

Total number of printed pages-5

53 (FPT 603) BIBI

2019

**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 from **seven**.

1. (a) What is a cellular pool? What are its two phases? 4
- (b) Explain the positive and negative nitrogen balance. 4
- (c) Define K_m and explain the effect of substrate concentration on enzyme activity. 2+4
- (d) Explain the important tools used in genetic engineering. 6

Contd.

2. (a) What is ES complex? What are the main theoretical models that try to explain the formation of the ES complex? 2+4

(b) Explain the alpha-helical structure of protein with examples. 4

(c) What is callus culture? Explain the basic techniques of plant tissue culture. 6

(d) What is isoelectric p^H of protein and write its importance. 4

3. (a) Give a brief account of glycolysis mentioning the steps and the energy yield per molecule of glucose. 6

(b) What is Salt bridge? Give three examples of non-essential amino acid. 4

(c) What are Endo and Exo-peptidases? Give examples of each. 4

(d) What is peptide bond? What can cause denaturation of protein? 6

4. (a) Write brief notes on : (any five) 2x5=10

(i) Active site

(ii) Totipotency

(iii) Kinase

(iv) GTP

(v) Apoenzyme

(vi) Substrate

(b) Explain the major components of ETC. 5

(c) Describe the digestion and absorption of dietary lipids. 5

5. (a) Distinguish between : 3x4=12

(i) Acidic and basic amino acids

(ii) D and L-isomer

(iii) C and N-terminal

(iv) Sugar and Non-sugar.

(b) What are enzyme co-factors? 4
Distinguish between co-enzymes and co-factors. 4

(c) Name the key enzymes involved in gluconeogenesis. 4

6. (a) What are the basic requirements of plant tissue culture? Explain the various applications of plant tissue culture. 2+3=5

(b) What is enzyme inhibition? Explain how competitive inhibition is different from non-competitive inhibition. 2+4=6

(c) Write the important applications of recombinant DNA technology in the field of agriculture. 6

(d) Give examples of storage and transport classes of protein. 3

7. (a) How is the tertiary structure of a protein held together? 6

(b) What is the role of NAD and FAD in citric acid cycle? 4

(c) What is Ribose-5-phosphate and why is it important? 4

(d) Write short notes on: 3×2=6

(i) Bioelements

(ii) Amino acid pool

(iii) Triple helix.

