Ex/FTBE/BS/B/T/211/2023

B.E. FTBE 2nd Year 3rd Semester Evaluation 2023

Biochemistry and Nutrition I

Full Marks 100 Time : 3 hrs.

GROUP A :

1. Answer any ten questions 10x2=20

(a) Distinguish between anabolism and catabolism.

(b) In which part of digestive system, digestion of protein start ?

(c) Why acetyl coenzyme A cannot be formed in RBC?

(d) Mention any one step of glycolysis that requires ATP.

(e) What is peptide bond?

(f) Why HDL is called good cholesterol?

(g) What is the difference between simple and mixed triacylglycerol?

(h) How many molecules of $FADH_2$ are produced per TCA cycle?

(i) What is the fate of pyruvate in absence of oxygen?

(j) What is deamination reaction?

(k) Give example of a metalloprotein.

(l) What is glycogenin?

GROUP B:

2. Answer any six questions 6x5=30

(a) Name the coenzymes of dihydrolipoyl transacetylase and dihydrolipoyl dehydrogenase in pyruvate dehydrogenase complex.

(b) Show the reaction catalyzed by ornithine transcarbamoylase.

(c) Classify carbohydrates.

(d) Explain the role of carnitine in beta oxidation of fatty acids.

(e) What are the functions of glycogen?

(f) What is Ramachandran plot? What is its significance? (3+2)

(g) Classify fatty acids according to degree of saturation.

(h) Explain the contribution of H bonding to the structure of alpha helices. Give diagram.

[Turn over

GROUP C: Answer any five questions 10x5=50

3. (a) What is substrate level phosphorylation?

(b) How does it differ from oxidative phosphorylation?

(c) Mention the step of glycolysis and TCA cycle in which substrate level phosphorylation occur. (3+3+2+2)

4. (a) Describe the role of divalent cation in phosphorylation of glucose.

(b) Give diagram to illustrate your answer.

(c) What are ketone bodies? (4+3+3)

5. (a) What is beta oxidation of fatty acid?

(b) Why is it so named?

(c) Why activation and transportation of fatty acid are required before proper beta oxidation of fatty acid?

(d) Schematically show the reaction that occurs during activation of fatty acid. (2+2+3+3)

6. (a) Define BMR.

(b) Define chemical score.

(c) What do you understand by fatty liver?

(d) Mention any one factor that may cause it. (3+3+2+2)

7. (a) What is glycogenesis?

(b) How are branches formed in glycogenesis?

(c) Describe the role of divalent cation in phosphorylation of glucose. (2+4+4)

8. (a) Describe alpha helix of protein.

(b) Give diagram.

(c) Do all proteins have quaternary structures? Give reasons for your answer. 3+2+(3+2)

9. (a) What are products formed when alanine transaminase acts on alpha ketoglutarate and alanine?

(b) Show the reaction.

(c) Mention the reactions of urea cycle that occurs in mitochondria.

(d) Classify proteins based on turnover. (2+4+2+2)