

**DB-146**

December-2018

M.Sc., Sem.-I

**402 : Chemistry  
(Organic Chemistry)**

Time : 2:30 Hours]

[Max. Marks : 70

1. (A) Explain Saytzeff and Hoffman's rule of elimination with illustrations. Compare Chugave and Cope reactions by giving suitable examples. 14

OR

- (i) Discuss the stereochemistry of the products obtained by the reaction of 2-bromo propionate ion with (a) dilute alkali solution (b) strong alkali solution respectively. 7

- (ii) Compare  $E_1$ ,  $E_2$  and  $E_1CB$  pathways. 7

- (B) Answer in one or two lines : (any four out of six) 4

- (i) Give one example of nucleophilic substitution reaction involving mixed  $SN^1$  and  $SN^2$  mechanism.

- (ii) Name the factors which affect the overall reactivity of elimination reaction.

- (iii) Giving the reaction show the end product when alcohol is dehydrated ?

- (iv) Explain anchimeric assistance.

- (v) Define eclipsing effect in  $E^2$ .

- (vi) Why NGP assisted  $SN^2$  reaction gives product with retention of configuration ?

2. (A) What is diatropic current ? Discuss its role in determining aromaticity. State the Huckel's rule of aromaticity and define terms : aromaticity, non-aromaticity and anti-aromaticity with one example of each. 14

OR

- (i) Discuss the effect of hybridization and field effect affecting the acidity by giving suitable example. 7

- (ii) Comment on the acidity of C-H bond in a Halorofm. Guanidine is a strong base, Explain. 7

(B) Answer in one or two lines : (any three out of five) 3

- (i) Give limitations of Huckel's rule.
- (ii) What is Homoaromatic system ?
- (iii) Is Pyrazol an aromatic or non-aromatic? Why ?
- (iv) State Huckel rule of aromaticity.
- (v) Define antiaromaticity.

3. (A) Discuss Bayer Villiger and Pinacol - Pinacolone rearrangements by proper examples. 14

OR

- (i) Define Carbene and Nitrene. Give methods for generation of both. 7
  - (ii) What are free radicals ? How they are generated ? Discuss their stability. 7
- (B) Answer in one or two lines : (any three out of five) 3
- (i) What are singlet and triplet nitrenes ?
  - (ii) Write the principle of Favorskii rearrangement.
  - (iii) Give example of Quasi-Favorskii rearrangement.
  - (iv) Give difference between rearrangement and reaction.
  - (v) Which one is more stable Methyl or Benxyl carbocation.

4. (A) Discuss stereospecific, stereoselective and dynamic resolution by suitable reactions/examples. 14

OR

- (i) Discuss the stereochemistry of Biphenyl and spiro compound derivatives. 7
  - (ii) Discuss the stereochemistry of Quaternary ammonium salts and sulphoxides. 7
- (B) Answer in one or two lines : (any four out of six) 4
- (i) Give an example of Meso compound.
  - (ii) What is geometrical isomerism ? Give its example.
  - (iii) What are enantiotopic and diastereotopic hydrogen atoms ?
  - (iv) Explain helicity.
  - (v) What are homotopic hydrogen atoms ?
  - (vi) What is prochiral ? Give its example.