rearrangement with mechanism.
- Q.5(A) **Answer the following question.** (04)
Give difference between chromophore and auxochrome with suitable examples.
- Q.5(B) **Answer the following questions. (Any two)** (10)
A. Explain Hofmann exhaustive methylation method for the degradation of alkaloids.
B. Give any synthesis of papaverine.
C. Name different types of molecular energies. Give types of molecular transitions possible.
