

M.Sc. 3rd Semester Examination, 2023

PHYSIOLOGY

(*Human Physiology*)

PAPER — PHY-302.1 & 302.2

Full Marks : 50

Time : 2 hours

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

PAPER — PHY-302.1

[Marks : 20]

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

1. What are meant by 'CFU' and 'Pure culture' ? 2 × 2
1 + 1

(Turn Over)

2. What is peptidoglycan ? 2
3. What is the importance of flagella in bacteria ? 2
4. What is meant by (+) sense single stranded RNA ? 2

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

4 × 2

5. Write down the characteristic features of Monera. What is phagovar ? 3 + 1
6. Write down the major features of cell wall of Gram negative bacteria. 4
7. Write down the structural features of HIV. 4
8. Differentiate between facultative anaerobic bacteria and truly anaerobic bacteria. What are capnophiles ? 3 + 1

C. Answer any *one* question from the following: 8×1

9. Write notes on : 3 + 5

(i) Differential media

(ii) Mechanisms for antibiotic resistance development.

10. Write briefly on 'pilus' and 'capsule' found outside the bacterial cell wall and mention their specific importance in bacterial virulence. 4 + 4

PAPER – PHY-302.2

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

2×2

1. What are the factors involved in lymph pump ? 2

2. Mention the major functions of IgE. 2

3. What do you mean by "Xenograft"?
Provide an example. 2

4. What is Rh iso-immunization? 2

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

5. Indicate the immunosurveillance route of the T-lymphocytes? Write about the consequence when B- and T-lymphocytes get stimulated by the antigen molecules. 4×2
2 + 2

6. Draw a diagram and show briefly the interaction of MHC molecules with T cells during antigen presentation by the infected cells. Write briefly about the clonal expansion of B-lymphocytes. 2 + 2

7. What is antibody dependent cell mediated cytolysis (ADCC)? What is Novel monoclonal antibody development technology and state the applications of monoclonal antibody. 1 + (1 + 2)

8. Mention the advantages and disadvantages of direct ELISA. What do you know about immunofluorescence technique ? (1 + 1) + 2

C. Answer any *one* question from the following :

9. What are the structural difference between Class I and Class II MHC molecules ?
What is the double-negative cell ? Briefly write about the B-cell activation and proliferation. What is superantigen ?
What is the graft-versus-host disease ?
8 × 1
2 + 1 + 3 + 1 + 1
10. Describe critically any two salient features of antigen-antibody reaction.
What are affinity and avidity of antibody ?
(2 + 2) + (2 + 2)

[Internal Assessment — 10 Marks]
