

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

CLASS: IMSc
BRANCH: CHEMISTRY

SEMESTER : V
SESSION : MO/18

SUBJECT: IMC5005 ORGANIC CHEMISTRY II

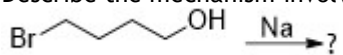
TIME: 3.00 HOURS

FULL MARKS: 60

INSTRUCTIONS:

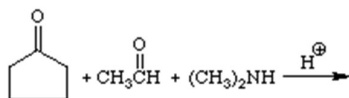
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
 2. Candidates may attempt any 5 questions maximum of 60 marks.
 3. The missing data, if any, may be assumed suitably.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
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- Q.1(a) What are the merits and demerits of acid-catalyzed condensation of alcohols? [2]
Q.1(b) Describe the mechanism involved in the following reaction. [4]



- Q.1(c) Discuss Alkoxymercuration-Demercuration reaction along with its mechanism. [6]
- Q.2(a) Arrange alkyl halides in order of their reactivity for the preparation of Grignard reagent and explain. [2]
Q.2(b) Discuss the mechanism involved in the formation of Grignard reagent and the probable structures of Grignard reagent. [4]
Q.2(c) Discuss the reaction of Grignard reagent with aldehyde and ketone along with reaction mechanism. [6]
- Q.3(a) What is mustard gas? [2]
Q.3(b) How death occurs, when a person comes in contact with mustard gas? [4]
Q.3(c) Discuss the reactions of thiols with aldehyde and ketones. [6]

- Q.4(a) Write short note on Perkin condensations. [2]
Q.4(b) Describe Wittig reaction and write the important synthetic use of the reaction. [4]
Q.4(c) How does haloform obtain from acetone in base catalysed reaction? Show the mechanism of the following process; [6]



- Q.5(a) Describe Dieckmann condensation to synthesize five- or six-membered ring. [2]
Q.5(b) Ester and amide give different product on reduction by LiAlH_4 - Explain the statement with the help of mechanism. [4]
Q.5(c) Discuss the mechanism of nucleophilic acyl substitution. Hence correlate the interconversion of acid derivatives with their order of reactivity. [6]
- Q.6(a) What are the disadvantages of Hofmann's amine synthesis method? [2]
Q.6(b) Describe procedure with mechanism to synthesize primary amine only. [4]
Q.6(c) Explain the mechanisms of nucleophilic substitution in nitroarenes with example. Direct bromination of aniline is avoided to prepare bromoaniline-Why? Write the steps for synthesis of o/p-bromoaniline from aniline. [6]
- Q.7(a) What happen when 2-hydroxy propanoic acid treated with acid? [2]
Q.7(b) Describe Baeyer-Villiger oxidation reaction. [4]
Q.7(c) Write short note on Oxidation of alkylamines. [6]

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