



Paper ID : 260684

Printed Page: 1

Subject Code:BOE088

Roll No:

BTECH

(SEM. VIII) THEORY EXAMINATION 2025-26

VIROLOGY

TIME: 3 HRS

M.MARKS: 70

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A**1. Attempt all questions in brief.****02 x 7 = 14**

Q no.	Question	CO	Level
a.	What is the importance of neuraminidase in viral entry to host cell?	2	K2
b.	Define capsid and capsomere.	1	K1
c.	Distinguish between temperate and virulent phage.	3	K2
d.	List two common mechanisms of antiviral drug resistance.	4	K3
e.	Give an illustrated account of structure of virus.	1	K1
f.	How virus can be detected by a rapid antigen testing?	2	K2
g.	Define subunit vaccines and give an example.	1	K1

SECTION B**2. Attempt any three of the following:****07 x 3 = 21**

Q no.	Question	CO	Level
a.	Explain, why RT-PCR technique is considered a gold standard for viral detection.	2	K2
b.	Discuss how viruses manipulate host cellular machinery for replication.	3	K3
c.	Discuss the effects of viral infection on host macromolecules (DNA, RNA and protein).	4	K4
d.	Describe the diversity, shapes and sizes of viruses with suitable examples.	2	K2
e.	Give a detailed note on structure, pathogenesis and control measures of SARS pathogen.	3	K4

SECTION C**3. Attempt any one part of the following:****07 x 1 = 07**

Q no.	Question	CO	Level
a.	Describe flaviviruses (Dengue/West Nile) with respect to structure, pathogenesis and disease.	3	K2
b.	Discuss the potential of CRISPR/Cas9 technology in excising viral genomes from latent host cells.	2	K3

4. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	Design a modern antiviral strategy using siRNA, antisense RNA or ribozymes and discuss its working mechanism and practical limitations.	4	K4
b.	Describe the stages of the HIV life cycle and analyze the role of reverse transcription in the progression of AIDS and immune dysfunction.	3	K3



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5. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	What are interferons? Comment on the mode of action of interferons.	3	K2
b.	Outline the steps involved in purification of viruses.	2	K1

6. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	Describe the structure, classification and detailed life cycle of Retroviruses.	3	K2
b.	Explain the pathogenesis of influenza virus and differentiate between antigenic shift and drift.	2	K3

7. Attempt any one part of the following:**07 x 1 = 07**

Q no.	Question	CO	Level
a.	Compare and contrast the replication strategies and pathogenesis of Paramyxoviruses and Rhabdoviruses.	3	K2
b.	Enlist the steps involved in the large-scale manufacturing of viral vaccines with emphasis on quality assurance (QA) and Quality Control (QC) issues that must be addressed to ensure safety and efficacy.	4	K3