



SS – 414



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)  $\lambda_{\max}$
  - 8) Henderson-Hasselbalch equation.
  - 9) Gibb's free energy.
  - 10) Expand NMR.
-