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Roll No.

Total Pages : 3

325103

Mar. 2022

B.Sc. (Life Sciences) - 1st Semester

Chemistry I: Conceptual Organic Chemistry (BLS-103)

Time : 90 Minutes]

[Max. Marks : 25

Instructions :

1. *It is compulsory to answer all the questions (1 mark each) of Part-A in short.*
2. *Answer any three questions from Part-B in detail.*
3. *Different sub-parts of a question are to be attempted adjacent to each other.*

PART-A

1. (a) Write the structure of meso form of 2,3-dichlorobutane. (1)
- (b) Give the chemicals used in formation of Tollen's reagent. (1)
- (c) Write the IUPAC name of the alkene which gives a mixture of propanal and methanal on ozonolysis. (1)
- (d) What is the necessary and sufficient condition for a compound to show geometrical isomerism? (1)

- (e) Give the structure of an alkene that on hydroxylation with KMnO_4 gives meso-2,3-butanediol. (1)
- (f) Formaldehyde does not give aldol condensation. Justify this observation. (1)
- (g) What is cross-Cannizzaro reaction? (1)
- (h) Define Saytzeff's rule. (1)
- (i) Name the electrophile used in sulphonation. (1)
- (j) What is the product of selective reduction of m-dinitrobenzene? (1)

PART-B

2. (a) What is peroxide effect? Why it is shown only by HBr and not by HCl or HI? (3)
- (b) Comment upon the observation that the presence of a chiral carbon is not always essential for a compound to exhibit optical activity. (2)
3. (a) Discuss the stereochemistry of $\text{S}_{\text{N}}1$ and $\text{S}_{\text{N}}2$ reactions. (2)
- (b) Give the mechanism of Claisen condensation and Friedel Crafts alkylation. (3)
4. (a) Draw the various conformations of n-butane and compare their relative stability. (3)

- (b) What is Hofmann elimination and how does it differ from Saytzeff elimination? (2)

5. (a) What happens when propane-1,2-diol is treated with lead tetra acetate? Write the mechanism of the reaction involved. (3)
- (b) Benzyl chloride is more reactive than chlorobenzene towards nucleophiles. Explain. (2)
6. (a) What happens when crotonaldehyde is treated with sodium borohydride? (2)
- (b) Discuss the mechanism of oxymercuration-reduction of alkenes. (3)
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