

(Prepared by Dr Riaz Hasan, Dept of Chemistry, DSPUM, Ranchi)

Model Question Paper: Final Semester Examination

M.Sc. Semester-IV, Core Course – 9 (CC-9) (Synthetic Organic Chemistry)

Section- IV Reagent in oxidation Reaction

MCQ (2- Marks)

1. Forming one of these: C-O, C-N, C-X and decreasing electron density on carbon atom is called an/a:
a) Oxidation Reaction b) Reduction reaction c) Both a and b d) None
2. Chromium Reagent are used to oxidize:
a) Ketones b) Tertiary alcohols c) Primary alcohols d) Secondary Alcohols
3. PCC is soluble in:
a) Non polar solvents b) Polar solvents c) Both d) None
4. Dicyclohexylcarbodiimide reagent are used in the induction of
a) Protein synthesis b) Amide linkage c) Insulin synthesis d) All
5. Aromatization in steroids is possible by:
a) PCC b) DDC c) Catalyst D-(-)-DET d) DDQ

Short answer type Questions (5- Marks)

- Q-1.** Find the oxidation number of Cr in $\text{Na}_2\text{Cr}_2\text{O}_7$? How can you prepare a chromic acid reagent in the laboratory? Discuss mechanism of chromic acid oxidation with an appropriate precursor.
- Q-2.** Discuss the preparation method of pyridinium chlorochromate (PCC) in the laboratory. Mention its synthetic applications. Discuss its mechanism of oxidation.
- Q-3.** How can you convert a Sarett Reagent to a Collins reagent? Describe the preparation of Collins Reagent. Write the mechanism of preparation of an aldehyde by using an appropriate precursor.
- Q-4.** Depicts the structure of DCC. Discuss the mechanism of Sheehan and Hess method for the induction of amide linkage in peptide synthesis.

Long answer type questions (12.5)

Q-1. Depicts the stereochemical structure of catalyst D-(-)-DET. Discuss the Sharpless asymmetric epoxidation reaction.

Q-2. Write the mechanism of:

1. Baeyer-Villiger reaction
2. Des-martin periodinane reaction
3. Oppenauer Oxidation reaction.

Q-3. Depicts the structure of DDQ and write its chemical name? Discuss its application and mechanism of reaction.