647510 **BSCorgCC6020** **Seat No :_____**

B.Sc. Semester - 6 (*CBCS*) Examination
May/June-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.

Q. 1 (A) Answer the following question. (04)

(1) Explain hydantoin method with chemical reaction.

Q.1 (B) Answer the following questions. (Any two) (10)

(1) Explain Erlenmeyer Azlactone synthesis in detail.

(2) Give classification of amino acid.

(3) Explain Fischer's method for synthesis of peptide.

Q. 2 (A) Answer the following question. (04)

(1) Give classification of terpenoids.

Q. 2 (B) Answer the following questions. (Any two) (10)

(1) Write synthesis of Citral from 1,3-dibromo-3-methylbutane.

(2) Give synthesis of (I) TNT and (II) Baygon.

(3) Give synthesis of (I) PETN and (II)Musk Ambrette.

Q. 3 (A) Answer the following question. (04)

(1) Write four chemical reactions of Naphthalene.

Q. 3 (B) Answer the following questions. (Any two) (10)

(1) Write any five method for synthesis of biphenyl.

(2) Explain Fischer Indole synthesis with mechanism.

(3) Explain Skrup synthesis in detail.

Q. 4 (A) Answer the following question. (04)

(1) Give difference between enantiotopic and diastereotopic hydrogens in NMR.

Q. 4 (B) Answer the following questions. (Any two) (10)

(1) Write a note on factors affecting chemical shift in NMR.

(2) Explain difference between chemical shift δ and coupling constant j.

(3) Answer the following.

a) Give two important properties of TMS.

b) Deduce the constitution of a compound with mol formula C_2H_6O giving three signals. (Vapour density is 23)

a) 3H Triplet 1.1 b) 2H Quartet 3.7 c) 1H singlet 2.6

Q. 5 (A) Answer the following question. (04)

(1) Explain Homolytic and Heterolytic fission, Base peak, molecular ion.

Q. 5 (B) Answer the following questions. (Any two) (10)

(1) Write a note on conformations of cyclohexane.

(2) Explain importance of mass spectra.

(3) Answer the following

a) Write name of factors affecting conformations of molecule.

b) Deduce constitution of a compound with molecular formula C_3H_6O giving following spectral properties

UV: No absorption above 220, NMR: Strong singlet δ=2.1, IR: 1720 sharp

Spectral data

NMR:	O-H	4.0,
	$C-CH_3$	0.9 to 2.0 δ
	$O-CH_3$	3.9-3.9 δ
	CO-CH3	2.4-2.7 δ
IR:	Carbonyl C=O stretching 1650-1750	

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