

**UNIVERSITY OF JAFFNA, SRI LANKA**  
**SECOND EXAMINATION FOR MEDICAL DEGREES**  
**September 2020**



**Microbiology Paper II**

**Date: 14.09.2020**

**Time: 2 hours**

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Answer all **four** questions.

1. A 24-year-old otherwise healthy, medical student admitted with fever of five days duration was confirmed to be in the leaking stage of dengue fever. He did not have fever, did not feel ill and was hemodynamically stable from the day after admission. His blood for culture, taken on the day of admission, revealed on the fourth day of incubation growth of coliform resistant to multiple antibiotics including carbapenems.
  - 1.1 State the most possible reason for the resistant coliform identified in his blood culture report. (10 marks)
  - 1.2 Describe how the reason mentioned in 1.1 can be prevented. (35 marks)  
Discuss how these antimicrobial resistant strains are selected and spread and how to prevent it. (55 marks)
  
2. A 32-year pregnant woman, at term, developed generalised vesiculo-pustular rash and fever. The blisters developed as successive crops. On examination, she had skin lesions at different stages such as vesicles, pustules and crusted lesions. She delivered the baby three days after the onset of rash.
  - 2.1 State the most possible diagnosis and the causative organism for the infection in this patient. (10 marks)
  - 2.2 Describe the source and modes of transmission of the organism you mentioned in 2.1. (30 marks)
  - 2.3 Describe the pathogenesis of the infections caused by the organism you mentioned in 2.1. (35 marks)
  - 2.4 Discuss the consequence of this infection in the baby and how to prevent it. (25 marks)

3. An eight-year boy was admitted to the hospital with fever for one week associated with frontal headache, gastrointestinal symptoms, malaise, hepatomegaly and elevated liver enzymes. Differential diagnoses were considered and it was confirmed as typhoid fever by microbiological tests.
- 3.1 Name the causative agent responsible for typhoid fever. (05 marks)
- 3.2 State the mode of transmission of typhoid fever. (10 marks)
- 3.3 Describe the pathogenesis of typhoid fever. (25 marks)
- 3.4 Discuss the laboratory tests available for the diagnosis of typhoid fever. (35 marks)
- 3.5 Briefly describe the preventive measures for typhoid fever (25marks)
- 4 4.1 A 16-year girl presented with rash, burning, and itching on her left wrist that had started 4 days after wearing her nickel-plated wrist watch.
- 4.1.1 Name the type of hypersensitivity reaction responsible for the above condition. (10 marks)
- 4.1.2 Describe the pathophysiology of the hypersensitivity reaction mentioned in 4.1.1. (35 marks)
- 4.2 A 56 year manual laborer developed a mass over his right foot which gradually enlarged over a six months period. Multiple discharging sinuses gradually appeared over the area which discharged a brownish granular discharge.
- 4.2.1 What is the most likely clinical condition? (10 marks)
- 4.2.2 Name one bacterial and one fungal genus which can cause the clinical condition mentioned in 4.2.1. (10 marks)
- 4.2.3 Discuss how would you arrive at an aetiological diagnosis. (20 marks)
- 4.2.4 Write the choice of antimicrobials used for each type of pathogen mentioned in 4.2.2. (15 marks)