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

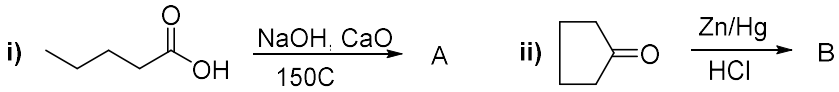
CLASS: IMSC **SEMESTER : V**
BRANCH: CHEMISTRY **SESSION : MO/19**

SUBJECT: IMC5003 ORGANIC CHEMISTRY-I

TIME: 3 HOURS **FULL MARKS: 60**

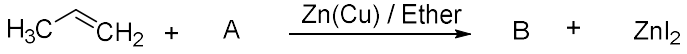
INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a) Draw the structure of A and B. [2]



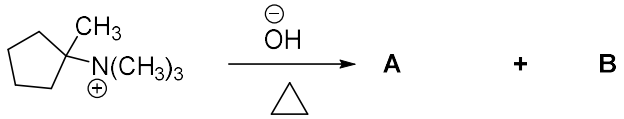
Q.1(b) Discuss Baeyer strain theory. [4]

Q.1(c) Draw the structure of A and B with possible mechanism of Simon-Smith cyclopropanation. [6]



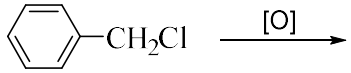
Q.2(a) Write down the products obtained from the reaction of HBr with 1,3-Butadiene and discuss the regioselectivity. [2]

Q.2(b) Discuss the ß-elimination reaction, explain the fact about major (A) and minor (B) product formation with mechanistic details as per following reaction [4]

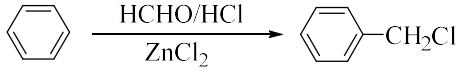


Q.2(c) Discuss the mechanisms of Oxymercuration-Reduction for the hydration of propene. [6]

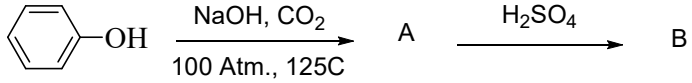
Q.3(a) Write the product obtained from the following reaction. [2]



Q.3(b) Show the mechanism for the following conversion. [4]

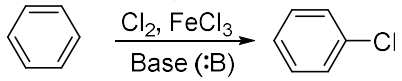


Q.3(c) Write the structure of A and B. Discuss the mechanism for formation of A. [6]

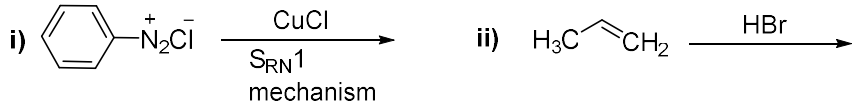


Q.4(a) Discuss the mechanism of S_N2 reaction with suitable example. [2]

Q.4(b) Write down stepwise mechanism for the following reaction. [4]



Q.4(c) Describe the stepwise mechanism involved in the following aromatic nucleophilic substitution reactions. [6]



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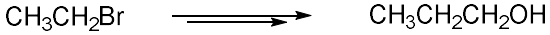
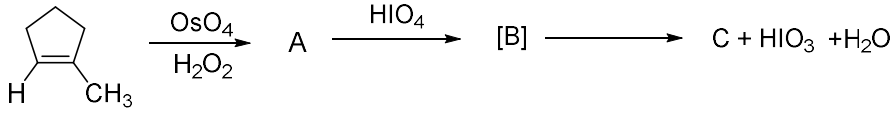
Q.5(a) Complete the conversion with reagents and intermediate. [2]

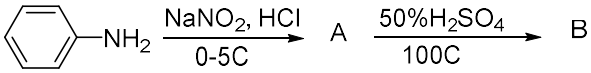


Q.5(b) Draw and discuss the pinacol-pinacolone rearrangement with mechanism. [4]

Q.5(c) Identify the product A, intermediate B, & final product C. Explain the steps with mechanism. [6]

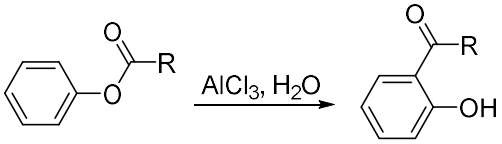


Q.6(a) Write the structure of A and B. [2]

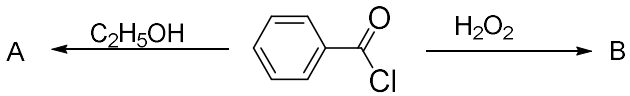


Q.6(b) Discuss acidic character of phenol. [4]

Q.6(c) Write the stepwise mechanism of following Fries rearrangement reaction. [6]

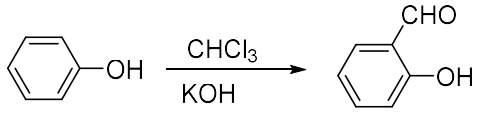


Q.7(a) Write the structure of A and B. [2]



Q.7(b) Write the stepwise mechanism of Lederer-Manasse reaction with a suitable example. [4]

Q.7(c) Write the stepwise mechanism of following Reimer-Tiemann reaction. [6]



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