Registration no: | | | | | | | | | | |

Total Number of Pages: 02 **B.Tech**
PCBT4201

3rd Semester Back Examination 2016-17
BIOCHEMISTRY
BRANCH: BIOTECH
Time: 3 Hours
Max Marks: 70
Q.CODE: Y483

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) Write one letter symbols for following amino acids i) Threonine ii) Phenylalanine iii) Glutamine iv) Lysine
b) What is CA cycle?
c) Differentiate between endocrine and paracrine hormones.
d) Diffrentiate between transition state and reaction intermediate.
e) What is NAD? Write its application in biological reactions.
f) What is prosthetic group?
g) What will be the standard free energy change of a reaction with equilibrium constant 4 at temperature 27^{o}C? Gas constant = 8.3J/K.Mol.
h) What do you mean by T_m of DNA?
i) What do you mean by energy coupling in biological reactions?
j) What is α oxidation of fatty acids?

Q2 Derive Michaelis-Menten's equation for enzyme substrate catalysis. Explain the constants and their importance. **(10)**

Q3 **a)** Classify the living organisms according to their energy and carbon sources. **(5)**

b) Explain Kreb's cycle with proper diagram. **(5)**

Q4 **a)** Differentiate between de novo and salvage pathway of nucleotide synthesis. **(5)**

b) Explain the structural classification of polysaccharides. **(5)**

Q5 **a)** Explain oxidative phosphorylation with proper diagram. **(5)**

b) Explain the structure of DNA. Differentiate between B and Z forms of DNA structure. **(5)**

Q6 **a)** How enzyme catalyses the reaction with lower energy than the normal reaction? Explain with proper diagram. **(5)**

b) What is gluconeogenesis? Explain the importance in biological systems. **(5)**

Q7 Explain beta pathways of fatty acid oxidation. How is it different from alpha, omega pathways? **(10)**

Q8 **Write short answer on any TWO:** **(5 x 2)**

a) tRNA structure
b) Co-factor
c) Equilibrium constant
d) Competitive inhibition