



III Semester B.Sc. Examination, November/December 2016
(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) Active site.
- 2) Iodine number.
- 3) Mutarotation.
- 4) Denaturation.

SECTION – B

II. Answer any two of the following :

(2×6=12)

- 5) Describe the mechanism of steroid hormone action.
- 6) Explain acidic and basic properties of amino acids.
- 7) Discuss the dietary source and role of fat soluble vitamins.

P.T.O.



SECTION – C

III. Answer any two of the following :

(2×10=20)

- 8) Describe the structure and functions of polysaccharides.
- 9) With regard to the structural hierarchy of protein, comment on the following :
 - a) Primary structure.
 - b) α -helix.
 - c) Tertiary structure.
- 10) Write notes on :
 - a) Enzyme classification.
 - b) Properties of Triacylglycerols

SECTION – D

IV. Answer the following :

(5×1=5)

- 11) What is inversion of sucrose ?
- 12) Name the sulphur containing amino acids.
- 13) Which deficiency causes Beri-Beri ?
- 14) Give an example for competitive inhibitor.
- 15) Name a glucocorticoid hormone.

PART – II
(Biophysics)

SECTION – A

I. Answer any two of the following :

(2×5=10)

- 1) What are buffers ? Explain acetate buffer action.
- 2) State Beer-Lambert's law. Differentiate between colorimeter and spectrophotometer.
- 3) Describe the principle and applications of ultra centrifugation.



SECTION - B

II. Answer any one of the following :

(1×10=10)

- 4) Explain the principle and applications of column chromatography.
- 5) Write notes on :
 - a) Scope of Biophysics.
 - b) Measures of radioactivity.

SECTION - C

III. Answer the following :

(5×1=5)

- 6) Write Handerson-Hasselbalch equation.
 - 7) What are van der Waals forces ?
 - 8) Expand RPM.
 - 9) Write two applications of IR spectroscopy.
 - 10) Name two radioactive isotopes.
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