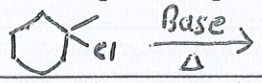
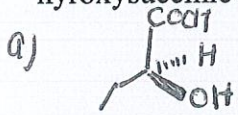
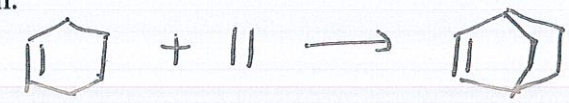
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- 2024
B.Tech-II Semester (BT&BI)

COURSE CODE (CREDITS): 18B11BT314 (3) MAX. MARKS: 25
COURSE NAME: GENERAL CHEMISTRY
COURSE INSTRUCTORS: Dr. Gopal Singh Bisht MAX. TIME: 1 Hour 30 Minutes

Note: *(a) All questions are compulsory.*
(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q.No	Question	CO	Marks
Q1	a) Compare and contrast the reaction mechanisms of E1, EI_{CB} and E2 elimination reactions. b) Predict all possible products and justify your prediction. 	COIII COIII	3 2
Q2	Design an experiment to determine whether a given nucleophilic substitution reaction follows an S_N1 or S_N2 mechanism. Assess the steps, variables to control, and the expected outcomes that would indicate the mechanism.	CO III	4
Q3	Design a synthetic route to prepare primary, secondary and tertiary alcohol using appropriate Grignard reagent. Explain with labeled reactions.	COIII	3
Q4	a) Apply the CIP rule to determine the configuration of the 2-hyroxysuccinic acid as given below.  b) Differentiate Sawhorse, Newman and Flying wedge projection of organic molecule by taking suitable examples. c) Design a step-by-step procedure for resolving a racemic mixture of compound X using appropriate chiral reagent. d) Evaluate the relative stabilities of the different conformations of n-butane using conformational analysis, and explain how these conformations influence the molecule's overall energy profile.	CO II CO II CO II	1 2 2 3
Q5	a) Explain principle of mass spectrometer in brief. b) Consider the following reaction. Predict whether an increase in temperature will favor reactants or products. Justify your prediction.  c) Which of the following compounds is aromatic based on Hückel's rule? Explain your reasoning. 	CO1 CO1 CO1	1 2 2