

108

SEAT No. _____

No. of pages: 02

SARDAR PATEL UNIVERSITY

M.Sc. Semester-IV (Organic Chemistry) Examination

Saturday, 23rd March 2019

PS04CORCO3-Stereochemistry of Organic Compounds

Time: 02:00 pm to 05:00 pm

Marks: 70

- Q.1 Select the correct answer. 08
- 1 The characteristic must be required for resolving agent is _____
(a) High toxicity (b) Pure form
(c) Unstable (d) High Molecular weight
 - 2 In the Prelog's rule, the group attached to the stereo center is _____
(a) Medium (b) Large
(c) Small (d) Above All
 - 3 Secondary structure of _____ can be confirmed by ORD and CD studies.
(a) Proteins (b) DNA
(c) RNA (d) All
 - 4 In case of formation of double helix, approximate stabilization energy of C≡T is _____
(a) 70 KJ/mole (b) 50 KJ/mole
(c) 20 KJ/mole (d) 60 KJ/mole
 - 5 Correct statement(s) would be _____
(a) All three eclipsed conformers of *n*-butane are same in energy.
(b) All three staggered conformers of ethane are equal in energy.
(c) Both a) & b)
(d) None
 - 6 In axial haloketone rule, for Cyclohexanone, Vertical plane 'A' passing through Carbone number _____
(a) 1 & 3. (b) 2 & 4
(c) 1 & 4 (d) 1 & 5
 - 7 Energy barrier in methylamine is
(a) Less than that in ethane but more than that in ethanol.
(b) Less than that in both ethanol and ethane.
(c) More than that in both ethanol and ethane.
(d) More than that in ethane but less than that in ethanol.
 - 8 A LUMO of allyl carbanion is
(a) Symmetric with respect to 'm'.
(b) Antisymmetric with respect to 'C₂'.
(c) Both a) & b)
(d) None

1

(P.T.O)

- Q.2 Answer the following(Any Seven) 14
- 1 Discuss the Cram's Rule.
 - 2 Discuss the reaction for generation of first chiral center.
 - 3 Define the terms: (i) Racemic Mixture. (ii) Meso compound
 - 4 Discuss about the Prelog's Rule.
 - 5 Draw the structure of bicyclo [2.2.2] Octane and bicyclo [3.2.1] Octane
 - 6 State 'Huckel-Mobius' (H-M) method and predict the output of electrocyclization of butadiene and hexatriene.
 - 7 Discuss the Resolution of Aldehyde and ketone
 - 8 Define the term "cotton effect" and give it's importance.
 - 9 Discuss the Chiral Synthesis in biochemical system
- Q.3 A Write a note on: 06
- (i) Preferential crystallization
 - (ii) Chromatography and SMB techniques.
- B Write a note on Experimental procedure for resolution of (±) α-Methyl Benzyl Amine. 06
- OR
- B Write short note on Asymmetric Synthesis by : 06
- (i) Wilkinson as catalysts &
 - (ii) Sharpless's epoxidation.
- Q.4 A Draw the potential energy diagram of n-butane, on the bases of different conformers. 06
- B Draw the conformations of cycloheptane and cyclooctane under monocyclic compound. 06
- OR
- B Discuss conformation of Bicyclo[4.4.0]decane and its 9-methyl derivative. 06
- Q.5 A State in brief correlation diagram of [4n+2] cycloaddition reaction. 06
- B State FMO theory. Give its importance in understanding. 06
- OR
- B Write a note on: 1,3 and 1,5 sigmatropic rearrangement, with suitable examples. 06
- Q.6 A Discuss the structural aspects of cyclodextrins. 06
- B Draw the Structure of DNAs and discuss in detail. 06
- OR
- B Write a note on: ORD and CD curves. 06

— X —
 (2)