647510 **BSCorgCC5020** **Seat No :_____**

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

Oct/Nov.– 2019

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. **4 Marks**

Explain : Killiani's method for extending carbohydrate chain.

Q – 1 (b) Answer any two questions. **10 Marks**

(1) Explain : Epimerization with example.
(2) Osazone formation from Glucose and Fructose.
(3) What is carbohydrate? Discuss the classification of carbohydrates.

Q – 2 (a) Answer the following question. **4 Marks**

Give point group of (1) naphthalene (2) formaldehyde (3) $CHCl_3$ (4) allene

Q – 2 (b) Answer any two questions. **10 Marks**

(1) What is proper rotational axis? Explain different types of proper rotational axis with examples.
(2) Prove that in staggered ethane $S_6^6 = E$
(3) Construct multiplication table for C_2h point group.

Q – 3 (a) Answer the following question. **4 Marks**

Give the preparation and use of (a) Dulcin (b) P – Arysylurca

Q – 3 (b) Answer any two questions. **10 Marks**

(1) Give preparation and uses of (a) Ibuprofen (b) Chrysodine-G
(2) Discuss structure and aromaticity of Thiophe.
(3) Give the synthesis (a) Hantzsch synthesis for pyridine
(b) Paal-knorr synthesis for pyrrole

Q – 4 (a) Answer the following question. **4 Marks**

Determine the structure of compound from given IR data:
M.F. $C_{10}H_{12}O$;
IR: 3050, 2965, 2845, r 2750(doublet), 1735, 1660, 1600, 1550, 1470, 1380, 1365, 850 cm^{-1}

Q – 4 (b) Answer any two questions. **10 Marks**

(1) Explain in detail: Overtone band and Fermi-Resonance.
(2) Discuss: factors affecting on frequency of >C=O bond in IR spectroscopy.
(3) Give the Arndt Eistert reaction with mechanism and applications.

Q – 5 (a) Answer the following question. **4 Marks**

Give the synthesis of nicotine

Q – 5 (b) Answer any two questions. **10 Marks**

(1) Give the synthesis of papaverine.
(2) Explain: Absorption shifts & intensity effects.
(3) Explain: Types of electronic transitions.

****