

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**SECOND EXAMINATION FOR MEDICAL DEGREES PART I (1<sup>st</sup>)**  
**JANUARY 2021**  
**Microbiology Paper II**

**Date: 05.01.2021.**

**Time allowed: 2 hours**

Answer all four questions.

Answer each question in a separate answer book.

1. A 45-year-old patient developed rapidly spreading pain and swelling of the lower limb following a prick injury. On examination, severe edema of the lower limb was noted with erythema, blistering and bullae formation. Gas gangrene was clinically suspected.
  - 1.1 State the most likely anaerobic bacteria contributing to this **presentation.** (10 marks)
  - 1.2 Describe the pathogenesis of this condition. (60 marks)
  - 1.3 State three principles in managing this patient. (30 marks)
2. A 28-year-old man presented to the dermatology clinic with an itchy rash in the On examination, the rash was found to be an annular, scaly lesion with a slightly elevated reddish edge and sharp border. The dermatologist started empirical treatment with antifungal drugs.
  - 2.1 What is the most likely clinical diagnosis for the above stated condition? (10 marks)
  - 2.2 Name three fungal genera that might be responsible for the above lesion. (15 marks)
  - 2.3 Name two other sites where the same fungal genera may cause infection. (10 marks)
  - 2.4 Describe the specimen collection from all three sites and transport to identify the fungal aetiology in this patient. (40 marks)
  - 2.5 Describe the antifungal agents used to treat the infections in all three sites. (25 marks)

3. A 36-year-old man was diagnosed as infected with HIV.
- 3.1 Describe the **possible sources, modes of transmission and risk factors for this infection in this man.** (30 marks)
- 3.2 Describe briefly the **pathogenesis of HIV infection and its possible consequences in this man.** (20 marks)
- 3.3 Describe the **tests used for screening, confirmation and monitoring the progress of HIV infection.** (20 marks)
- 3.4 A nursing officer accidentally got a needle stick injury while collecting blood from this patient. Describe the **post exposure management for this nursing officer.** (30 marks)
4. 4.1 Explain the term 'sepsis.' (10 marks)
- 4.2 Briefly describe the **pathogenesis of sepsis.** (40 marks)
- 4.3 State the **bedside clinical criteria of sepsis (qSOFA) and indicate how organ dysfunction is recognized using the qSOFA score.** (20 marks)
- 4.4.1 Name **5 likely source of sepsis in a 70 year old ventilated patient in the Intensive Care Unit (ICU).** (15 marks)
- 4.4.2 State what samples you would send the microbiology laboratory from this patient to identify the **bacterial cause of sepsis.** (15 marks)