TDC (CBCS) Odd Semester Exam., 2018

BIOTECHNOLOGY

(1st Semester)

Course No. : BTCHCC–101T

(Biochemistry and Metabolism)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *two* questions from the following : 2×2=4

(a) What is peptide bond? How is it formed?

(b) Give example of one aromatic and one aliphatic amino acid with structures.

(c) What type of protein structure is found in haemoglobin? What are the subunits?

2. *(a)* Describe the different structural forms of proteins with example. 6

Or

(b) Describe the different chemical forces responsible for stabilizing the protein structure.

UNIT—II

3. Answer any *two* questions from the following : 2×2=4

(a) What is the general chemical formula of carbohydrate? State two functions of carbohydrate.

(b) Write the composition of lactose and galactose.

(c) What are the different types of carbohydrate molecules that are found in bacterial cell wall?

4. *(a)* What is carbohydrate? Describe the different isomeric forms of carbohydrate with diagram. 1+5=6

Or

(b) What is polysaccharide? Describe different types of polysaccharides with examples and structures. 1+5=6

UNIT—III

5. Answer any *two* questions from the following : 2×2=4

(a) What is phospholipid? Write its function?

(b) What is cholesterol? Write its biological importance.

(c) Differentiate between nucleosides and nucleotides.

6. *(a)* Who proposed the double-helical structure of DNA? Describe the structure of DNA as proposed by Watson and Crick. 1+5=6

Or

(b) What is Lipid? Classify lipids with examples and associated functions. 1+5=6

UNIT—IV

7. Answer any *two* questions from the following : 2×2=4

(a) What is the chemical name of vitamin B_{12}? Write its biological importance.

(b) What do you mean by activation energy?

(c) What is the full form of $NADP^+$? Write its biological importance.

8. *(a)* Differentiate between apoenzyme and holoenzyme. Give a detailed account of enzyme classification with example. 6

Or

(b) What do you mean by enzyme active site? With suitable model describe the mechanism of enzyme action.

UNIT—V

9. Answer any *two* questions from the following : 2×2=4

(a) What is ATP? How many molecules of ATP are synthesized during glycolysis?

(b) Differentiate between gluconeogenesis and glycogenolysis.

(c) What do you mean by EMP pathway?

10. *(a)* What do you mean by oxidative phosphorylation? Describe the mechanism of oxidative phosphorylation resulting in the formation of ATP. 1+5=6

Or

(b) Where does glycolysis take place in the cell? Describe the reactions of glycolysis in a eukaryotic cell. 1+5=6

★ ★ ★