

M.Sc.(Chemistry) (CBCS Pattern) Semester - III  
**PSCHT10.2 - Special Paper-I : Organic Chemistry-I**

P. Pages : 3

Time : Three Hours



**GUG/S/23/11334**

Max. Marks : 80

---

1. a) Explain the following: 8
- i) Norrish type – I reaction
- ii) Paterno – Buchi reaction
- b) Explain photochemistry of aromatic compounds with reference to addition and substitution reaction. 8

**OR**

- c) Explain Barton reaction. 4
- d) Explain Norrish type – II reaction. 4
- e) Explain Paterno – Buchi reaction. 4
- f) Discuss – Hoffmann – Loeffler reaction. 4
2. a) Discuss the following: 8
- i) Claisen rearrangement reaction.
- ii) [4 + 2] cycloaddition of ketones.
- b) Explain  $4n\pi$  and  $(4n + 2) e_1^-$  cyclo – addition in thermal and photochemical condition. 8

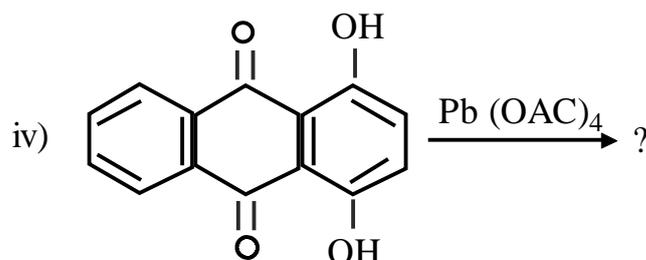
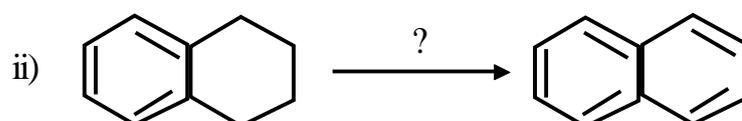
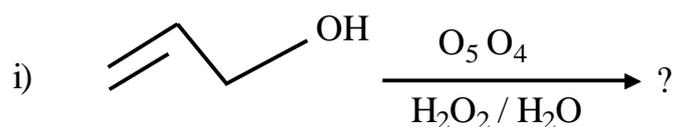
**OR**

- c) Explain Sommelet – Hauser rearrangement reaction. 4
- d) Explain cheletropic reaction. How it is related to Diels – Alder additions. 4
- e) Explain perturbation of molecular orbital approach of pericyclic reaction under thermal conditions. 4
- f) Discuss the [3, 5] sigma tropic rearrangements reaction. 4
3. a) Explain the following: 8
- i) Sharpless asymmetric epoxidation.
- ii) Baeyer – Villiger oxidation

- b) Discuss the following: 8
- i) Adam Catalyst
  - ii) Birch reduction

**OR**

- c) Explain Wilkinson catalyst. 4
- d) Explain oxidative cleavage of olefins. 4
- e) Discuss Meerwein – Ponderff – Verley reduction. 4
- f) Complete the following reaction: 4



4. a) Explain the following: 8
- i) Synthesis of E<sub>i</sub>E dienes.
  - ii) Preparation and application of Catechol borane.
- b) Explain preparation and synthetic applications of phosphorus ylide. 8

**OR**

- c) Discuss synthetic methodologies based on titanium compound. 4
- d) Explain synthesis of Thexyl boranes with its mechanism. 4
- e) Explain Paterson synthesis. 4
- f) Discuss the role of 1,3 – dithiane in organic synthesis. 4

5. a) Define Quantum efficiency. 2
- b) Write note on photochemistry of vision. 2
- c) Write cope reaction. 2
- d) What is suprafacial and antarafacial shift? 2
- e) Explain Enzyme Catalyzed reduction. 2
- f) Write chemical equation of Collin and Jones reagent. 2
- g) Explain synthesis of Allyl boranes? 2
- h) What are umpolung? 2

\*\*\*\*\*

