



BRAINWARE UNIVERSITY

Term End Examination 2024-2025

Programme – DMLT-2023

Course Name – Virology & Mycology

Course Code - DMLT303

(Semester III)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :
- (i) What was the first virus ever discovered?
 - a) Smallpox virus
 - b) HIV Virus
 - c) Tobacco mosaic virus
 - d) Influenza virus
 - (ii) Which of the following phase determines the specificity of the virus?
 - a) Uncoating
 - b) Release
 - c) Attachment
 - d) Penetration
 - (iii) Which enzyme is responsible for sealing the gaps between Okazaki fragments?
 - a) Helicase
 - b) Primase
 - c) DNA polymerase
 - d) DNA ligase
 - (iv) Which of the following is NOT a common viral shape?
 - a) Spherical
 - b) Cuboidal
 - c) Helical
 - d) Complex
 - (v) Which fungal infection is characterized by the formation of fungal balls within pre-existing lung cavities?
 - a) Candidiasis
 - b) Aspergillosis
 - c) Cryptococcosis
 - d) Coccidioidomycosis
 - (vi) Which statement is true about capsomeres?
 - a) They are individual units of the capsid
 - b) They are viral proteins for replication
 - c) They are units of nucleic acid in viruses
 - d) All of these
 - (vii) Which statement is true about a virion?
 - a) It is a lytic phage
 - b) It is a lysogenic phage
 - c) It refers to the viral capsid
 - d) It is an infectious and fully formed viral particle
 - (viii) Can you identify the determination factor for the specificity of a virus?
 - a) Uncoating
 - b) Release
 - c) Attachment
 - d) Penetration

- (ix) Select the primary target for HIV
- | | |
|-----------------------|-----------------------|
| a) CD4+ T lymphocytes | b) CD8+ T lymphocytes |
| c) CD4+ B lymphocytes | d) CD8+ B lymphocytes |
- (x) Which of the following RNA is present in most of the plant viruses?
- | | |
|----------|----------|
| a) ssDNA | b) ssRNA |
| c) dsRNA | d) dsDNA |
- (xi) Which of the following is NOT a method of virus cultivation?
- | | |
|--------------------|-----------------------|
| a) Cell culture | b) Animal inoculation |
| c) Plating on agar | d) PCR amplification |
- (xii) Which type of fungal culture medium is selective for the growth of dermatophytes and inhibits the growth of bacteria?
- | | |
|--|---------------------------|
| a) MacConkey agar | b) Blood agar |
| c) Sabouraud agar with chloramphenicol | d) Lowenstein-Jensen agar |
- (xiii) How many hydrogen bonds connect Adenine (A) and Thymine (T)?
- | | |
|------|------|
| a) 1 | b) 2 |
| c) 3 | d) 4 |
- (xiv) Which HIV protein is involved in viral DNA integration into the host genome?
- | | |
|-------------|--------------------------|
| a) Protease | b) Integrase |
| c) gp120 | d) Reverse transcriptase |
- (xv) What is the role of HIV's protease enzyme?
- | | |
|--|----------------------------------|
| a) To synthesize viral RNA | b) To degrade host cell proteins |
| c) To cleave viral polyproteins into functional proteins | d) To facilitate viral entry |

Group-B

(Short Answer Type Questions)

3 x 5=15

- Explain in brief about the basic tests for AIDS. (3)
 - Write the function of 120GP and 41GP. (3)
 - What is the purpose of using electron microscopy in virus staining? (3)
 - Describe the guideline to prevent HIV for neonatal. (3)
 - Compare & Contrast between HIV and AIDS? (3)
- OR**
- Illustrate briefly about NACO strategy for HIV Diagnosis. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

- How do fungi reproduce, and what are the differences between asexual and sexual reproduction in various fungal species? (5)
- Aspergillus* sp. is mold but *Candida* sp. is neither mold nor yeast. From the information given, how can you evaluate the statement? (5)
- Illustrate briefly about the laboratory diagnosis of fungal infection. (5)
- You have to do COVID19 RT-PCR test, As a lab technologist illustrate the experimental set up for COVID19 test. (5)
- How will you diagnose *Candida* using germ tube test? (5)
- Doctor suspects that Patient Mr. Nath may be suffering from cryptococcosis. As a lab technologist, how can you analyze and differentiate *Cryptococcus*? (5)

OR

Classify Fungi based on Spore Formation. (5)