III Semester B.Sc. Examination, Nov./Dec. 2018
(F + R/CBCS)
BIOTECHNOLOGY – III
Biochemistry and Biophysics

Time : 3 Hours   Max. Marks : 70

Instructions : 1) *Part – **I** and Part – **II** must be answered in **separate** booklets.*
2) *Draw the structures and neat labelled diagrams **wherever** necessary.*

PART – I

(Biochemistry)

SECTION – A

I. Write short notes on the following :   (4×2=8)

1) Disulphide bond

2) Michaelis Menten equation

3) Iodine number

4) Reducing sugar.

SECTION – B

II. Answer **any two** of the following :   (2×6=12)

5) Discuss the mechanism of steroid hormone action.

6) Describe the biological functions and deficiency symptoms of Ascorbic acid.

7) Define protein. Discuss secondary structure of protein.

P.T.O.

SECTION – C

III. Answer **any two** of the following :   (2×10=20)

8) Explain the term carbohydrate. Give their classification and importance in Biology.

9) What is enzyme inhibition ? Explain the various types of enzyme inhibition with an example.

10) Write short notes on :

a) Phospholipids

b) Ninhydrin and FDNB reactions with amino acid.

SECTION – D

IV. Answer the following :   (5×1=5)

11) Name any two aromatic amino acids.

12) Expand TPP.

13) Zwitter ion.

14) K_m and V_{max}.

15) Write the structure of Fructose.

PART – II

(Biophysics)

SECTION – A

I. Answer **any two** of the following :   (2×5=10)

1) What is covalent bond ? List out its characteristics.

2) Explain the importance of pH and buffer in biological system.

3) Explain principle involved in TLC. Add a note on its applications.

SECTION – B

II. Answer **any one** of the following :   (1×10=10)

4) Discuss :

   a) The principle and applications of calorimeter.

   b) Scope of Biophysics.

5) Write notes on :

   a) Density gradient centrifugation

   b) Scintillation counters.

SECTION – C

III. Answer the following :   (5×1=5)

   6) Half life period.

   7) λ_{max}

   8) Henderson-Hasselbalch equation.

   9) Gibb's free energy.

   10) Expand NMR.