

5210

**B. Sc. EXAMINATION**

(For Batch 2013 & Onwards)

(Third Semester)

CHEMISTRY

Tenth Paper (CH-203)

Organic Chemistry

Three Hours

Maximum Marks : 27

: Attempt *Five* questions in all, selecting at least *two* questions from Sections A and B. The Question No. 1 is compulsory.

- a) Explain the type of hydrogen bonding in ethylene glycol.
- b) Compare the acid strength of alcohols and phenols.
- c) Differentiate between the acid and base-catalysed opening of epoxides (no details).

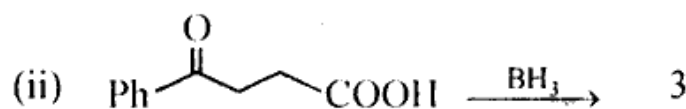
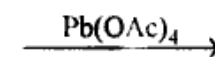
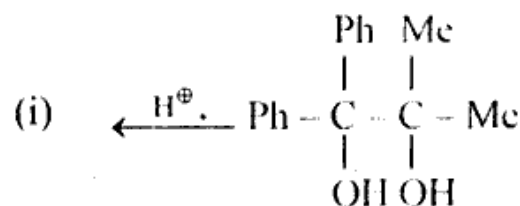
B-5210

P.T.O.

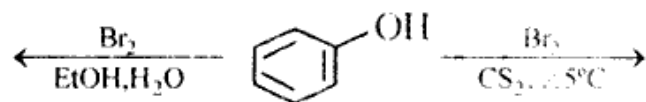
- (d) How aldehydes are oxidized to carboxylic acid ?
- (e) Define and explain bathochromic shift.
- (f) What is Beer-Lambert law ?
- (g) Differentiate between Aldol reaction and Aldol condensation. 7×1=7

**Section A**

- 2. (a) How carboxylic acid and ester react with borane and lithium aluminium hydride ? Justify your answer. 2
- (b) Write the product(s) and mechanism of the following reactions :



3. (a) Write the product(s) and mechanism of the following reaction : 2

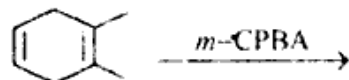


- (b) (i) What happens when salicylic acid is reacted with acetic anhydride in presence of acid followed by treatment with  $\text{AlCl}_3$  ? Discuss its mechanism also.

- (ii) Write the reaction product(s) between resorcinol and chloroform in presence of sodium hydroxide.

3

4. (a) Write the product(s) and justify its/their formation in the following reaction : 2

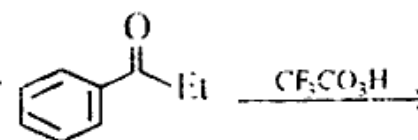


- (b) How symmetrical and unsymmetrical epoxides react with Grignard reagent and Organolithium reagent ? 3

5. (a) Discuss and compare the reactivity of alcohols towards chromium trioxide, PCC and PDC. 2

- (b) Describe the acid-catalysed and base-catalysed aldol reaction, and explain the difference in mechanism. 3

6. (a) Write the product(s) and mechanism of the following reaction : 2



- (b) Explain, in detail, the synthesis of cis- and trans-alkenes in Wittig reaction. 3

7. (a) Discuss different types of electronic transition in UV spectroscopy of ketone and effect of conjugation on wavelength. 2

- (b) Calculate  $\lambda_{\text{max}}$  of the following molecules : 3

