

Total number of printed pages-4

53 (FPT 603) BITC

2018

**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) Define biomolecule. What are the *four*  
main biomolecules ? Write the functions  
of each biomolecule. 1+2+3=6
- (b) What is non-reducing sugar ? Give  
examples. 3
- (c) Explain the alternative pathway for  
breakdown of glucose. 4

*Contd.*

(d) What is dipeptide? Explain the secondary structure of protein. 2+5=7

2. (a) What is amino acid pool? What does the amino acid pool consist of? 2+3=5

(b) Discuss the different events that take place in the formation of pyruvic acid from glucose. 7

(c) Differentiate between globular and fibrous protein. 4

(d) Define Biocatalyst. Explain the ES complex. 4

3. (a) What is isoelectric point? Explain how is a Zwitter ion formed. 4

(b) Explain the important tools used in genetic engineering. 6

(c) What is Totipotency? What are the basic techniques of plant tissue culture? 5

(d) Explain Oxidative phosphorylation giving suitable diagram. 5

4. (a) Define the following terms: 2×5=10

(i) Monomer

(ii) ATP

(iii) Active site

(iv) Sugar

(v) Kinase.

(b) What is S-S bridge? Give three examples of essential amino acids. 5

(c) Explain the various steps involved in digestion and absorption of proteins. 5

5. (a) Distinguish between: 4×4=16

(i) Callus and Suspension Culture

(ii) Homopolysaccharide and Heteropolysaccharide

(iii) Competitive and Non-competitive Inhibition

(iv) Acidic and Basic amino acids

(b) How enzymes are affected by temperature? 4

6. (a) Explain how you will evaluate the quality of protein. 4

(b) Classify Oligosaccharide. Show the formation of disaccharide molecule. 5

(c) What are Bio elements? Explain the two phases of cellular pool. 6

(d) Give some applications of DNA technology in the field of agriculture. 5

7. (a) Write short notes on : 4×4=16

(i) ETC

(ii) Protein denaturation

(iii) HMP

(iv) Fat absorption.

(b) What are D and L isomers? 2

(c) Name the two amino acids that contain sulphur atoms. 2

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