PG/IS/PHY/101/24

M.Sc. 1st Semester Examination, 2024

HUMAN PHYSIOLOGY

PAPER – PHY-101

Full Marks : 25

Time : 1 hour

Answer **all** questions

The figures in the right hand margin indicate marks

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

GROUP—A

Answer any **two** questions of the following : 2×2

1. Name the oxidised and reduced forms of Coenzyme *Q*.

2. What is the driving force for secondary structure of protein ?

3. What is ribozyme ?

4. Mention the allosteric inducers of ATCase and Isocitrate dehydrogenase.

GROUP–B

Answer any **two** questions of the following : 4×2

5. An enzyme-catalyzed reaction has a K_m of 1mM and a V_{max} of 5 nM. s^{-1}. What is the reaction velocity when the substrate concentration is 1.5 mM ?

6. State the cataplerotic reactions of TCA cycle.

7. What are the properties of molecular chaperones ? Why are they important ? 3 + 1

8. What is oxidative phosphorylation ? Write briefly the role played by complex III of the mitochondrial electron transport chain. 3 + 1

GROUP – C

Answer any **one** question of the following : 8 × 1

9. Write notes on : 3 + 3 + 2

   (*i*) Principles of protein folding

   (*ii*) Parallel Beta-sheet structure

   (*iii*) Helix destabilizing amino acids.

10. Discuss about the process of proteolytic cleavage as a posttranslational modification. State the types of protein kinases and their importance. Describe the process of bio-synthesis of oligosachharides in N-linked glycosylation. $2\frac{1}{2} + 2\frac{1}{2} + 3$

[Internal Assessment — 5 Marks]