

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

CLASS: BTECH
BRANCH: CHEM. ENGG.

SEMESTER: III
SESSION : MO/2019

SUBJECT : CL206 CHEMICAL PRINCIPLES FOR CHEMICAL ENGINEERS

TIME: 2.00 HOURS

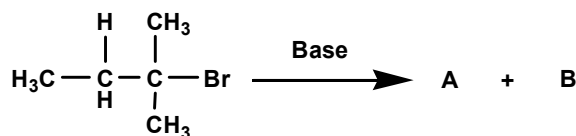
FULL MARKS: 25

INSTRUCTIONS:

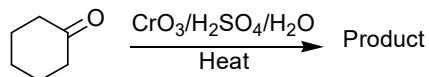
1. The total marks of the questions are 25.
2. Candidates may attempt for all 25 marks.
3. Before attempting the question paper, be sure that you have got the correct question paper.
4. The missing data, if any, may be assumed suitably.

- Q1 (a) Write down the mechanisms of S_N1 and S_N2 reactions. [2]
Q1 (b) How the reaction medium affect the yield of the target product? Give example. [3]

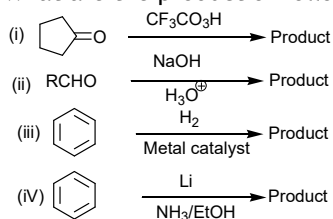
- Q2 (a) How nature of the substrate influence the rate of the S_N2 reaction? Give example. [2]
Q2 (b) Write down the major (A) and minor (B) product with proper justifications of the following reaction: [3]



- Q3 (a) Write down the product of the following reaction: [2]



- Q3 (b) What are the product of following reactions: [3]



- Q4 (a) What do you mean by microstate and microstate of the system? If there are six molecules in a box, then calculate the number of microstate, microstate, and probability. [2]
Q4 (b) Derive the equation representing the relation between entropy and probability. [3]

- Q5 (a) State the equipartition theorem. [2]
Q5 (b) Compute the pressure exerted by gas of photons. [3]