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**Third Semester B.Sc. Degree Examination,
August/September 2021**

(CBCS)

Biotechnology

Paper III – BIOCHEMISTRY AND BIOPHYSICS

Time : 3 Hours]

[Max. Marks : 70

Instructions to Candidates : Draw neat labelled diagram wherever necessary.

PART – I

(BIO-CHEMISTRY)

SECTION – A

Write short notes on the following :

(4 × 2 = 8)

1. Zwitter Ion
2. Glycoside bond
3. Allosteric enzymes
4. Triacylglycerol

SECTION – B

Answer any **TWO** of the following :

(2 × 6 = 12)

5. What is Saponification number? Mention its importance.
6. What are steroid hormones? Explain its role in biological system.
7. How Carbohydrates act as source of energy? Justify.

SECTION – C

Answer any **TWO** of the following :

(2 × 10 = 20)

8. What are enzymes? List the general characteristic properties of enzymes.
9. What are Vitamins? How they are classified? Explain.
10. Write short notes on :
 - (a) Denaturation of protein
 - (b) Steroid hormones

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SECTION - D

Answer the following :

(5 × 1 = 5)

11. Write the structure of fructose.
12. Vitamin-D deficiency causes _____
13. Name any two amino acid with aliphatic group.
14. The mineralocorticoids is synthesized by _____
15. What are Co-factors?

PART - II

(BIOPHYSICS)

SECTION - A

Answer any **TWO** of the following :

(2 × 5 = 10)

16. Differentiate between Ionic bond and Covalent bond.
17. Explain the principle involved in centrifugation.
18. Define Decay law and Decay Constant

SECTION - B

Answer any **ONE** of the following :

(1 × 10 = 10)

19. What is Spectroscopy? Explain the principle involved in UV-visible Spectroscopy and add a note on its applications.
20. Explain Column Chromatography and add a note on its application.

SECTION - C

Answer the following :

(5 × 1 = 5)

21. Acidic buffer
22. Sedimentation Coefficient
23. Expand RPM
24. Define pH
25. Define Gibbs free energy