Total No. of printed pages = 4

19/3rd Sem/UFET303

2021

BIOCHEMISTRY AND HUMAN NUTRITION

Full Marks – 100

Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer any *five* questions.

1. (a) What are cellular pool ? Explain its two phases. 2+4=6

   (b) "Amino acids are amphoteric in behaviour". Explain. 4

   (c) Define ETC. Explain the process of electron transport chain giving suitable diagram. 2+8=10

2. (a) Define Co-factor. Explain the role of metals as co-enzymes. 2+4=6

   (b) What is N-equilibrium ? Explain the importance of amino acid pool. 2+4=6

[Turn over

(c) How are micelles formed ? List the various steps involved in fat digestion and absorption. 8

3. (a) Define the following terms on any *five* : 2×5=10

(i) ES-Complex

(ii) Phosphorylation

(iii) Mutase

(iv) Substrates

(v) Oxido-reductase

(vi) BMI.

(b) What are allosteric site ? How are lock-and-key and induced fit models similar. 5

(c) What is ATP ? How GTP is different from ATP ? 5

4. (a) Define amino acid ? Give important characteristics of an amino acid. 6

(b) What is Glycolysis ? Describe the steps involved in Glycolysis. 8

(c) What is optimum pH ? How does pH affect the action of enzymes on their substrates ? 2+4=6

5. (a) Distinguish between (any *three*) : 3×3=9

(i) Competitive and non-competitive inhibition

(ii) Positive and negative nitrogen balance

(iii) Sugar and non-sugar molecule

(iv) Endopeptiase and exopeptidase.

(b) Define Km. Explain the effect of substrate concentration on the velocity of enzymatic reaction with suitable diagrams. 6

(c) Define metabolism. Explain the role of NADH and $FADH_2$ in cell metabolism. 5

6 (a) What are bio-chemical reactions ? What are the major types of biochemical reactions ? 6

(b) What is nutritional assessment ? Explain in brief the clinical method of nutritional assessment. 7

(c) What are carbohydrates ? Write the important properties of carbohydrates ? Differentiate between Simple and Complex carbohydrates. 2+2+3=7

7. Write short notes on any *four* of the following : 4×5=20

(a) Absolute specificity of enzymes

(b) Oligosaccharides

(c) Protein digestion

(d) BMR

(e) Nutritional deficiency diseases.