Gurudas College

Department of Chemistry

Internal Assessment Examination-2021

SEM-III

Paper: CEMA-CC-3-7

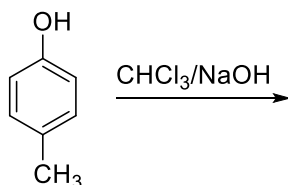Time: 30 Minutes   Full Marks: 10

Answer any five questions: 5×2=10

1. How can you convert HCHO to methyl formate in a one-step reaction?

2. Why does *p*-nitrobenzaldehyde fails to undergo benzoin condensation?

3. Explain the following: Both $PhCH_2COCH_2Cl$ and $PhCHCl–COCH_3$ form $PhCH_2CH_2CO_2H$ when treated with $^{(-)}OH$ followed by acidification.

4. Reaction between PhCHO and $H_3C-\overset{O}{\underset{||}{C}}-CH_2CH_3$ gives $PhCH=CH-\overset{O}{\underset{||}{C}}-CH_2CH_3$ in base and $PhCH=C(CH_3)COCH_3$ in acid. Give mechanistic explanation.

5. The reaction of Me_3CMgCl and $Me_3CCOCMe_3$ after hydrolysis gives a gas (C) and a 2°-alcohol (D); rather than expected tri-*t*-butylcarbinol. Provide structures for (C) and (D) and account for their formation.

6. Give the product (s) of the following reaction.

7. How can you prepare acetophenone from benzene by Friedel Craft reaction, explain the mechanism of the reaction?

8. Synthesize salicylic acid using Kolbe-Schmidt reaction. Draw the mechanism of the formation of the product.