M.Sc. 4th Semester Examination, 2021

CHEMISTRY

(Organic Chemistry Special Practical)

Paper : CHEM 405E(PR)

Course Id : 41465

Time: 2 hours **Full Marks: 40**

The figures in the margin indicate full marks

Candidates are required to give their answers in their own words as far as practicable

Answer *any four* of the following questions: 10×4 = 40

1. How will you synthesize coumarin in the laboratory? Name the chemicals and apparatus required for its synthesis. Give a plausible mechanism of the reaction involved. 3+(2+2)+3 = 10

2. Describe the laboratory method for the synthesis of β-hydroxynaphthaldehyde. Write the name of the reaction. Write down the chemicals and apparatus required for its synthesis. Propose a plausible mechanism of the reaction involved. Draw the structure of electron deficient reaction intermediate formed in this reaction. 2+1+(2+2)+2+1 = 10

3. Write the method for the preparation 1,4-ditertiarybutyl benzene involving Friedel-Crafts reaction. Why is anhydrous aluminium chloride used? Mention the chemicals and apparatus required for its synthesis. Give a plausible mechanism of the reaction involved. Does phenol undergo Friedel-Crafts reaction? 2+1+(2+2)+2+1 = 10

4. Describe the laboratory method for the synthesis of *p*-acetamidobenzene sulphonyl chloride. Why dry acetanilide is used? Name the chemicals and apparatus required for its synthesis. Draw a plausible mechanism involved in the reaction. 2+1+(2+2)+3 = 10

Please Turn Over

5. How will you synthesize benzanilide from benzophenone oxime in the laboratory? Write the name of the reaction. Mention the chemicals and apparatus required for its synthesis. Give a probable mechanism of the reaction. 2+1+(2+2)+3 = 10

6. Describe the synthesis of phenylazo-β-naphthol in the laboratory. Write the name of the reaction. Name the chemicals and apparatus required for its synthesis. Propose a viable mechanism of the reaction involved. Why is reaction temperature maintained at 0-5 ^{o}C? 2+1+(2+2)+2+1 = 10