Total number of printed pages: **02** **Programme (UG)/III/UFET303**

2022

BIOCHEMISTRY AND 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 is metabolism? Mention the role of enzymes in metabolism.	2+3=5
	b)	Explain the importance of amino acid pool.	5
	c)	'Amino acids are amphoteric in nature'. Explain.	5
	d)	How is an enzyme-substrate complex formed?	5
2.	a)	Define biomolecules. What are the four major classes of biomolecules that serve as building blocks for larger macromolecules.	2+4=6
	b)	Describe the induced fit model of enzymatic action.	4
	c)	Write the process of oxidative phosphorylation with a suitable diagram.	5
	d)	What is a positive nitrogen balance? What are the causes of negative nitrogen balance?	5
3.	a)	Define biocatalyst? Differentiate between co-factor and co-enzymes.	2+3=5
	b)	What is ATP? Explain the role of NADH and $FADH_2$ in cellular respiration.	4
	c)	What is deficiency disease? Explain few nutritional deficiency diseases.	1+3=4
	d)	Explain the process of glycolysis.	7
4.	a)	Define the following terms: i) Monomer ii) GTP iii) Substrate iv) Kinase	2x4=8
	b)	What do you mean by optimum temperature? How does temperature affect enzyme catalysed reaction?	6
	d)	Explain in brief the anthropometric method of nutritional assessment.	6
5.	a)	Explain the two phases of cellular pool.	4
	b)	Define malnutrition. Why nutritional assessment is important?	1+3=4

	c)	Name some pancreatic enzymes and give their functions.	5
	d)	Explain the steps involved in ETS giving a suitable diagram.	7
6.		Write short notes on any four of the following	4x5=20
	a)	Protein denaturation	
	b)	Lock and key model of enzymes	
	c)	Inorganic molecules	
	d)	Homopolysaccharide	
	e)	Covalent bond	
7.	a)	Explain acidic and basic amino acids giving suitable examples.	4
	b)	How is competitive inhibition different from non-competitive inhibition?	6
	c)	What are the applications of biochemistry in food science?	5
	d)	Name the different enzymes involved in TCA cycle.	5