

M.Sc. (Chemistry) (CBCS Pattern) Sem-I
PSCCHT02 - Paper- II : Organic Chemistry

P. Pages : 2

Time : Three Hours



GUG/W/22/11184

Max. Marks : 80

Notes : 1. All questions are compulsory and carry equal marks.

1. a) Explain the following terms. 8
i) Phase transfer catalysis. ii) Crown ethers complexes.

- b) Explain conjugation and cross conjugation with example. 8

OR

- c) Explain any two synthetic applications of enamines. 4

- d) Discuss inclusion compounds. 4

- e) What are imines? Give its application in organic synthesis. 4

- f) Explain Huckel's rule for benzoid compounds. 4

2. a) Explain optical activity of allenes and biphenyl compounds. 8

- b) Discuss singlet oxygen. Give its generation and reactions with organic substrates. 8

OR

- c) Explain conformational analysis of monosubstituted cyclohexane. 4

- d) Explain threo and erythron isomers. 4

- e) Discuss the chemical reactions involving classical carbocations. 4

- f) Discuss the reactivity and formation of free radicals. 4

3. a) Discuss neighbouring group participation by π bond with example. 8

- b) Discuss the following terms. 8

i) Kinetic and thermodynamic control.

ii) Curtin-Hammett Principle

OR

- c) Explain Hammond's postulates. 4

- d) Discuss the relation of Hammett equation with linear free energy. 4

- e) Explain intermolecular displacement reaction involving halogen atom. 4

- f) Discuss non classical carbocations in NGP. 4

4. a) Explain the following. 8
i) Vilsmeier reaction
ii) Pechman reaction.
- b) Explain the effect of ambient substrate and ambient nucleophiles on vinylic carbon atoms. 8

OR

- c) Discuss Sommelet-Hauser reaction. 4
- d) Explain smiles reaction with its mechanism. 4
- e) Explain effect of leaving group on SN_2 reaction. 4
- f) Discuss Gattermann – Koch reaction. 4
5. a) Discuss aromaticity in tropylium cation. 2
- b) What are graphene? 2
- c) Define enantiotropic and distereoprotic atoms. 2
- d) Write the structure of nitrene. 2
- e) Define isotope effect. 2
- f) Explain in brief Taft equation. 2
- g) Explain Diazo coupling reaction. 2
- h) Write Von Richter reaction. 2
