B. Sc. Semester I (Honours) Theory Examination, 2020 (CBCS)

SUBJECT: PHYSIOLOGY

Paper: CC2 (BIOLOGICAL PHYSICS AND ENZYMES)

Time: 2 Hours **Full Marks: 40**

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.

Answer all questions as instructed

Examinees are instructed to submit the scanned copies/photographs of their answerscripts within 30 minutes after the completion of examination

Answer any **eight** of the following **(5 x 8) = 40**

1. What do you mean by Lineweaver Burk (LB) Plot? How is a LB plot drawn? Mention the effects of competitive inhibitors on a LB plot. (5)

2. Write Van't Hoff equation of osmotic pressure. Differentiate between an isotonic and an isosmotic solution. (5)

2. Classify enzymes on the basis of the types of reaction catalyzed by them. Give examples of each type. (5)

4. Derive the Henderson- Hasselbalch equation from the dissociation of an acid HA. (5)

5. What do you mean by hyperbolic saturation kinetics? Write the Michaelis-Menten equation for a single substrate reaction obeying hyperbolic saturation kinetics. (5)

6. Describe the structure and mechanism of action of sodium – potassium Pump (Na^+ - K^+ pump). (5)

7. State the 1^{st} Law of thermodynamics. How it is related with enthalpy? (5)

8. Explain one electrical property and one optical property of colloid. (5)

9. Mention how viscosity is related with vascular resistance and streamline blood flow. (5)

10. What is entropy? Outline the mathematical formulation of the second law of thermodynamics. (5)