

BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: IMSC
BRANCH: CHEMISTRY

SEMESTER : V
SESSION : MO/19

SUBJECT: IMC5005 ORGANIC CHEMISTRY-II

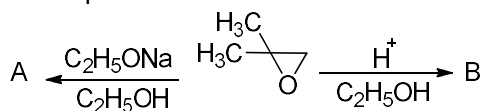
TIME: 3 HOURS

FULL MARKS: 60

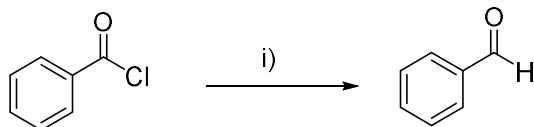
INSTRUCTIONS:

1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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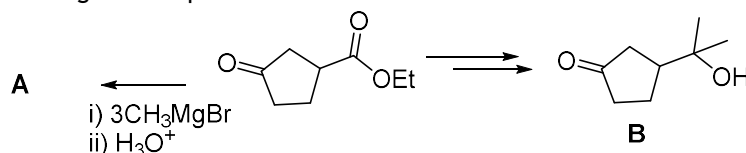
- Q.1(a) In Williamson ether synthesis, why primary alkyl halides are preferred? [2]
 Q.1(b) What are the product(s) formed from acid catalyzed condensation of *t*-butanol? Justify your answer. [4]
 Q.1(c) Write the structures of A & B formed by the following ring opening reaction of epoxide and describe the stepwise mechanism for their formation. [6]



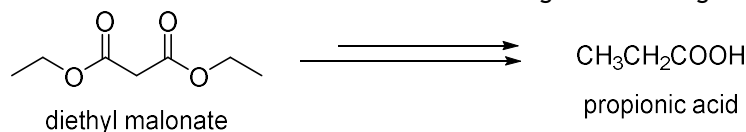
- Q.2(a) What will be the suitable reagent for the following conversion? [2]



- Q.2(b) Draw a reaction mechanism (only one) for Clemmensen Reduction. [4]
 Q.2(c) Identify the product A (write the structure only). Write the reagent and condition to get the product B along with stepwise mechanism of the reaction. [6]

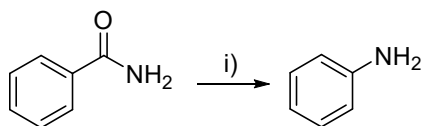


- Q.3(a) Write the product obtained from thermal decarboxylation of α -methyl malonic acid. [2]
 Q.3(b) Draw the reaction mechanism with suitable reagents including steps for the following conversion [4]



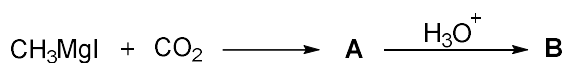
- Q.3(c) Discuss about nucleophilic acyl substitution reaction. Draw the reaction mechanism of acyl halides (CH_3COCl) with methanol to form an ester. [6]

- Q.4(a) Identify the reagent and condition required for the following reaction. [2]

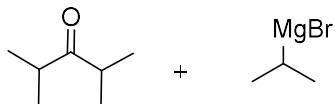


- Q.4(b) Demonstrate the synthesis of allyl amine using Gabriel-Phthalamide reaction. [4]
 Q.4(c) Write the mechanism of reductive amination using acetaldehyde and ammonia starting material. [6]

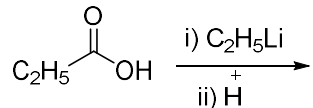
- Q.5(a) Write the structure of A and B. [2]



Q.5(b) Write the product(s) and stepwise mechanism of the following reaction. [4]

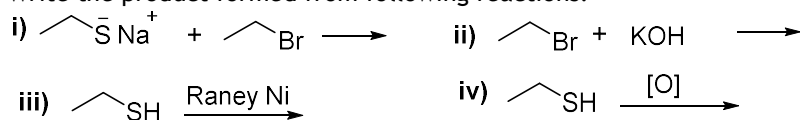


Write the stepwise mechanism of the following reaction. [6]



Q.6(a) Explain why thiols are stronger acid than alcohols. [2]

Q.6(b) Write the product formed from following reactions. [4]



Q.6(c) What is the use of saccharin? Discuss one of the methods for its synthesis. [6]

Q.7(a) Which one of the following forms Zwitterion? [2]

i) Sulphonamide ii) Dichloramine-T iii) Sulphanilic acid iv) Chloramine-T

Q.7(b) Draw the mechanism including reagents for α -bromination of propanoic acid through Hell-Volhard-Zelinsky Reaction. [4]

Q.7(c) Discuss the mechanism of Baeyer-Villigaer oxidation. [6]

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