M.Sc.-I (Chemistry) CBCS Pattern Semester-I

PSCCHT02 - Paper-II : Organic Chemistry

P. Pages : 2 **GUG/W/23/11184**

Time : Three Hours * 6 2 1 1 * Max. Marks : 80

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1. a) Explain the following. **8**

i) Inclusion compounds

ii) Rotaxanes.

b) Explain phase transfer catalyst and discuss the role of crown ether as phase transfer catalyst. **8**

OR

c) Explain annulenes. **4**

d) Explain role of imines in organic synthesis. **4**

e) Discuss antiaromaticity. **4**

f) Explain aromaticity of tropylium cation. **4**

2. a) Discuss stereochemistry of biphenyl. **8**

b) Discuss singlet oxygen, its generation and reaction with organic substrate. **8**

OR

c) Explain the effect of conformation on reactivity of cyclohexane. **4**

d) Define & explain: **4**

i) Meso compounds

ii) Prochirality.

e) Explain classical and non classical carbocations. **4**

f) Discuss formation, and reactions of free radicals. **4**

3. a) Explain the following. **8**

i) Curtin-Hammett Principle.

ii) Isotope effect.

b) Explain neighbouring group participation of pi bond with example. **8**

OR

c) Discuss Hard and soft bases and acids with examples. **4**

d) Write a note on carbocation rearrangement in neighbouring group participation. **4**

e) Explain Taft equation. **4**

f) Explain role of oxygen and Sulphur as neighbouring group in neighbouring group participation. **4**

4. a) Explain the following. **8**

i) Ambident nucleophiles

ii) Gatterman-Koch reaction

b) Discuss the following. **8**

i) Sommelet-Hauser reaction

ii) Benzyne reaction

OR

c) Explain SN^2 Reaction. **4**

d) Explain Vilsmeier reaction. **4**

e) Explain substitution at vinylic carbon atom. **4**

f) Discuss mechanism of Reimer-Tiemann reaction. **4**

5. a) What are cryptands. **2**

b) Write a short note on graphenes. **2**

c) Explain elements of symmetry. **2**

d) What are nitrenes? Explain singlet and triplet state. **2**

e) State Curtin-Hammett principle. **2**

f) What is mean by migratory aptitude. **2**

g) Explain Smiles reaction. **2**

h) Write a note on ortho - para ratio. **2**

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