

Micro Biology (P.G.)

[CBCS]

M.Sc. First Semester End Examination-2023

(Regular & Supplementary Paper)

PAPER- MCB-102

[Fundamentals of Microbes: Virus]

Full Marks: 40

Time: 02 Hrs

The figures in the right-hand margin indicate marks.

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

Illustrate the answers wherever necessary.

Group A (MCB 102.1)

Full Marks 20

1. Answer any two questions of the following: **2x2= 4**
 - a. Define Viroids and prions. 1+1
 - b. What is Oncogenic Virus? Give one example of Oncogenic Virus? 1+1
 - c. What is the role of CII in the transcription of Lamda phage? 2
 - d. Write down the names of each virus having genomes made of ssDNA, dsDNA. 2

2. Answer any two questions of the following: **2x4= 8**
 - a. State the detailed function of poly chain. Mention the role of degradosome in polyadenylation. 3+1

(2)

- b. (i) Describe one immunological (Indirect ELISA) method for the detection of plant virus.
(ii) What are the genome content of two viruses causing rice Tuyo disease. 2+2
- c. (i) Briefly state each step of a viral infection cycle.
(ii) What is prophage. 3+1
- d. (i) Define Terminal Redundancy and Headful packaging.
(ii) What are the functions of sv-40 virus large and small T antigen.
(iii) Write down the application of cyanophages in various field of biology. 2+1+1
- 3. Answer any one question of the following: 1x8=8**
- a. (i) With diagram discuss the apoptosis process.
(ii) Discuss the role of protein in Lambda phage transcription. 4+4
- b. (i) Briefly describe about the bacteriophage transcription.
(ii) Write down the application of bacteriophage in medical field.
(iii) What are the difference between lytic and lysogenic cycle. 4+2+2

Group B (MCB 102.2)

Full Marks 20

- 1. Answer any two questions of the following: 2x2= 4**
- a. What are the general properties of TMV. 2
- b. How does RNA virus make most use of their small genome size? 2

(3)

- c. Write down the symptoms and disease caused by Rubella and Rabies Virus? 1+1
- d. Mention few important picornaviruses and the disease caused by them? 2
- 2. Answer any two questions of the following: 2x4= 8**
- a. Write down a short note on one step growth curve. 4
- b. i) What additional genes are present in HIV which are not present in other retroviruses?
(ii) Mention the role of 'Tat' protein in HIV replication.
(iii) How non -oncogene containing retroviruses transform normal cells to cancer cells. 1+2+1
- c. Discuss the mechanism of the entry virus into plant cells. 4
- d. How do the retroviruses replicate with in a host? 4
- 3. Answer any one question of the following: 1x8=8**
- a. (i) Mentioin the roles of adenoviral E₁A protein in the replication of adenovirus and describe how adenoviral vector is used to prepare vaccine (COVISHILKD) against SARS COV-2.
(ii) Draw the structure of hepatitis B-virus (HBV) genome and describe its replication Via RNA intermediate. 4+4
- b. With figure describe different penetration strategies followed by different viruses during infection. 8

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