Model Question Paper

Isomerism in Organic Chemistry - Part III

12th Standard

Chemistry

Reg.No. : | | | | | | |

I.Answer all the questions.
II.Use blue pen only.
III.Question number 16 is compulsory.

Time : 01:30:00 Hrs

Total Marks : 70

Part-A

5 x 1 = 5

1) Which among the following is optically inactive?
   (a) CH Cl Br F (b) CH_3CH_2OH (c) $CH_3 - CHBrCH = CH_2$ (d) (a) and (c)
2) Which among the following is optically inactive?
   (a) $CH_3CH \quad DOH$ (b) $RCH \quad NH_2COOH$ (c) $(CH3)_2CHOH$ (d) $CH_3C \quad HOH \quad COOH$
3) Which among the following does not have asymmetric carbon atom
   (a) $RCH \quad NH_2COOH$ (b) $CH_3CH \quad DOH$ (c) $CH_3 - CHBrCH = CH_2$ (d) Glycerol
4) Which of the following has asymmetric carbon atom/s but still can have optically inactive form
   (a) $CH_3CH_2CH = CH_2$ (b) $CH_3 - CHBrCH = CH_2$ (c) Lactic acid (d) Tartaric acid
5) What is the only and essential condition for optical activity?
   (a) presence of a symmetric carbon atom (b) presence of one sp^3 carbon atom (c) presence o chirality (d) absence of sp^3 carbon atom

Part-B

5 x 3 = 15

6) Give the structure of Z and E forms of cinnamic acid.
7) Describe the conformations of cyclohexanol. Comment on their stability. Cyclohexanol with axial -OH and equational - OH.
8) Explain the energy level diagram for axial - equatorial cyclohexanol conformational changes.
9) Draw the different conformations of cyclohexane clearly indicating the various C - H bonds.
10) What is the relative composition of the equilibrium mixture of all the conformers of n - butane?

Part-C

6 x 5 = 30

11) Discuss the optical isomerism in tartaric acid
12) Write a note on the different types of hydrogen in cyclohexane
13) Write a note on the conformations of cyclohexanol
14) Discuss the dipole moment of ortho, meta and para distributed benzene derivates.
15) Discuss the optical isomerism of lactic acid.
16) a) Discuss the optical isomerism in tartaric acid.

(OR)

b) Write a note on the different types of hydrogen in cyclohexane

Part-D

2X10=20

17) a) Write a note on the conformations of cyclohexanol
    b) Discuss the dipole moment of ortho, meta and para disubstituted benzene derivatives.
18) a) Discuss the confirmation of cycloalkanes.
    b) Distinguish meso form, active form and racemic form with examples.

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