M.Sc. (Chemistry) (CBCS Pattern) Sem-II

PSCCHT06 - Organic Chemistry-II

P. Pages : 2 **GUG/W/22/11229**

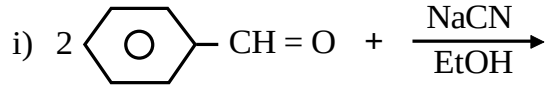
Time : Three Hours * 1 9 6 3 * Max. Marks : 80

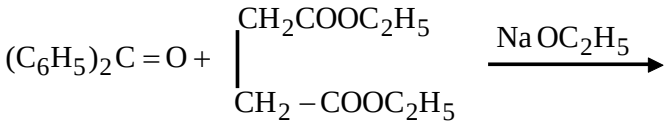
Notes : 1. All questions are compulsory and carry equal marks.

1. a) i) Explain the mechanism of Mannich reaction and their application. **8**

ii) Explain regio and chemoselectivity in involving hydrogenation of double bond.

b) Write the suitable mechanism and name the following reactions. **8**

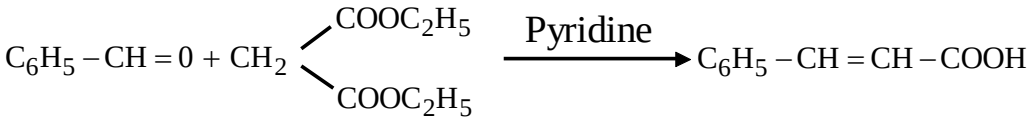
i) 

ii) 

OR

c) Explain the addition reactions of Grignard reagent to carbonyl compound. **4**

d) Discuss the mechanism for following transformation. **4**



e) State the mechanistic details of metal hydride reaction of ester to alcohol. **4**

f) Explain hydroboration of alkene in detail. **4**

2. a) What is molecular rearrangement? Discuss mechanistic details of pinacol-pinacolone rearrangement. **8**

b) What are free radicals? How are they generated? Discuss free radical substitution mechanism at an aromatic substrate. **8**

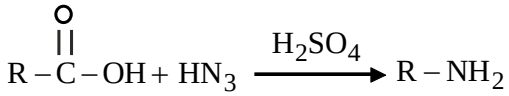
OR

c) State the mechanistic details of Beckmman rearrangement. **4**

d) Explain neighbouring group assistance with example. **4**

e) Discuss reactivity at a bridgehead and in the attacking radical in free radical reaction. **4**

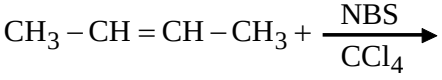
f) Provide the mechanism and name for following reaction. **4**



3. a) What is E_1 elimination? What is the effect of substrate structure, leaving group and medium on E_2 elimination? **8**

b) i) Explain the working condition and requirement of Fenton's reagent in chemical synthesis. **8**

ii) Outline the mechanism of the following reaction



OR

c) Write a note on autoxidation. **4**

d) Discuss the coupling of aromatic comounds by diazonium salt. **4**

e) Discuss E_1cB mechanism with suitable example. **4**

f) Explain the mechanism and orientation in pyrolytic elimination reaction. **4**

4. a) Differentiate multicomponent reaction with conventional non multicomponent reaction path. **8**

b) Define Green chemistry. Discuss basic principles of green chemistry. **8**

OR

c) Write a short note on following **4**
i) Microwave induced reaction

d) Explain Biocatalysts in organic synthesis. **4**

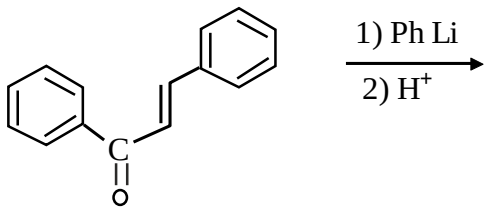
e) Explain the education and need of green chemistry. **4**

f) Discuss green synthesis of Ibuprofen. **4**

5. Each question carries 2 marks.

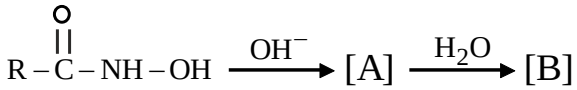
a) Give the mechanism for the hydrolysis of an amide. **2**

b) Predict the product.



c) What are different types of free radical reactions. **2**

d) Complete and name the following reaction. **2**



e) State Saytzeff rule with example. **2**

f) What is Reed reaction? **2**

g) Write green synthesis of Styrene. **2**

h) What is nanochemistry? Give the applications of nanotube. **2**

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