

C.U.SHAH UNIVERSITY

WADHWAN CITY

University (Winter) Examination -2013

Course Name : MSc(Chemistry) Semester-I

Subject Name: Organic Chemistry

Duration :- 2:30 Hours

Date : 04/12/2013

Instructions:-

- (1) Attempt all Questions of both sections in same answer book / Supplementary.
- (2) Use of Programmable calculator & any other electronic instrument is prohibited.
- (3) Instructions written on main answer Book are strictly to be obeyed.
- (4) Draw neat diagrams & figures (If necessary) at right places.
- (5) Assume suitable & Perfect data if needed.

SECTION – I**Q-1 All questions are Compulsory**

1. Define term: Curved arrow (1)
2. Distinguish between: (2)
Homolytic and heterolytic bond fission
3. Classify the following as nucleophiles and electrophiles (2)
 NH_3 , OH^- , AlCl_3 , Br^-
4. Differentiate Clemmensen and wolf-kishner reduction (2)

Q-2 Discuss the following questions

1. Give the mechanism of following reaction: (5)
a) Nazarov cyclization
b) Noyori reaction
2. What is arrow notation? Explain different types of arrows used in the organic chemistry. (5)
3. Justify the following statements: (4)
a) Elbs persulphate oxidation always takes place in the p-position.
b) Rosenmund reaction stops at the aldehyde stage.

**OR****Q-2 Discuss the following questions**

1. Give the mechanism of following reaction: (5)
a) Oppenauer oxidation
b) Birch reduction
2. What is linear free energy relationship? Derive and explain the Hammett equation. (5)
3. Justify the following statements: (4)
a) Knoevenagel reaction is more useful with aliphatic aldehyde than with aromatic.
b) Electron donating groups yield o-substituted product in the birch reaction.

Q-3 Discuss the following questions

1. Write notes on (7)
a) Michael addition
b) Perkin reaction
2. Answer the following question: (7)
a) Explain darzen reaction with proper mechanism. Give important application of darzen reaction.



- b) What is aldol condensation? Give its proper mechanism. Write the products of crossed aldol condensation involving equimolar amounts of acetaldehyde and formaldehyde.

OR

Q-3 Discuss the following questions (7)

- a) Write notes on
 - b) Reformatsky
 - c) Wittig reaction
1. Answer the following question (7)
- a) What is Prins reaction? Explain its different products depending on the reaction conditions. Give its application also.
 - b) Explain Horner-Wordworth-Emmons reaction.

SECTION – II

Q-4 Compulsory and short type question (1 or 2 marks)

1. Define term: Rearrangement (1)
2. What is Dess-Martin reagent? How it is prepared and what is its specific use. (2)
3. How Trimethylsilyl iodide is prepared and give its application. (2)
4. Write down preparation and application of Ceric ammonium nitrate. (2)

Q-5 Discuss the following questions (5)

1. Explain the following: (5)
 - a) Favorskii rearrangement
 - b) Schmidt rearrangement
2. Explain the following: (5)
 - a) Curtius rearrangement
 - b) Discuss the migratory aptitude of pinacol-pinacolone rearrangement.
3. Write notes on following reagents (4)
 - a) Sodium cyanoborohydride
 - b) Phase transfer catalyst



OR

Q-5 Discuss the following questions

1. Explain the following: (5)
 - a) Baeyer-villiger rearrangement
 - b) Demjanov rearrangement
2. Explain the following: (5)
 - a) Beckmann rearrangement
 - b) Explain the types of rearrangement and discuss general mechanism behind the nature of migration in rearrangement.
3. Write notes on following reagents (4)
 - a) Merrifield resin
 - b) Wilkinson catalyst

Q-6 Discuss the following questions

1. Explain the Wagner-Meerwein rearrangement with its proper mechanism. (7)
2. Neber rearrangement (7)

OR

Q-6 Discuss the following questions (14 Marks- Each Question Indicate 7 Marks)

1. What is pinacol-pinacolone rearrangement? Give mechanism and its application in detail
2. Benzilic acid rearrangement

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