

Dr. Gopal Bisht

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -2 EXAMINATION- March 2018
B.Tech IInd Semester

COURSE CODE: 14B11BT211
COURSE NAME: GENRAL CHEMISTRY
COURSE CREDITS: 4

MAX. MARKS: 25
MAX. TIME: 1.5 Hr

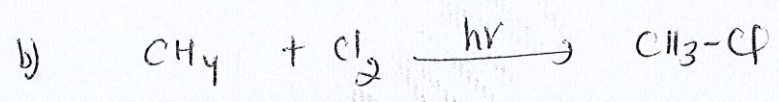
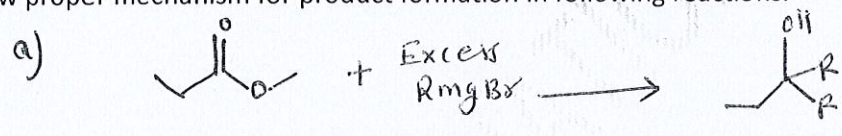
Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means. Use of calculator is allowed

Q1. Answer the followings questions.

- a) Calculate the number of H⁺ present in 1 ml of solution whose pH is 12. [1]
- b) How much of 0.5N KOH must be mixed with 650 ml of KOH (0.3 N) to prepare new solution of 0.7N? [1.5]
- c) A solution of ethanol in water is 10% by volume. If the solution and pure ethanol have densities of 0.9866 g/cc and 0.785g/cc respectively. Find % by weight. [1]
- d) What product form when 2-methylpropene reacts with HBr? Why different product obtained when the same reaction is carried out in presence of peroxide? [1.5]
- e) Explain the concept of resonance with example. What are the rules for writing resonating structures? [1.5]
- f) Explain stepwise mechanism of electrophilic aromatic substitution. [1.5]

Q2. a) Compare S_N1 & S_N2 pathway for nucleophilic substitution reaction with respect to stereo chemical outcome, kinetics and rate determining steps. Explain each of above by taking suitable example. [3]

b) Draw proper mechanism for product formation in following reactions. [4]



3) Answer/ explain the following questions. [2x5=10]

- a) Methods for separation of enantiomers
- b) Stereospecific, Stereoselective and chemoselective reactions
- c) Criteria for aromaticity with suitable example of aromatic, antiaromatic and non aromatic compounds
- d) Mechanism of elimination reactions
- e) Kinetic and thermodynamic product formation