UNIVERSITY OF JAFFNA, SRI LANKA

SECOND EXAMINATION FOR MEDICAL DEGREES PART (I)

May 2025

Academic Year 2020/2021

Microbiology - Paper II

Date: 20.05.2025 **9.00 am to 11.00 am. (Two hours)**

Answer all four questions

Answer each question in a separate answer book

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1. A 67-year-old woman was admitted with a history of fever, dyspnea and productive cough for three days. She was alert. Her temperature on admission was 39.5°C, blood pressure 85/55 mmHg, and respiratory rate 32 per minute. Air entry was reduced and coarse crepitations were heard over the lower zone of the right lung. Her C-reactive protein (CRP) level was 102 mg/L.

1.1 State the most probable diagnosis. (10 marks)

1.2 Name **three (3)** causative organisms of the infection you mentioned in 1.1. (05 marks)

1.3 Name the **two (2)** important investigations that should be done in this patient for the aetiological diagnosis. (10 marks)

1.4 Describe the measures that should be taken to minimise the contamination of **each** specimen taken for the investigations you mentioned in 1.3. (40 marks)

1.5 State the temperature at which the specimens for the investigations you mentioned in 1.3 should be transported to the laboratory. (10 marks)

1.6 Discuss the antibiotic treatment of this patient. (25 marks)

2. **2.1** A 32-year-old man developed an annular rash with raised inflamed margins on his upper medial thigh. It was itchy. He said that it has been increasing in size with central clearing.

2.1.1 State the most probable fungal diagnosis. (10 marks)

2.1.2 Name the possible causative agents of the infection you mentioned in 2.1.1. (05 marks)

2.1.3 Describe the possible sources and modes of transmission of the infection you mentioned in 2.1.1. (25 marks)

2.1.4 Name **two (2)** microbiological tests that can be done for the aetiological diagnosis of this infection. (10 marks)

2.1.5 Describe how to collect, store and transport the specimen for the tests mentioned in 2.1.4. (20 marks)

2.2

2.2.1 List the other sites where the microorganisms you mentioned in 2.1.2 can cause infection. (05 marks)

2.2.2 Discuss the treatment of the infections caused by the organisms you mentioned in 2.1.2 at different sites. (25 marks)

3. **3.1** A six-year-old otherwise healthy boy was admitted with blood and mucous diarrhoea for three days. He passed small volume stools around 10-15 times on the day of admission and had tenesmus. Social history revealed poor personal hygiene. He was often given food from street vendors.

3.1.1 State the most probable diagnosis. (05 marks)

3.1.2 Name the most common causative agent of the infection in this patient. (05 marks)

3.1.3 Name the most reliable specimen for the aetiological diagnosis in this patient. (05 marks)

3.1.4 Describe briefly how to collect the specimen mentioned in 3.1.3 from this patient, and store and transport it to the microbiology laboratory. (20 marks)

3.1.5 Discuss the use of antibiotics in the treatment of this patient. (20 marks)

3.1.6 Describe briefly the transmission-based precautions to be followed in this patient. (20 marks)

3.2 A 35-year-old woman from England visited Sri Lanka for the first time. Three days after arrival, she developed intense watery diarrhoea and abdominal cramps. Locals who had the same food and beverages did not get any illness.

3.2.1 State the most probable diagnosis. (10 marks)

3.2.2 Name **five (5)** possible causative organisms of the infection in this patient. (05 marks)

3.2.3 Explain briefly why the disease mentioned in 3.2.1 occurred in this person and not in the locals. (10 marks)

4. A 35-year-old businessman presented with fatigue, right upper quadrant abdominal discomfort, and mild jaundice. Investigations revealed elevated liver enzymes and positive Hepatitis B surface antigen (HBsAg). All the other relevant markers tested were negative.

4.1 State the most probable diagnosis. (05 marks)

4.2 Describe the source and modes of transmission of the infection mentioned in 4.1.1. (20 marks)

4.3 Describe the usefulness of all the relevant markers used in the diagnosis and management of the infection mentioned in 4.1.1. (25 marks)

4.4 State the possible outcomes in this patient following the infection mentioned in 4.1.1. (15 marks)

4.5 Describe the preventive measures for the infection mentioned in 4.1.1. (20 marks)

4.6 A healthcare worker sustained a needle prick injury while taking blood from this patient. Outline the immediate post-exposure management for this healthcare worker. (15 marks)