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Total Number of Pages: 2

B.TECH
PCBT4201

3rd Semester Regular / Back Examination 2015-16
BIOCHEMISTRY

Branch: Biotechnology

Time: 3 Hours

Max Marks: 70

Q.CODE: T686

Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

Q1 Answer the following questions: **(2 x 10)**

- a) What is protein turn over?
- b) Write the examples of two coenzymes?
- c) Define gluconeogenesis?
- d) Write the importance of water soluble vitamins?
- e) What is “all or none” process of protein folding?
- f) What is the end product of β oxidation of fatty acid?
- g) Draw the structure of Cholesterol?
- h) Define optical isomerism?
- i) Write the name of two acidic amino acids?
- j) Define isoelectric point. If cysteine has P^{ka} (α COOH), P^{ka} (α NH_3^+) and P^{ka} R (side chain) values 1.7, 10.8 and 8.3 respectively, calculate its isoelectric point?

Q2 a) Write the Michaelis-Menten equation? What is the significance of K_m value? **(8)**

b) How do competitive inhibitors differ from non-competitive inhibitors in their action? **(2)**

- Q3** a) How the tertiary structure of protein is stabilized? How the tertiary structure is differing from quaternary structure? (5)
- b) What is hypochromic effect of DNA? Write its significance? (5)
- Q4** Write down the reaction steps of glycolysis along with the enzymes catalyzing the reactions? Calculate the ATP Yielding from complete oxidation of glucose? (10)
- Q5** a) What do you mean by genetic code? Write the features of genetic code? (5)
- b) What is Ramachandan Plot? Mark the most disfavored area in the plot? (5)
- Q6** a) Write the steps of biosynthesis of serine? (5)
- b) Write the *De Novo* synthesis of pyrimidine ring structure in cell? (5)
- Q7** a) Write the structure of ATP? Explain how ATP is served as energy currency in cell? (5)
- b) Write down the steps of HMP pathways? (5)
- Q8** Write short notes on any two: (5 x 2)
- a) Peptide bond
- b) Transcription
- c) Histone
- d) Biological oxidation