Total number of printed pages–5

53 (FPT 603) BCBT

2019

BIOCHEMISTRY & 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 biomolecules. Give examples. 3

(b) How are peptides formed from amino acids ? 4

(c) What is totipotency ? What are the basic techniques of plant tissue culture ? 6

(d) How are micelles formed ? Write the various steps involved in fat absorption. 3+4=7

Contd.

2. *(a)* What are enzymes? How is enzyme function affected by temperature and pH? 2+4=6

(b) Explain amino acid pool. 4

(c) White the important tools used in Genetic Engineering. 6

(d) Explain tertiary structure of protein. 4

3. *(a)* Define the following terms : ***(any five)*** 2×5=10

(i) Monomer

(ii) Apoenzyme

(iii) Kinase

(iv) ATP

(v) Redox reaction

(vi) K_m

(vii) *N*-equilibrium.

(b) What is protein denaturation? What are the factors that can denature proteins? 2+4=6

(c) Give a brief account on nomenclature of enzymes. 4

4. *(a)* Explain the process of electron transport chain showing suitable diagram. 7

(b) Give *three* important characteristics of amino acid. 3

(c) How are lock-and-key and induced-fit models similar? 6

(d) Why is plant tissue culture important? 4

5. *(a)* Differentiate between : ***(any three)*** 3×4=12

(i) Callus and suspension culture.

(ii) Competitive and non-competitive inhibition.

(iii) Essential and non-essential amino acids.

(iv) Co-enzymes and co-factors.

(b) What is activation energy ? What is the importance of activation energy ? 4

(c) Explain the effects of substrate concentration on the velocity of enzymatic reaction. 4

6. (a) Explain oxidative phosphorylation giving suitable diagram. 5

(b) What is Active site ? Explain in brief the chemical nature of enzymes. 6

(c) Define bioelements. Explain the two phases of cellular pool. 5

(d) Define NADH, FADH, GTP and ADP. 4

7. (a) Write brief notes on : ***(any four)*** 4×4=16

(i) Alpha helix

(ii) Enzyme specificity

(iii) Digestion and absorption of proteins

(iv) Polysaccharide

(v) Reducing Sugard

(vi) Golden rice.

(b) What is Gluconeogenesis ? Write the key enzymes of gluconeogenesis. 4