

U.G. 1st Semester Examination - 2021

PHYSIOLOGY

[HONOURS]

Course Code : PHYSIOL-H-CC-T-02

(Biological Physics and Enzymes)

Full Marks : 40

Time : $2\frac{1}{2}$ Hours

The figures in the right-hand margin indicate marks.

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

1. Answer any **five** questions from the following:

2×5=10

- a) What are Buffers? Give examples.
- b) State physiological importance of surface tension.
- c) What is meant by semipermeable membranes?
- d) What do you mean by Density-gradient centrifugation?
- e) Define K_m .
- f) What is Ribozymes?
- g) What is Entropy?

2. Answer any **two** questions from the following:

5×2=10

- a) What are co-enzymes? Briefly discuss the classification of enzymes based on catalysis.
2+3
- b) Define facilitated diffusion. What is the relation between temperature and diffusion? State the physiological importance of diffusion.
1+1+3
- c) What is gel electrophoresis? Write the physiological roles of electrophoresis. 2+3
- d) State the Poiseuille-Hagen formula in physiology. Write down the difference between lyophilic and lyophobic sols. 1+4

3. Answer any **two** questions from the following:

10×2=20

- a) Discuss the effects of temperature and pH on enzyme action. Differentiate between the active site and allosteric site of an enzyme. What are rate-limiting enzymes? 5+3+2
- b) Differentiate between competitive and non-competitive inhibition of enzyme. Briefly discuss the enzyme specificity. What are Abzymes? 5+3+2

[Turn Over]

- c) State the Second law of thermodynamics. What are isolated, closed and open system in the thermodynamic point of view? What is Gibbs free energy? 2+6+2
- d) Define nanoparticles. Discuss the physiological roles of Dialysis. What is salting in and salting out? 3+5+2
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