Registration No: | | | | | | | | | | |

Total Number of Pages: 02

B.TECH
PBT3I101

3rd Semester Regular Examination 2016-17
BIOCHEMISTRY
BRANCH: BIOTECH
Time: 3 Hours
Max Marks: 100
Q.CODE: Y526

Answer Part-A which is compulsory and any four from Part-B.
The figures in the right hand margin indicate marks.

Part – A (Answer all the questions)

Q1 **Answer the following questions: *multiple type or dash fill up type*** **(2 x 10)**

a) Keratan sulphate is found in abundance in (A) Heart muscle (B) Liver (C) Adrenal cortex (D) Cornea

b) Invert sugar is (A) Lactose (B) Sucrose (C) Hydrolytic products of sucrose (D) Fructose

c) Specific gravity of urine increases in (A) Diabetes mellitus (B) Chronic glomerulonephritis (C) Compulsive polydypsia (D) Hypercalcemia

d) The number of isomers of glucose is (A) 4 (B) 8 (C) 12 (D) 16

e) Pyruvate dehydrogenase complex and α-ketoglutarate dehydrogenase complex require the following for their oxidative decarboxylation: (A) COASH and Lipoic acid (B) NAD+ and FAD (C) COASH and TPP (D) COASH, TPP,NAD+,FAD, Lipoate

f) The following is an enzyme required for glycolysis: (A) Pyruvate kinase (B) Pyruvate carboxylase (C) Glucose-6-phosphatose (D) Glycerokinase

g) Pentose production is increased in (A) HMP shunt (B) Uromic acid pathway (C) EM pathway (D) TCA cycle

h) Gluconeogenesis is increased in the following condition: (A) Diabetes insipidus (B) Diabetes Mellitus (C) Hypothyroidism (D) Liver diseases

i) In Lineweaver-Burk plot, the y-intercept represents (A) Vmax (B) Km (C) Km (D) 1/Km

j) In competitive inhibition, the inhibitor (A) Competes with the enzyme (B) Irreversibly binds with the enzyme (C) Binds with the substrate (D) Competes with the substrate

Q2 **Answer the following questions: *Short answer type*** **(2 x 10)**

a) Draw the structure of glucose.

b) Saturated lipids are solid where as unsaturated are liquids-Explain.

c) Differentiate between reaction intermediate and transition state.

d) What do you mean by T_m of DNA?

e) Differentiate between de novo and salvage pathway of nucleotide synthesis.

f) What do you mean by energy coupling in biological reactions?

g) What is prosthetic group?
h) Name the chemical name of vitamin D.
i) Define K_m
j) What is CA cycle?

Part – B (Answer any four questions)

Q3 **a)** Explain the process of photpphosphorylation with proper diagram. **(10)**
b) Explain structural classification of polysaccharides. **(5)**

Q4 **a)** Explain different types of enzyme inhibition with their kinetics. **(10)**
b) Explain Ramachandran plot. **(5)**

Q5 **a)** Explain photo phosphyrylation with proper diagram. **(10)**
b) Explain precursors of various amino acids in their synthesis. **(5)**

Q6 **a)** Explain dark reaction with diagram. **(10)**
b) Explain the titration curve of glycine. **(5)**

Q7 **a)** Explain levels of protein structure. **(10)**
b) Explain mechanism of enzyme action. **(5)**

Q8 **a)** Explain glycolysis. How many ATP will be formed from complete oxidation of one glucose molecule. **(10)**
b) Explain the structure of RNA. **(5)**

Q9 **a)** Explain Beta oxidation of lipids. How it is different from alpha oxidation. **(10)**
b) Explain mechanism of energy transfer from ATP. **(5)**