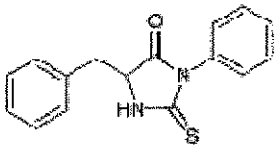
JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT
TEST -3 EXAMINATION May-2018
B Tech IIND Semester

COURSE CODE: 14B11BT211 MAX. MARKS: 35
COURSE NAME: General Chemistry
COURSE CREDITS: 4 MAX. TIME: 2 Hrs

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 following questions. [1x6=6] [CO III]

a) How it could be decided whether and observed dextrorotation of +60^0 is not actually a laevorotation of -300^0 ?
b) Propose any structures for a tripeptide that contains glycine, l-alanine, and l phenylalanine but does not react with phenyl isothiocyanate.
c) Identify the N-terminal residue of a peptide that yields the following PTH derivative upon Edman degradation:



d) The tetrapeptide Val-Lys-Ala-Phe is cleaved into two fragments upon treatment with trypsin. Identify the sequence of a tetrapeptide that will produce the same two fragments when treated with chymotrypsin.
e) Give name of any one radical initiator and radical quencher.
f) How lipids are classified?

Q2. Explain/ answer the following questions. [2x6=12] [CO V]

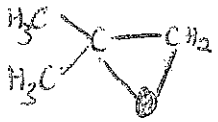
a) Draw the structure of various types of crown ethers. What is their synthetic utility?
b) Draw all the possible stereoisomers of 2-chloro-4-bromopentane.
c) How will you separate a mixture of Phenol, benzoic acid and aniline?
d) Draw the structure of bicyclo [2.2.2]octane and 1,3, 5 triazole.
e) When hydrogen bonding formed? Illustrate with examples the effect of hydrogen bonding on boiling point of organic compounds.
f) Show all steps necessary to make the dipeptide Phe-Ala from L-phenyl Alanine and L-alanine.

Q3. Answer the following questions. [3x4=12] [CO IV]

a) How amino acids are classified? Draw structure of L-leucine and Assign R/S configuration to it. Why properties of proteins are majorly determined by its side chain?
b) What happens when d-glucose reacts with (a) Sodium borohydride ($NaBH_4$) (b) Excess acetic anyhydride (c) Hydrogen cyanide? Write complete reactions.
c) Explain briefly double helical structure of DNA.
d) Explain step by step free radical mechanism of polymerization

Q4.a) Write Short notes on a) Mutarotation b) Phospholipids [3] [CO IV]

b) Outline mechanism to account for the different isomers formed from the reaction of



with CH_3OH in acidic (H^+) and in basic (CH_3O^-) media. [2] [CO I]