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BTECH
(SEM VIII) THEORY EXAMINATION 2024-25
VIROLOGY

TIME: 3 HRS

M.MARKS: 100

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

SECTION A

1. Attempt all questions in brief. 2 x 10 = 20

Q No.	Question	CO	Level
a.	List two commonly used antiretroviral drug classes.	1	K2
b.	Name two viral diagnostic techniques commonly used in clinical practice.	2	K1
c.	Recall conventional vaccines? Mention two types.	5	K2
d.	What do you mean by antiviral libraries.	4	K1
e.	Exemplify one virus each from the Herpesviridae and Poxviridae families.	2	K3
f.	Which enzyme is responsible for converting viral RNA into DNA in retroviruses?	3	K1
g.	Outline two common shapes of viral capsids.	1	K4
h.	Name the virus family responsible for dengue and state its genome type.	3	K1
i.	Differentiate between cytokines and interferon.	5	K2
j.	What is a virion and how is it different from living organism?	1	K1

SECTION B

2. Attempt any three of the following: 10 x 3 = 30

Q No.	Question	CO	Level
a.	Outline the basis of virus classification systems and nomenclature highlighting how genomic structure and replication strategies contribute to their taxonomy.	3	K4
b.	Summarize the strategies used by retroviruses to integrate into the host genome and discuss how these strategies contribute to viral persistence and disease progression.	4	K2
c.	Analyze the pathogenic mechanism of rabies viruses, highlighting the host-virus interactions and immune responses involved in each.	2	K4
d.	Describe the structure and replication cycle of Influenza virus.	3	K2
e.	Compare the naked and enveloped virus structures with two examples of each.	2	K3

SECTION C

3. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	Differentiate between DNA vaccine and subunit vaccine along with role of adjuvants in viral vaccine development.	5	K2
b.	Interpret molecular biology of SARS-CoV and its public health impact.	2	K3



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4. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	Explain the historical milestones that led to the discovery and understanding of viruses.	1	K2
b.	Demonstrate diagrammatically HIV structure, replication and pathogenesis of AIDS.	4	K3

5. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	Interpret, how viral infections affects host macromolecules and cellular functions. Include examples of viruses that target specific host systems.	5	K2
b.	Analyze the structural and pathogenic differences among +strand RNA viruses and Picornaviruses .	3	K4

6. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	Discuss the mechanism of oncogenesis of any DNA virus.	1	K2
b.	List the mechanism used by viruses to counter host antiviral defenses.	2	K1

7. Attempt any one part of the following: 10 x 1 = 10

Q No.	Question	CO	Level
a.	Illustrate the principle and mechanism of siRNA and ribozymes in modern viral control strategies.	5	K4
b.	Explain the life-cycle of retroviruses with special emphasis on reverse transcription.	4	K2