

PHYSIOLOGY

[HONOURS]

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

(Biological Physics and Enzymes)

Full Marks : 40

Time : 2½ 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: 2×5=10
- a) What are isozymes? Explain with example.
 - b) Name four non-covalent interactions that stabilizes enzyme structure.
 - c) Define viscosity. What is poise?
 - d) Define osmosis. State its' importance in Physiological system.
 - e) What are isotonic, hypertonic and hypotonic solutions?
 - f) What is gold number?
 - g) Define ultrafiltration.
2. Answer any **two** questions: 5×2=10
- b) Discuss the mechanism and significance of

[Turn Over]

allosteric regulation of enzyme activity, in brief.

- b) What is competitive inhibition in Enzyme kinetics? Explain equation for competitive inhibition of an enzyme. What is the significance of the Km value of an enzyme? 1+2+2=5
 - c) Distinguish between colloid and crystalloid. What are the physiological importances of colloid? 2+3=5
 - d) Define facilitated diffusion. State the physiological importance of surface tension. 2+3=5
3. Answer any **two** questions: 10×2=20
- a) What are nanomaterials? Write the application of nanomaterials in Physiology. 2+8=10
 - b) What is enthalpy? State the second law of thermodynamics. What are isolated, closed and open systems in the thermodynamic point of view? 2+2+6=10
 - c) Name the buffers of blood. Explain Handerson-Hasselbalch equation. What is chloride bicarbonate shift? 3+4+3=10
 - d) Write short note on:
 - i) Dialysis
 - ii) Autoradiography 5+5=10