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JAYPEE UNIVERSITY OF INFORMATION TECNOLOGY, WAKNAGHAT
T-3 EXAMINATION (JUNE 2016)
B.Tech. 2nd Sem. (BT)

COURSE CODE: 14B11BT211 Max Marks: 35
COURSE NAME: General Chemistry Max Time: 2 Hrs
COURSE CREDITS: 4

Note: Attempt all parts of a question at one place. All questions are compulsory. Carrying mobile phone during examinations will be treated as case of unfair means.

Q1. Answer the following the questions. (Any Ten) [1x10=10]

a) How many stereoisomer of D-fructose are possible?
b) Which reagent is used for breaking disulphide bond in peptides? Name any one.
c) Draw bond line structure of Asp-Glu.
d) Why 99% of the cyclohexane molecules are estimated to be in the chair form at any given moment?
e) Draw the predominate form of Lysine at pH=12.
f) Draw the structure of Bicyclo[3.2.1]octane
g) Of the twenty amino acid which amino acid has pK_a around neutrality?
h) Draw the structure of β-d glucose.
i) What is the difference between absolute configuration and relative configuration?
j) A sample of pure liquid in a 10 cm tube is placed in a polarimeter and a reading of + 45° is made. How could you establish that rotation is + 45° not - 135°.
k) Convert a 0.0045 molar solution of a chemical having formulae weight 178.7 to a % solution.

Q2. Explain/answer the followings. (Any five) [2x5=10]

a) How to do systematic nomenclature of steroid? Explain with suitable example.
b) What happens when α-d glucose reacts with methanol in presence of hydrochloric acid? Explain.
c) Stereospecific and Stereoselective reaction
d) Write the structure of Grignard reagent and the substrate that would react to yield 1-pentyn-3-ol.
e) Hydrogen bonding between adenine and thymine (Watson –crick base pairing)
f) Constituent amino acids of a nonapeptide are 2R, G, 2F, 3P, S. The use of 2, 4 DNFB and carboxypeptidase show both terminal residues are arginine. Partial hydrolysis of peptides gives the following di and tri peptides FS+PGF+PP+SPF+FR+RP. What is the amino acid sequence of peptides?

Q3. Write short notes on followings. [2.5 x 3 =7.5]

a) Phospholipids and cell membranes
b) Mutarotation
c) Mechanism for eliminations reactions

Q4. Explain followings.(Any Three) [2.5 x 3 =7.5]

a) Double helical structure of DNA
b) Edmann degradation method for protein sequencing
c) Laboratory synthesis of oligonucleotides
d) Synthesis of Phenylalanine using Strecker synthesis (step wise)