SAMPLE

THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
ACADEMIC YEAR 2019/2020 – SEMSETER I

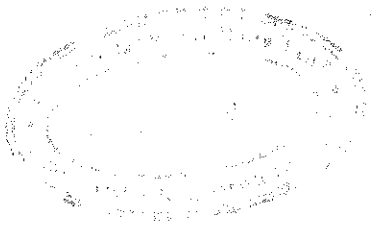
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS
MDU4307 – VIROLOGY & MYCOLOGY – LEVEL4
NO BOOK TEST **DURATION: 1/ ½ HOURS**

DATE: 19TH FEBRUARY 2020 TIME: 11.30AM –1.00PM

REGISTRATION NO: .....

IMPORTANT INSTRUCTIONS/ INFORMATIONS TO CANDIDATES

- This question paper consists of **10 pages** with **10 Multiple Choice Questions (Part A), 04 Structured Essay Questions (Part B)** and **01 Essay Question (Part C).**
- Write your Registration Number in the space provided.
- Answer **ALL** questions.
- **Multiple Choice Questions (Part A):** Indicate the best answer for each question, in the answer sheet provided by placing a cross (X) in **INK** in the relevant cage. (answers in pencil will **NOT** be marked)
- **Structured Essay Questions (Part B):** Write answers within the space provided.
- **Essay Question (Part C):** Write the answer in the booklet provided.
- Do not remove any page/part of this question paper from the examination hall.
- Mobile phones and any other electronic equipment are **NOT** allowed. Leave them outside.



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PART A – Multiple Choice Questions (10 Marks)

1. All viruses consist of
   (a) capsid and envelop.
   (b) capsid and nucleic acid.
   (c) envelope and nucleic acid.
   (d) nucleocapsid and envelop.

2. Viral envelop
   (a) is a protein coat surrounding the viral genetic material.
   (b) determines the shape of the virus.
   (c) acts as a shield against organic solvent.
   (d) is derived from host cell membranes.

3. Bacteriophages
   (a) contain only few genes.
   (b) have head-tail structure.
   (c) are used to treat human diseases.
   (d) always cause lysis of infected bacterial cell.

4. Continuous cell lines
   (a) contain haploid cells.
   (b) are comprised of single type of cells.
   (c) exhibit same karyotype of original parent cells.
   (d) have a finite lifespan.

5. The commonest cause of vial gastroenteritis in children is
   (a) norovirus.
   (b) adenovirus.
   (c) astrovirus.
   (d) rotavirus.

6. Which one of the following statements is **false** regarding fungal morphology?
   (a) They have membrane bound organelles.
   (b) Glucan is present in the cell wall.
   (c) Dimorphic fungi exist in the filamentous form in the host tissue and as yeast form in the environment.
   (d) Mycelium of filamentous fungi may be septate or coencytic.

7. Which of the following are asexual reproductive methods?
   (a) Ascospores, zoospores, blastospores
   (b) Chlamydospores, arthrospores, blastospores
   (c) Zygospores, blastospores, zoospores
   (d) Blastospores, basidiospores, arthrospores

8. Which one of the following is **true** regarding *Malassezia furfur*?
   (a) Can be grown in blood agar plates.
   (b) Forms a part of the normal skin microbiota in humans.
   (c) Causes hair infections.
   (d) Causes characteristic hyperpigmented rash on the body.

9. Which one of the following is **false** regarding chromoblastomycoses?
   (a) Enter the body through inhalation.
   (b) Are caused by brown pigmented fungi.
   (c) Produce slow-growing colonies.
   (d) Lesions are mostly found in the limbs.

10. Which one of the following is **true** regarding non-dermatophytic molds?
    (a) Invade intact skin.
    (b) Are keratinolytic organisms.
    (c) Include *Scytalidium dimidiatum, Aspergillus niger* and *Epidermophyton flocossum.*
    (d) Exist as saprophytes.

PART B – Structured Essay Questions (80 Marks)

1. Viruses share some distinctive characteristics that serve to distinguish them from other unicellular organisms.

1.1 List four (04) unique characteristics of viruses. (04 marks)

I.....

II.....

III.....

IV.....

1.2 List two (02) structure-based and two (02) chemical composition based viral classification systems. (04 marks)

(a) Structure-based classification systems

I.....

II.....

(b) Chemical composition-based classification systems

I.....

II.....

1.3 Herpesviruses have dsDNA. Briefly describe the transcription process including the enzyme/s involved. (06 marks)

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1.4 Explain the mechanism of "receptor mediated endocytosis" which is used by viruses to gain entry into the host cells. (06 marks)

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(Total: 20 Marks)

2.0

2.1 Define "enteric viruses". (02 marks)

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2.2 List four (04) transmission modes of enteric viruses. (04 marks)

I.....

II.....

III.....

IV.....

2.3 Outline the diagnostic assays used to confirm the rotavirus infection by clinical laboratories in Sri Lanka. (06 marks)

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2.4 Vaccines are an effective method for prevention of viral infections. Briefly outline a live attenuated vaccine available against enteric viruses. (08 marks)

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(Total: 20 Marks)

3.0

3.1 Write three (03) methods that humans can acquire fungal infections. (03 marks)

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3.2 Name five (05) health conditions where opportunistic fungal pathogens can cause diseases in hosts. (05 marks)

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3.3 Provide three (03) examples infections for the following fungal infections categories. Give one causative organism for each example. (12 marks)

a) Superficial mycoses

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b) Subcutaneous mycoses

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c) Systemic infection by a primary pathogen / dimorphic fungi

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d) Systemic infection by an opportunistic pathogen

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(Total: 20 Marks)

4.0

4.1 List three (03) steps to be taken to improve the quality of the clinical specimens (skin, hair, nails) which are used to diagnose superficial fungal infections. (06 marks)

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4.2 State the storage temperatures for the following samples that are sent for fungal cultures. (04 marks)

Bronchoalveolar lavage .....

Blood .....

Skin scrapings.....

Skin biopsies .....

4.3 Briefly describe the collection procedure of following samples. (10 marks)

Skin scrapings

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Bone marrow aspirate

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Cerebrospinal fluid

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Blood for serology

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Biopsy specimen

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(Total: 20 Marks)

PART C – Essay Questions (10 marks)

1. Describe the clinical features and laboratory diagnosis of dermatophyte infections in humans.

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ANSWER SHEET FOR PART A

1.	a	b	c	d
2.	a	b	c	d
3.	a	b	c	d
4.	a	b	c	d
5.	a	b	c	d
6.	a	b	c	d
7.	a	b	c	d
8.	a	b	c	d
9.	a	b	c	d
10.	a	b	c	d