

## SARDAR PATEL UNIVERSITY

M.Sc. (Semester-IV) Examination

PS04CORC03-Stereochemistry of Organic Compounds

Tuesday 4<sup>th</sup> December, 2012

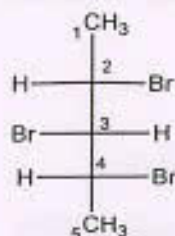
Time: 10.30 a.m. to 01.30 p.m.

Total Marks: 70

Q.1 Select the correct answer from the following.

08

1. The R/S notation of following structure is \_\_\_\_\_



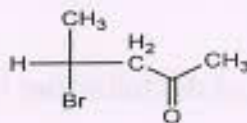
(a) 2S,3r,4R

(b) 2S,3s,4R

(c) 2R,3r,4R

(d) 2R,3s,4S

2. The Upper face of following structure is \_\_\_\_\_



(a) ReS

(b) SiR

(c) ReR

(d) SiS

3. and are \_\_\_\_\_

(a) Homomers

(b) Diastereomers

(c) Enantiomers

(d) None

4. Ring Inversion is \_\_\_\_\_ than Pyramidal Inversion.

(a) Faster

(b) Slower

(c) Moderate

(d) Equal

5. Superfacially 1,5-Sigmatropic Hydrogen Shift is \_\_\_\_\_  
 (a) Thermally forbidden (b) Photochemical allowed  
 (c) Photochemical forbidden (d) Thermally allowed
6. For the linear conjugated  $\pi$ -system, the wave function  $\psi_n$  will have odd numbers of Nodes. Then the wave function  $\psi_n$  will be \_\_\_\_\_  
 (a) Symmetric with respect to ' $C_2$ ' (b) Symmetric with respect to ' $m$ '  
 (c) Asymmetric with respect to ' $m$ ' (d) None
7. (+)-trans-10-methyl-2-decalone displays a \_\_\_\_\_ cotton effect.  
 (a) Positive (b) Negative  
 (c) Both (a) and (b) (d) Neither (a) Nor (b)
8. The important information about the secondary structures nucleotides, protines and polypeptides are providing by \_\_\_\_\_ spectrum.  
 (a) ORD (b) CD  
 (c) Both (a) and (b) (d) Neither (a) Nor (b)

**Q.2 Write the answer of the following in short.(Any Seven)**

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1. Define optical purity and Entiomic excess with suitable example.
2. Explain, Prelog's Rule with suitable example.
3. Draw all the possible conformational isomers of BHC.
4. Draw the conformers of perhydroanthrancene with their stability order.
5. Explain, Claisen Rearrangement.
6. Explains, Endo orientation and Exo orientation with suitable example.
7. What is meant by chiroptical properties of organic compounds?

8. Explain the Axial halo-ketone rule.
9. Write a note on resolution by Stimulated moving bed technique.

- Q.3 (A)** Explain Stereoselective and Stereospecific reaction with suitable example. 06
- (B)** Discuss the Basic principles of resolution of racemic modification. And 06  
List the general methods for resolution. How aldehyde, Ketone, amino acid and alcohol are resolved through formation of diastereomers.

OR

- (B)** (i) Explain, the Asymmetric synthesis of enantioselective reduction of 06  
Alkenes to Alcohols.
- (ii) Describe the experimental process for the separation of racemates of  
1-phenyl ethylamine.
- Q.4 (A)** Comment on conformational analysis of methyl cyclohexanes and dimethyl 06  
cyclohexanes.
- (B)** Discuss the conformational analysis of n-pentane, Ethane-1,2-diol and 1,2- 06  
dihalo ethane.

OR

- (B)** Comment on conformational analysis of  $\gamma$ -Ephedrine, Menthol and Inositol. 06
- Q.5 (A)** Explains, Superfacial and Antrafacial process with suitable example. 06  
Discuss the correlation diagram of [2+2] and [4+2] cycloaddition reaction.
- (B)** Construct and Explain, the correlation diagram of inter conversion of 1,3- 06  
butadiene to cyclobutene through conrotatory and disrotatory motion.

OR

- (B)** Discuss Huckel-Mobius Method for Sigmatropic reaction and FMO 06  
method for cycloaddition reaction.

**Q.6 (A)** Discuss briefly about DNAs with structure and explain the formation of double helix. **06**

**(B)** Explains, ORD and CD curves. How the sign of CE can be predicated? **06**

**OR**

**(B)** (i) Write a note on the structure of cyclodextrin. **06**

(ii) Discuss ORD of 3-methyl cyclohexanone.

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