Total number of printed pages:2

UG/3rd/UFET303

2021

BIOCHEMISTRY & 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)	Define biomolecules. Describe macromolecules as polymers of smaller molecules.	2 x 3=6
	b)	What is N-equilibrium? Explain Positive and Negative nitrogen balance.	2+2+2 = 6
	c)	Explain ETC giving suitable diagram.	8
2.	a)	Define metabolism. Explain the role of NADH and $FADH_2$ in the process of cellular respiration.	6
	b)	What is an enzyme co-factor? Explain the ES complex.	2+4 = 6
	c	Describe briefly the metabolism of glucose 6 phosphate.	8
3.	a)	Define the following terms (any five):	2X5 = 10
		i)ATP ii) Monomer	
		iii) Kinase iv) Hydrophobic	
		v) Substrates vi) Decarboxylation	
	b)	Explain oxidative phosphorylation giving suitable diagram.	5
	c)	Describe the induced-fit model of enzymes.	5

4. a) What is an active site of an enzyme? What is the difference between active site and allosteric site? 5

b) Define amino acid? Give important characteristics of an amino acid. 5

c) What is protein denaturation? Explain the important factors that can lead to denaturation of proteins. 10

5. a) Distinguish between (any three): 3x3=9

i)Essential amino acids and Non-essential amino acids

ii)Co-factors and co-enzymes

iii)Acidic and basic amino acids

iv) Micromolecules and macromolecules

b) Explain in brief how fats are digested. 5

c) What is optimum temperature? How does temperature affect the action of enzymes on their substrates? 6

6 a) Explain the difference between competitive and non-competitive inhibition, with reference to one example of each. 6

b) What is a cellular pool? What are its two phases? 7

c) What is substrate concentration of an enzyme? How does enzyme activity change as substrate concentration increases? 7

7. Write short notes on any four of the following 4x5=20

a) Nitrogen pool

b) Digestion & absorption of protein

c) HMP

d) Secondary structure of protein

e) Polysaccharide