

Total number of printed pages-4

53 (FPT 603) BCBT

2021

**BIOCHEMISTRY AND BIOTECHNOLOGY**

Paper : FPT 603

Full Marks : 100

Time : Three hours

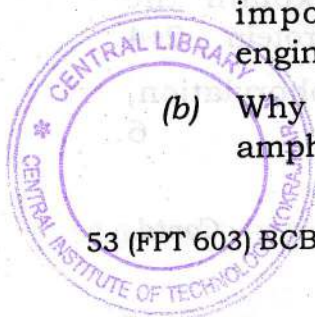
***The figures in the margin indicate full marks for the questions.***

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

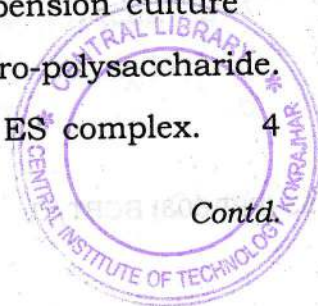
1. (a) Define biocatalyst. How is enzyme function affected by temperature and pH? 2+4
- (b) Explain amino acid pool. 4
- (c) What is a cellular pool? What are its two important phases? 2+4
- (d) Write the two events that occur in reaction three of citric acid cycle. 4
2. (a) What is tripeptide? Explain 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

