



GBX-1582      Seat No. \_\_\_\_\_

**M. Sc. (Sem. II) Examination**

April/May - 2017

**Chemistry : Paper - 502  
(Organic Chemistry)**

Time : 3 Hours]

[Total Marks : 70

1    Answer any **three** : 14

- (1) Discuss a free radical substitution mechanism at aromatic substrate and coupling of alkynes.
- (2) Explain how geometric requirements of free radicals has been examined through bridgehead system.
- (3) Describe in brief : Arylation of aromatic compounds by diazonium salts.
- (4) Discuss Auto-oxidation in detail.
- (5) Discuss the role of any two functional group in free radical halogenation reaction.

2    Answer any **three** : 14

- (1) Explain hydrolysis of esters and amide with suitable illustrations.
- (2) Outline and comparison between Grignard reagent and organo lithium compound for reaction of Ketone.
- (3) Discuss the mechanism of metal hydride reaction of unsaturated compound based on stereochemical aspects.

- (4) Explain in detail : Perkin reaction.
- (5) Discuss principle, mechanism and applications of Wittig reaction.
- 3** Answer any three : **14**
- (1) Prove the Woodward – Hoffman rule for cyclohexadiene  $\rightleftharpoons$  Hexatriene by co-relation diagram.
- (2) Explain Diels-Alder reaction with FMO method.
- (3) Discuss Cheletropic reactions.
- (4) What are pericyclic reactions ? Give the characteristics. Classify them with examples.
- (5) Discuss selection rules with PMO method of following :
- (a) Electrocyclic reaction
- (b) Cycloaddition and cycloreversion
- 4** Answer any **three** : **14**
- (1) Write a note on Aza-cope rearrangement.
- (2) What is sigmatropic rearrangement ? Discuss [1,3] suprafacial and antarafacial shift of H.
- (3) Discuss pyrolytic elimination.
- (4) Giving evidences discuss  $E^{1cb}$  mechanism.
- (5) Discuss the stereo selectivity, stereo specificity and regio selectivity of  $E^2$  reaction.

5 Answer any **seven** of the following :

14

- (1) Define Ene reaction with one illustration.
  - (2) Give the principle of Hansdiecker reaction.
  - (3) What is Sandmeyer reaction ? Give its suitable illustrations.
  - (4) Give the leaving group effect of  $E^1$  mechanism.
  - (5) What is ring closing and ring opening reaction ?
  - (6) Give example of (2+2) cycloaddition reaction.
  - (7) What are ylides ? How they are prepared ?
  - (8) Give any two synthetic applications of stobbe reaction.
  - (9) Draw HOMO allylic radical.
  - (10) Explain Mannich base in brief.
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