

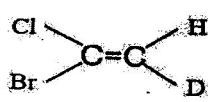
Roll No.....

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School of Chemical & Life Sciences
BSc. Hons. Chemistry (FYUP), Chemistry/Semester-II
Even Semester Examinations, May 2025
Paper Title: Basics of Organic Chemistry
Paper Code: BCH-DSC201

Time: 2 ½ hours

Maximum Marks: 60

Abbreviations Used: CLO- Course Outcome, PLO- Program Outcome, BTL- Bloom Taxonomy Level: BT level 1-Remember; BT level 2-Understand; BT level 3-Apply; BT level 4-Analyse; BT level 5-Evaluate, BT level 6-Create.

Q. No.		BTL	CLO	PLO
SECTION A				
Very Short Type Questions (Attempt all):		(1.5x10=15 marks)		
A1	Explain why bond pair of acetone is more than that of propanaldehyde although both have same molecular weight?	3	1-3	1-3
A2	Determine the E/Z configuration, based on priority rule. 	2-3	2-3	2-3
A3	Give the D(d) and L(l) isomers of Glyceraldehyde.	1-3	1-3	1-3
A4	What is aldoses? Give one example.	2	1-5	1-5
A5	Explain the stability of alkyl carbocation basis of hyperconjugation with suitable example.	2	5	5
A6	When an Anomeric hydroxyl group is replaced by amino group, sugar is known as?	1	1	1
A7	Explain Dakin- west reaction.	2-4	2-4	2-4
A8	Explain Threo system of nomenclature with an suitable example.	3-6	3-6	3-6
A9	If specific rotation of Glucose solution is 52° and fructose solution is -92° then what will be specific rotation of invert sugar?	3-6	3-6	3-6
A10	Explain Aldotrioses with an example and give the D/L configuration also.	1	1	1
SECTION B				
Long Type Questions (Attempt any two out of four):		(10x2=20 marks)		
B1	(a) Explain stereochemistry and its importance. (b) Why are meso compounds optically inactive? Give details.	2-3	2-3	2-3
B2	Explain inductive effects in detail. explain the stability of non-conjugated cations and anions based on inductive effect.	2-6	2-6	2-6
B3	Write the reaction mechanism of D- glucose to D- fructose also mention configuration.	2-4	2-4	2-4
B4	Explain hybridization in organic species. How can bond angles, bond length and bond strength affected by hybridisation. Explain in detail.	4-6	4-6	4-6

SECTION C				
Short Type Questions (Attempt all Questions):		(5x5=25 marks)		
C1	(a) Describe the anhydride method of peptide synthesis with suitable reaction.	2-3	2-3	2-3
	OR (b) Explain the acidity of 1°, 2°, 3° alcohols, on the basis of inductive effect.	4-5	4-5	4-5
C2	(a) Explain any one configuration of monosaccharides (i) aldotrioses (ii) aldohexoses	2-3	2-3	2-3
	OR (b) Discuss the stereochemistry of addition of bromine to E-but-2-ene.	2-4	2-4	2-4
C3	(a) Explain the structural difference between DNA and RNA.	3-6	3-6	3-6
	OR (b) In terms of hyperconjugation, explain the order of stability of carbocations.	1-4	1-4	1-4
C4	(a) Explain isoelectric point of glycine in detail.	3-5	3-5	3-5
	OR (b) Explain the rule of rotation of lactones derived from the aldonic acids.	4-5	4-5	4-5
C5	(a) Draw the structure of any 4 pyrimidine bases that occur in nucleic acids	6	3/6	3/6
	OR (b) Give R/S configuration with explanation of priority method of the following:	1-2	1-2	1-2
(i) $\begin{array}{c} \text{CHO} \\ \\ \text{H}-\text{C}-\text{OH} \\ \\ \text{CH}_2\text{OH} \end{array}$ (ii) $\begin{array}{c} \text{COOH} \\ \\ \text{H}_2\text{N}-\text{C}-\text{H} \\ \\ \text{CH}_3 \end{array}$				