THE OPEN UNIVERSITY OF SRI LANKA
22 MAR 2024
EXAMINATION DIVISION

THE OPEN UNIVERSITY OF SRI LANKA

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF MEDICAL LABORATORY SCIENCES

ACADEMIC YEAR 2023/2024 – SEMESTER I

BACHELOR OF MEDICAL LABORATORY SCIENCES (BMLS) HONOURS

MDU6302 – PUBLIC HEALTH MICROBIOLOGY

FINAL EXAMINATION **DURATION: 03 HOURS**

DATE: 22nd March 2024 TIME: 09.30 AM – 12.30 PM

INDEX NO: .....

Part B: Structured Essay Questions (40 Marks)

Q1. Waterborne diseases cause a significant public health burden globally. These diseases are caused by pathogenic microorganisms that are transmitted through contaminated water, leading to millions of cases of illness and death each year, especially among children under the age of five in developing countries.

1.1 Define the term "Infectious Dose 50 (ID_{50})" of a pathogen. (02 Marks)

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1.2 Mention two (02) limitations of using "*Escherichia coli*" as an indicator organism of fecal contamination in water samples. (02 Marks)

i. .....

ii. .....

1.3 Briefly describe the differences between the "total coliform count" and "fecal coliform count" in water quality testing. (06 Marks)

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(Total 10 Marks)

Q2. Foodborne diseases are caused by contamination of food and occur at any stage of the food production, delivery, and consumption chain. Foodborne diseases are caused by eating food contaminated with bacteria, viruses, parasites, or chemical substances such as heavy metals.

2.1 Name three (03) food borne parasites. (03 Marks)

i. .....

ii. .....

iii. .....

2.2 Mention two (02) advantages of using molecular tests over culture-based identification tests to detect foodborne pathogens in food samples. (02 Marks)

i. .....

ii. .....

2.3 Briefly describe the significance of "Norovirus" as a foodborne viral infection.

(05 Marks)

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(Total 10 Marks)

Q3. Vector-borne diseases are indeed significant public health concerns globally. These diseases may cause public health burden due to their widespread distribution, potential for outbreaks, and associated morbidity and mortality.

3.1 Define the term "vector". (01 Mark)

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3.2 Mention the pathogen, host, and the vector of the vector borne viral diseases below.

(06 Marks)

Disease	Pathogen	Host	Vector
Chikungunya			
Japanese encephalitis			
Yellow fever			
Dengue fever			

3.3 Briefly describe the steps in transmission cycle of vector borne infection. (03 Marks)

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(Total 10 Marks)

Q4. Bioterrorism, biological warfare, and bio-crime are events where biological toxins or infectious agents used to kill or damage humans, animals, or plants in war or to achieve some desired end.

4.1 Define the term "Bioterrorism". (02 Marks)

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4.2 Mention two (02) bacterial pathogens which are categorized under bioterrorism threat level A, B and C. (03 Marks)

Category A	Category B	Category C

4.3 Briefly describe the role of "Laboratory Response Network (LRN)" in response to bioterrorism agent identification. (05 Marks)

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(Total 10 Marks)

Part C: Essay Question. (30 Marks)

Answer the question within the sheets provided.

Q1. Describe the differences between "Public Health Microbiology Laboratory" and "Medical Microbiology Laboratory". (15 Marks)

Q2. Explain why immunization is a key element of public health programs. (15 Marks)

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