BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS
MDU4302- DIAGNOSTIC BACTERIOLOGY

FINAL EXAMINATION **DURATION: 03 HOURS**

DATE:5TH SEPTEMBER 2023 TIME: 9.30 AM – 12.30 PM

Part B: Structured Essay Questions (40 marks)

Q1.

A 28-year-old school teacher, presented to the clinic with complaints of difficulty swallowing, fever, and fatigue. Upon examination, his throat was red and inflamed. The medical officer suspected a bacterial infection and decided to perform further diagnostic tests.

1.1 What is the ideal specimen to be collected for laboratory diagnosis of the above bacterial infection? (01 mark)

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1.2 Briefly describe the microbiology laboratory diagnosis of the above infection using the specimen mentioned in 1.1. (05 marks)

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1.3 List two (02) the possible aetiological agents that could be isolated from the specimen mentioned in 1.1. (02 marks)

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1.4 The patient was given erythromycin. Briefly describe the mode of action of erythromycin. (02 marks)

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(Total 10 marks)

Q2.

A 45-year-old man presented to the emergency department with complaints of a painful, swollen, and erythematous, open wound on his right forearm. Based on the clinical presentation, no signs of systemic infection, however, a wound infection was suspected. It was decided to collect samples from the wound for bacteriological investigations.

2.1 What are the samples that need to be collected for laboratory diagnosis of the above wound infection? (01 mark)

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2.2 Outline the precautions to be followed during the transportation of the above-mentioned samples to the microbiology laboratory. (02 marks)

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2.3 Briefly describe the processing of the above-mentioned samples for bacteriological investigations. (05 marks)

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2.4 List two (02) bacterial causative agents which could be isolated from the samples mentioned in 2.1. (02 marks)

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(Total 10 marks)

Q3.

A 28-year-old male, presented to the dermatology clinic with a generalized painless ulcer on the genital area. Based on the clinical presentation, laboratory testing, and microscopy, he was diagnosed with primary syphilis.

3.1 Name the causative agent of syphilis. (02 marks)

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3.2 State the sample/s that need to be employed in the laboratory diagnosis of primary syphilis. (02 marks)

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3.3 Briefly outline the tests that you would conduct for laboratory diagnosis of syphilis, using the sample/s mentioned in 3.2. (06 marks)

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(Total 10 marks)

Q4

4.1 List four (04) antibiotic groups that inhibit bacterial protein synthesis. (02 marks)

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4.2 Briefly explain the principle of the epsilometer test. (05 marks)

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4.3 List three (03) relevant corrective actions to be taken for procedures with unexpected results. (03 marks)

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(Total 10 marks)

Part C: Essay Questions (30 marks)

1. A 28-year-old previously healthy male presented to the emergency department with profuse diarrhea accompanied by blood and mucus. Describe the laboratory diagnosis of blood and mucus diarrhea due to *Shigella* infection. (15 marks)

2. Write a short note on "antibiotic resistance patterns in Gram-positive bacteria". (15 marks)

(Total 30 marks)

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