



16295



BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – DMLT-2023/DMLT-2024

Course Name – Virology & Mycology

Course Code - DMLT303

(Semester III)

Library

Brainware University
398, Ramkrishnapur Road, Barasat
Kolkata, West Bengal-700125

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) Which of the following phase determines the specificity of the virus?
 - a) Uncoating
 - b) Release
 - c) Attachment
 - d) Penetration
- (ii) What is the direction of new DNA strand synthesis?
 - a) 5' to 3'
 - b) 3' to 5'
 - c) Both 5' to 3' and 3' to 5'
 - d) No specific direction
- (iii) Which of the following is a common technique for obtaining a fungal specimen for culture?
 - a) PCR
 - b) Blood smear
 - c) Skin scraping
 - d) Gram staining
- (iv) Fungal cultures are typically incubated at what temperature range?
 - a) 25-30°C
 - b) 35-37°C
 - c) 42-45°C
 - d) Room temperature
- (v) Select from the following is a common laboratory method used for the identification of fungi?
 - a) Gram staining
 - b) PCR
 - c) Sabouraud agar culture
 - d) Urinalysis
- (vi) Identify the correct reason for positive result under wood lamp test
 - a) Chitin cellwall
 - b) pteridine pigment
 - c) phosphate granules
 - d) ergosterol
- (vii) Identify the common pathogenic fungi that is NOT naturally found in soil
 - a) Candida albicans
 - b) Coccidioides immitis
 - c) Sporothrix schenckii
 - d) Cryptococcus neoformans
- (viii) Choose the correct processing for skin scraping sample

- a) Gram staining
c) 10% KOH mounting
- b) PAS
d) Indian ink staining
- (ix) One of the routine microscopic laboratory identification methods of the fungi is done by using
- a) 70% KOH mount
c) 10% KOH
- b) 50% H₂O₂
d) Formalin
- (x) Which of the following is not an RNA virus?
- a) Retrovirus
c) Rhabdovirus
- b) Enterovirus
d) Adenovirus
- (xi) A 45 year old man is diagnosed with AIDS, he was living with HIV for more than 5 years. Which of the following statements is true regarding the diagnosis of the disease?
- a) A low CD4+ T cell count (>200 cells/mm³)
c) The person with AIDS can live up to 10 years
- b) It occurs at the early stage of the HIV infection
d) The virus is usually in a dormant state during this stage
- (xii) Which of the following diseases are related to coronavirus?
- a) MERS
c) Both A and B
- b) SARS
d) Neither A nor B
- (xiii) Which culture medium is commonly used for the isolation of dermatophytes?
- a) Sabouraud agar
c) Blood agar
- b) MacConkey agar
d) Lowenstein-Jensen agar
- (xiv) Which component of lactophenol cotton blue stain is used to preserve fungal specimens?
- a) Lactose
c) Cotton blue
- b) Phenol
d) Ethanol
- (xv) What is the role of HIV's protease enzyme?
- a) To synthesize viral RNA
c) To cleave viral polyproteins into functional proteins
- b) To degrade host cell proteins
d) To facilitate viral entry

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Write a short note on ELISA. (3)
3. Describe the diagnosis process in case of Wood lamp test. (3)
4. Discuss the principle of KOH solution to visualize fungal structure under microscope. (3)
5. Describe about the five clinical stages of HIV. (3)
6. Discuss the differences between leading and lagging strand synthesis, including the roles of Okazaki fragments and the mechanisms for their ligation. (3)

OR

Illustrate briefly about the Structure of HIV. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. You want to detect the HIV virus from a suspected patient. ELISA or NAAT which experiment can be used for final confirmation? Explain. (5)
8. Doctor suspects that Patient Mr. Nath may be suffering from cryptococcosis. As a lab technologist, how can you analyze and differentiate cryptococcus? (5)
9. Explain the procedure for specimen collection of fungi for KOH mount, including the necessary precautions and techniques involved. (5)
10. Define superficial infections, and how do they differ from deep tissue infections? (5)

11. Illustrate briefly about Opportunistic Mycoses. (5)
12. Compare & contrast between RT PCR and Rapid test for coronavirus detection with proper explanation. (5)

OR

Compare and contrast between bacteria and fungi with suitable examples (5)

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