

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
 TEST -2 EXAMINATIONS-2022
 B.Tech-III Semester (BT)

COURSE CODE (CREDITS): 18B11BT314(3)

MAX. MARKS: 25

COURSE NAME: GENERAL CHEMISTRY

COURSE INSTRUCTORS: DR. GOPAL SINGH BISHT

MAX. TIME: 1 Hour and 30 Minutes

Note: All questions are compulsory. Marks are indicated against each question in square brackets. This question paper contains two pages.

Q1. Answer the following questions. [10]

[COIII]

1.) Consider the following reactions. [4] [4]

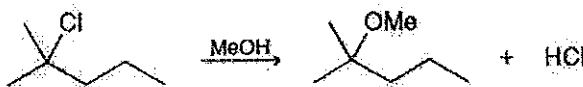


- What happens when conc. of sodium cyanide is doubled in the above reaction
- Importance of DMSO in reaction
- Determine whether the above reaction will proceed via S_N1 or S_N2 .
- Draw energy diagram of reaction.

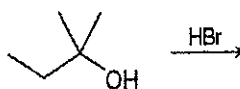
2.) Arrange following Carbocation according to their increasing stability. Justify your answer. [2]



3) Draw the steps wise mechanism of following reactions. [2]



4) Predict the all possible products in following reactions. (explain with appropriate arrows) [2]

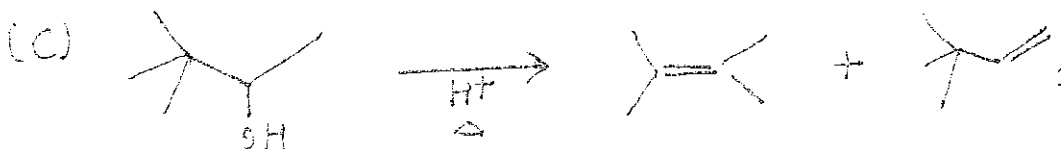
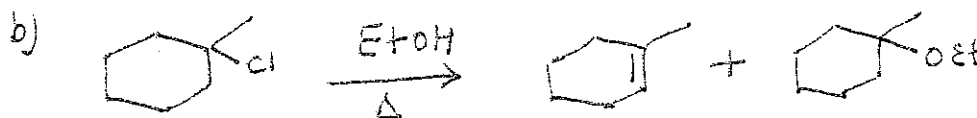
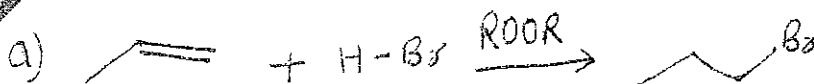


Q2. What is the molar conc. of K^+ in a solution that contains 126.6 ppm of $K_3Fe(CN)_6$. (329.3 g/mol) (Assume density 1.00 g/ml). [2]

[COV]

Q3. Justify and explain mechanism of product formation in the following reaction. [6]

[COIII]



Q4. Answer the following questions briefly. [5]

[CO V]

- a) Why reactivity of anion is higher in polar aprotic solvent?
- b) How Nucleophilicity is different from Basicity?
- c) How polarizability effect Nucleophilicity?
- d) What are the factors that affect stability of conjugate base formed in acid base reactions?
- e) How presence of acidic hydrogen helps in E1cb Mechanism

Q5. Explain industrial synthesis of a) Ethanoic acid b) Phenol [2]

[COIII]

12 Examinations October 2022