

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
 END SEMESTER EXAMINATION-2015
 B.Tech II Semester

COURSE CODE: 14B11BT211
 COURSE NAME: GENERAL CHEMISTRY
 COURSE CREDITS: 04

MAX. MARKS: 45

MAX. TIME: 3 HRS

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

Section A

Q1. Answer the following questions.

- I. Which Solvent would be more appropriate for extracting fatty acids from plant tissue? [1 x 9=9]
- II. How many peptide bonds are present in pentapeptide?
- III. A sample of pure liquid in a 10-cm tube is placed in a polarimeter and a reading of $+60^\circ$. How could you establish that $[\alpha]$ is really $+60^\circ$ and not -300° .
- IV. Explain regioselective reaction.
- V. Why dipole of CCl_4 is zero.
- VI. In quite alkaline solution, an amino acid contains two basic groups- NH_2 and $-\text{COO}^-$. Which is the more basic?
- VII. Draw a chair form of α -D-Glucose.
- VIII. What product forms when ethylene epoxide reacts with methyl magnesium bromide?
- IX. Draw the structure of bicyclo[2.2.1]heptane.

Section B

Q2. Write short notes on followings. (any two) [5]

- a) The Wittig reaction
- b) Reductive amination
- c) Utility of benzene diazonium salt in organic synthesis

Q3. a) Show how you would use a Grignard reaction to prepare the following compound. [2]



b) Explain Mutarotation. [2]

Q4. a) Show all steps in the synthesis of Phe-Ala using the *tert*-butyloxycarbonyl (Boc) group as protecting group. [2.5]

b) How lipids are classified? Give structure of any two lipids. [2]

Section C

Q5. Answer the following questions.

- a) What happens when 2-pentyne reacts with a) H_2 Lindlar's catalyst
 c) $\text{Na}, \text{NH}_3(l)$

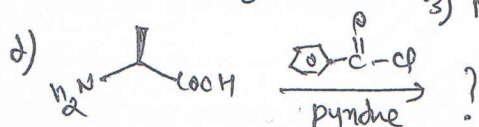
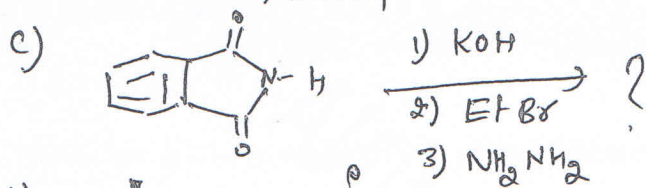
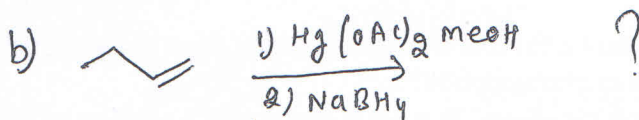
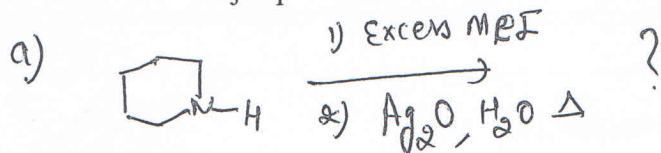
b) H_2, Pt

[3]

- b) How N-terminal residue analysis of peptides is carried out. Explain any one method. [2.5]
 c) Write structure of benzyl acetate. Starting with benzene and using any other reagents of your choice design an efficient synthesis for benzyl acetate. [2]

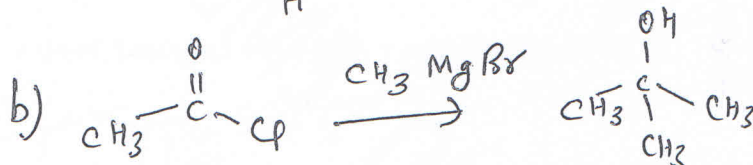
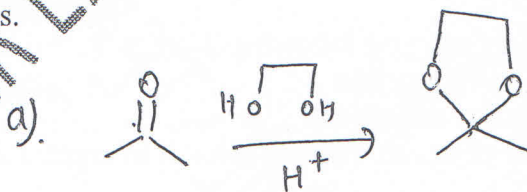
Q6. Answer the following questions.

a. Predict the major products. [5]



b. Give any two methods for synthesis of carboxylic acid. [2.5]

Q7. a) Write mechanism of following reactions. [4.5]



b) Write short notes on Bayer's strain theory. [1.5]

c) How carbohydrates are classified? Write structure of any one reducing sugar. [1.5]