



UNIVERSITY OF JAFFNA, SRI LANKA
SECOND EXAMINATION FOR MEDICAL DEGREES PART (I)

February 2025
Academic Year 2020/2021
Microbiology - Paper II

Date: 11.02.2025

9.00 am to 11.00 am. (Two hours)

Answer all four questions

Answer each question in a separate answer book

- 1. 1.1** A 55-year-old diabetic lady was admitted to the ward for the management of a non-healing ulcer on her foot. While in hospital, she developed signs of infection of the ulcer. Her pus culture report revealed MRSA.
- 1.1.1 State what MRSA stands for. (05 marks)
- 1.1.2 Describe the possible sources of MRSA infection in this patient. (15 marks)
- 1.1.3 Name and describe the transmission-based precautions to be followed in this patient. (35 marks)
- 1.2** Discuss how the healthcare sector contributes to the development and spread of antimicrobial resistance. (45 marks)
- 2.** A 28-year-old man was admitted to the Teaching Hospital, Jaffna with sudden onset of fever, muscle pain, headache and malaise for three days. The history revealed that he had been shooting videos in the recent heavy rains. Leptospirosis was one of the differential diagnoses in this patient.
- 2.1 Describe the possible sources and modes of transmission of leptospirosis. (25 marks)
- 2.2 Describe the risk factors for leptospirosis. (25 marks)
- 2.3 Discuss the microbiological investigations that can be done to confirm leptospirosis. (35 marks)
- 2.4 Discuss briefly the antibiotic treatment of leptospirosis. (15 marks)

3. A 61-year-old man was admitted with difficulty in swallowing, irritability and anxiety for two days. His wife said that he was asking to switch off the fan as the wind flow was making him struggle to breathe. He was bitten on his fingertips three weeks ago by the neighbour's dog. The wound was bleeding at the time of the bite and the dog died a few days later but he did not seek any medical advice then. He died in the hospital two days after admission.

3.1 State the most probable diagnosis. (10 marks)

3.2 Describe the pathogenesis of the infection mentioned in 3.1. (35 marks)

3.3 Mention the specimen that could have been sent to the reference laboratory, around the time of the dog bite, to identify the possible exposure of this patient to the causative organism. (05 marks)

3.4 Describe briefly the test/s that are available in Sri Lanka for the diagnosis of the infection mentioned in 3.1. (15 marks)

3.5 Discuss the measures that could have prevented this infection in this patient. (35 marks)

4. A Six-year-old boy was brought to the OPD at Teaching Hospital, Jaffna with a three - day history of fever, cough, and maculopapular rash. The rash initially appeared on his face and subsequently spread to his trunk and extremities. His mother said that he had been irritable and lethargic, with watery discharge from his eyes before the onset of the rash. On examination, his temperature was 39 °C, and Koplik spots were observed on the buccal mucosa.

4.1 State the most likely diagnosis and the aetiological agent for this clinical scenario. (10 marks)

4.2 Describe the source, mode of transmission and the infective period of the infection mentioned in 4.1. (20 marks)

4.3 Describe the pathogenesis of the infection mentioned in 4.1. (15 marks)

4.4 Outline five (5) complications of the infection mentioned in 4.1. (20 marks)

4.5 Explain why re-emergence of the infection mentioned in 4.1 occurred in Sri Lanka recently. (20 marks)

4.6 Briefly describe the prevention and control measures currently used in Sri Lanka for the infection mentioned in 4.1. (15 marks)