

Seat No. : _____

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.