B.Sc. 1st Semester (Honours) Examination, 2020-21

PHYSIOLOGY

Course ID: 12512 **Paper: SH/PHY/102/C-2(T)**

Course Title: Biological Physics and Enzymes

Time: 1 Hour 15 Minutes **Full Marks: 25**

The figures in the margin indicate full marks.

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

1. Answer any five questions of the following: **1×5=5**

(a) Differentiate between laminar flow and turbulent flow.

(b) What is enthalpy?

(c) Mention the 1st law of thermodynamics.

(d) What is ultracentrifugation?

(e) What do you mean by Kcat? Mention its significance.

(f) Mention the name of any two bonds stabilizing the tertiary structure of proteins.

(g) What is cell fractionation?

(h) Write the name of surfactant present in lungs.

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

(a) Explain how thermodynamic principles are applicable in living organism. 5

(b) State the principle of electrophoresis. Briefly discuss the application of nanoparticle in Physiology. 2+3=5

c) What is autoradiography? State its principle and biological application. 1+2+2=5

d) What do you mean by polybasic acid? Explain the biological importance of pH. 1+4=5

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

(a) "Allosteric enzymes do not obey Michaelis Menten kinetics"-Justify the statement. Briefly discuss the Michaelis Menten model for the kinetic properties of many enzymes. 4+6=10

(b) Briefly describe the electrokinetic properties of colloids. What is solvation? 8+2 =10