



SN – 416

III Semester B.Sc. Examination, November/December 2017
(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) Transport proteins
- 2) Co-factors
- 3) Saponification number
- 4) Essential fatty acids.

Section – B

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

- 5) Explain the tertiary structure of proteins with an example.
- 6) Describe reversible inhibition in enzymes with suitable examples.
- 7) What are steroid hormones ? Write its types and biological significance.

Section – C

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

- 8) What are enzymes ? Discuss the classification of enzymes.
- 9) Classify proteins based on their composition and functions.
- 10) Write short notes on :
 - a) Rancidity
 - b) Water soluble vitamins.

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Section - D

IV. Answer the following :

(5×1=5)

- 11) Name any two hydrophobic amino acids.
- 12) Give the chemical name of vitamin B₁₂.
- 13) What is the non-protein part of holoenzyme ?
- 14) Expand PUFA.
- 15) Name any two female sex hormones.

PART - II

(Biophysics)

Section - A

I. Answer **any two** of the following :

(2×5=10)

- 1) What is an ionic bond ? List out its characteristics.
- 2) Enumerate the differences between paper chromatography and column chromatography.
- 3) Explain the principle and applications of atomic absorption spectroscopy.

Section - B

II. Answer **any one** of the following :

(1×10=10)

- 4) Discuss the working principle and applications of UV-visible spectroscopy.
- 5) Write notes on :
 - a) Centrifugation
 - b) Laws of thermodynamics.

Section - C

III. Answer the following :

(5×1=5)

- 6) Define pH scale.
 - 7) Expand HPLC.
 - 8) What is the unit of sedimentation co-efficient ?
 - 9) Name two intrinsic fluorescence compounds.
 - 10) What is R_f value ?
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