

M. Sc. 2nd Semester Examination, 2025

HUMAN PHYSIOLOGY

(Integrated Physiology : Homeostasis)

PAPER — PHY-207

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 from the following :

1. Mention the distribution of microbiota in gut. 2×2 2
2. Write down the different isoforms of superoxide dismutase. 2

(Turn Over)

(2)

3. Classify blood-related disorders. What is thrombocytopenia? 1 + 1
4. Mention the several types of thrombocytosis. 2

GROUP—B

Answer any two questions from the following :

4×2

5. Describe how blood glucose homeostasis occurs in our body. 4
6. Write down the characteristics of thrombotic thrombocytopenic purpura. What do you understand by Disseminated Intravascular Coagulation (DIC)? 3 + 1
7. Describe the pathophysiology and cause of dysfibrinogenemia. What happens when antithrombin-III is deficient in blood? (1 + 2) + 1
8. Discuss critically the early development of the gut microbiome, following birth. 4

(3)

GROUP - C

Answer any one question from the following :

8 × 1

9. How is H_2O_2 catabolized by catalase and glutathione peroxidase ? With a diagram, discuss critically the redox-mediated mechanisms that regulate protein functions.

3 + (3 + 2)

10. Describe briefly the mechanism of action of antithrombin during anticoagulation. With a suitable schematic diagram, explain the role of protein-C in balancing coagulation and anticoagulation. Classify two types of heparins and briefly mention their mode of action in anticoagulation.

2 + 3 + (1 + 2)

[Internal Assessment — 05 Marks]

