

B.Sc. 1st Semester (Honours) Examination, 2022-23

PHYSIOLOGY

Course ID : 12512 Course Code : SH/PHY/102/C-2

**Course Title : Biophysical Aspects of
Cellular Functions and Enzymes (New)**

Time : 1 Hour 15 Minutes

Full Marks : 25

The figures in the right hand margin indicate full marks.

*Candidates are required to give their answers in their
own words as far as practicable.*

Unit-I

1. Answer *any five* questions : 1×5=5

- (a) Differentiate between osmolarity and osmolality.
- (b) What proenzyme? Give an example.
- (c) Name any two bonds that stabilize protein structure.

- (d) What is Handerson-Hasselbach equation.
- (e) Write the law of 'Laplace'.
- (f) Define nanocapsule.
- (g) Write one example of ribozyme.
- (h) Define enthalpy.

Unit-II

2. Answer **any two** questions : 5×2=10

- (a) State the principle and working procedure of electrophoresis. Mention one application of immuno electrophoresis. 1+3+1
- (b) Discuss the mechanism of enzyme action. Define allostevic enzyme. 4+1
- (c) Write the role of osmotic pressure in the formation of tissue fluid. 5
- (d) Define polybasic acid. Explain the biological importance of pH. 1+4

Unit-III

3. Answer **any one** question : 10×1=10

- (a) Write the effects of competitive inhibitors on hyperbolic kinetics of enzyme action. What do you mean by feedback regulation of enzyme action? 6+4
- (b) What is Km? Briefly describe the Michaelis-Menten model for the single substrate enzyme kinetics. "Allosteric enzymes do not obey the Michaelis-Menten kinetics"—justify the statement. 2+6+2