PG/IS/MCB/102/24

M. Sc. 1st Semester Examination, 2024

MICROBIOLOGY

(*Virology*)

PAPER – MCB-102

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 : 2×2

1. Distinguish between Viruses and viroids.

2. What is capsid and capsomere ?

3. How HIV reverse transcriptase differs from other retroviral reverse transcriptase ?

4. Write schematically the Baltimore classification of animal viruses.

GROUP–B

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

5. (*a*) Write the steps involved in animal virus replication.

   (*b*) How non-enveloped (naked) virus and enveloped virus enters inside the host cell ? $2 + 2$

6. Describe the enumeration methods of bacteriophages and plant viruses. $2 + 2$

7. (*a*) Name the methods of purification of viruses.

   (*b*) What types of vaccines are used to prevent Polio virus infection ? $2 + 2$

8. (*a*) What are the functions of hemagglutinin and neuraminidase of influenza virus ?

(*b*) Describe the transcription and replication of negative strand Influenza viral RNA. 2 + 2

GROUP – C

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

9. (*a*) Draw and label different genes present Rous Sarcoma Virus (RSV).

(*b*) Which additional genes are present in HIV ?

(*c*) Describe briefly and schematically the replication of process of RSV.

(*d*) Name the antiviral drugs used for HIV therapy. 2 + 1 + 4 + 1

10. (*a*) How SARS CoV-2 infection can be detected ?

(b) Name the viral ligand and host cell receptor for SARS CoV-2 infection.

(*c*) Name four viral vaccine used to protect against SARS CoV-2 infection.

(*d*) Describe briefly the strategy (with diagram) how Adenoviral vector is used for making recombinant vaccine for SARS CoV-2.

2 + 1 + 2 + 3

[Internal Assessment — 05 Marks]