Total number of printed pages–4

53 (FPT 603) BCBT

2021

BIOCHEMISTRY AND BIOTECHNOLOGY

Paper : FPT 603

Full Marks : 100

Time : Three hours

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

Answer ***any five*** *questions out of* ***seven.***

1. *(a)* Define biocatalyst. How is enzyme function affected by temperature and pH ? 2+4

   (b) Explain amino acid pool. 4

   (c) What is a cellular pool ? What are its two important phases ? 2+4

   (d) Write the two events that occur in reaction three of citric acid cycle. 4

2. *(a)* What is tripeptide ? Explain the Quaternary structure of protein. 2+4

   (b) Explain oxidative phosphorylation, giving suitable diagram. 6

Contd.

(c) In what way, golden rice is different from normal rice? 4

(d) What can cause denaturation of protein? 4

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

(i) Kinase

(ii) Active site

(iii) Lipase

(iv) Substrate

(v) Biomolecule

(vi) Monomer.

(b) Explain the primary requirements of plant tissue culture. 3

(c) What are the major types of biochemical reactions? 3

(d) Describe the Induced-fit model of enzymes. 4

4. (a) What is DNA technology? Write the important tools used in genetic engineering. 2+4

(b) Why amino acids are considered as amphoteric molecules? 4

(c) Write the various steps involved in the digestion and absorption of fats. 6

(d) Explain the chemical nature of enzymes. 4

5. (a) Explain in brief, how you will evaluate the quality of protein. 6

(b) Show the formation of disaccharide molecule. 4

(c) What is glycolysis? Give a brief summary of glycolysis. 6

(d) Give some applications of DNA technology in the field of agriculture. 4

6. (a) Distinguish between : ***(any four)*** 4×4

(i) Co-enzymes and co-factors

(ii) Primary and secondary structure of protein

(iii) Saturated and unsaturated fatty acid

(iv) Callus and suspension culture

(v) Homo- and Hetero-polysaccharide.

(b) Explain in brief the ES complex. 4

7. *(a)* What are endo- and exo-peptidases? Give examples of each. 3+3

(b) Explain the K_m of an enzyme. 4

(c) Give important characteristics of amino acid. 3

(d) Define macromolecule. Explain the different types of biomolecules and their monomer. 2+5