THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
ACADEMIC YEAR 2023/2024 – SEMESTER II

BACHELOR OF MEDICAL LABORATORY SCIENCES (BMLS) HONOURS

MDU4302 – DIAGNOSTIC BACTERIOLOGY

FINAL EXAMINATION **DURATION: 03 HOURS**

DATE: 18th October 2024 TIME: 09.30 AM – 12.30 PM

INDEX NO: .....

Part B: Structured Essay Questions (40 Marks)

Q1. A 45-year-old male patient visits the chest clinic, presenting with a persistent cough lasting over 3 weeks, along with loss of appetite and weight loss. The clinician suspects tuberculosis (TB) and requests sputum microscopy and culture for diagnosis.

1.1 State the recommended specimen collection procedure for diagnosing TB?

(03 Marks)

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1.2 List two (02) culture media used to isolate *Mycobacterium tuberculosis.* (02 Marks)

i. .....

ii. .....

1.3 Briefly describe why *Mycobacterium tuberculosis* is unable to take up the Gram stain.

(02 Marks)

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1.4 Briefly explain the precautionary steps that need to be followed prior to handling a sputum specimen suspected of TB. (03 Marks)

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(Total 10 Marks)

05

Q2. Meningitis is typically caused by infections from bacteria, fungi, virus or parasites. It can be life-threatening and requires necessitates prompt medical attention.

2.1 Name three (03) common bacteria associated with neonatal meningitis. (03 Marks)

i. .....

ii. .....

iii. .....

2.2 List the sequence of tests to be performed on cerebrospinal fluid (CSF) obtained from different collection bottles. (02 Marks)

i. .....

ii. .....

iii. .....

iv. .....

2.3 List two (02) types of additional specimens that are often collected along with CSF specimens. (02 Marks)

i. .....

ii. .....

2.4 Briefly describe the cellular responses and biochemical properties that you can observe in bacterial meningitis. (03 Marks)

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(Total 10 Marks)

Q3.

3.1 List two (02) sero-groups that are responsible for pandemics caused by cholera.

(02 Marks)

i. .....

ii. .....

3.2 State two (02) types of specimens that can be used to diagnose cholera infection.

(02 Marks)

i. .....

ii. .....

3.3 Name the selective culture media used for isolating *Vibrio cholera*? (01 Mark)

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3.4 Briefly explain the transportation procedure for specimens suspected of cholera infection.

(05 Marks)

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(Total 10 Marks)

07

Q4. Antibiotics are a type of medication intended to target and eliminate bacterial pathogens by disrupting essential biological processes. However, their misuse or overuse can lead to antibiotic resistance, which makes infections more challenging to treat.

4.1 Name two (02) classes of antibiotics that inhibit bacterial cell wall synthesis. (02 Marks)

i. .....

ii. .....

4.2 Outline the distinctive characteristics of urinary antiseptics. (02 Marks)

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4.3 Define the term "Minimum Bactericidal Concentration". (02 Marks)

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4.4 Briefly explain the principle of the Epsilometer test. (04 Marks)

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(Total 10 Marks)

Part C: Essay Question. (30 Marks)

Answer the question within the booklet provided.

Q1. Describe the differences between the CLSI (Clinical and Laboratory Standards Institute) method and Stokes method for antibiotic susceptibility testing. (15 Marks)

Q2. Explain the methods used to preserve microbial culture in Microbiology laboratories. (15 Marks)

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