B.E. / B.TECH. Degree Examination, DEC 2020

Second Semester

BT16201–BIOCHEMISTRY

(Regulation 2016)

Time: Three Hours **Maximum : 80 Marks**

Answer **ALL** questions

PART A - (08 X 2 = 16 Marks)

1. One of the following is an Aromatic Amino acid. Which is that?
   a. Glycine
   b. Lysine
   c. Leucine
   d. Tyrosine

2. Triplet Codons of DNA Contain one of the below content. Which is that?
   a. Bases
   b. Sugars
   c. Nucleotides
   d. Nucleosides

3. One of the following molecules can act as a Prosthetic Group for enzymatic reactions.
   a. Vitamins
   b. Carbohydrates
   c. Amino acids
   d. Lipids

4. Diabetes is due to the defect in one of the following organelle present in the pancreatic beta cells. Find out which is that particular organelle?
   a. Ribosomes
   b. Golgi bodies
   c. Endo Plasmic Reticulum
   d. Lysosomes

5. How many number of ATP molecules are produced when 1 molecule of glucose undergoes oxidation to pyruvate?
6. Compare the redox reactions with biological oxidation reduction reaction with an example.
7. Why are essential fatty acids not synthesized in our body? Mention the reason.
8. Analyse the structure of Phosphatidic acid and name the molecules in it.

PART B - (4 X16 = 64 Marks)

9. (a) Apply the Chemi-osmotic theory to Oxidative Phosphorylation mechanism and explain how it satisfies the process? (16)

(OR)

(b) How are redox couples transfers electrons between them to produce one molecule of water and CO_2 to convert half molecule of oxygen for respiration process? Illustrate it with mechanism. (16)

10. (a) How is Glucose recycled in human liver and muscle under the influence of two pancreatic peptide hormones? Explain. (16)

(OR)

(b) Analyse the mechanism of PDH enzyme complex in production of acetyl CoA from pyruvate and explain how is it shuttled in to mitochondria to produce Oxalo-acetate through TCA cycle? (16)

11. (a) Apply your theoretical knowledge in construction of primary and secondary structure of nucleic acids as a model structure. (16)

(OR)

(b) How are our body proteins classified and mention what would happen if the proteins undergo different biochemical reactions? Mention all. (16)

12. (a) (i) How do we become aged starting from our birth? Explain the biochemical mechanism of aging process. (08)

(ii) How do you optimize an enzyme by applying various factors? Explain (08)

(OR)

(b) (i) How do we get atherosclerosis disease? Discuss the reasons (08)

(ii) What are the different enzymes could be used as markers to diagnose the various kinds degenerative diseases? Explain each one. (08)