

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**POSTGRADUATE DIPLOMA IN MEDICAL MICROBIOLOGY**  
**EXAMINATION – DECEMBER 2015**

Date :- 9<sup>th</sup> December 2015

Time :- 9.00 a.m. – 12.00 noon

**STRUCTURED ESSAY PAPER**

Answer all questions.

Answer each question in a separate book.

1. Quality assurance is considered an important aspect in laboratory medicine.
  - 1.1. What is the aim of establishing quality assurance in a microbiology laboratory? (10 marks)
  - 1.2. List three (03) basic aspects that should be adequately controlled in the laboratory to achieve quality. (15 marks)
  - 1.3. State five (05) benefits of having an internal quality assessment scheme. (25 marks)
  - 1.4. Describe briefly, the factors which affect the quality of a cerebrospinal fluid (CSF) specimen received by the microbiology laboratory for culture. (50 marks)
2. Leptospirosis is an important zoonotic infection caused by a spirochaete.
  - 2.1. Name two (02) other infections caused by spirochaetes and the causative agents of these infections. (10 marks)
  - 2.2. Write a brief account on pathogenesis of leptospirosis. (30 marks)
  - 2.3. List the methods available for laboratory diagnosis of acute leptospirosis in humans, giving advantages and disadvantages of each method. (60 marks)

3. An 8 year old child was admitted to the ward with fever and cough for 3 days and difficulty in breathing for a few hours. Lower respiratory tract infection due to influenza virus was suspected.
- 3.1. What samples would you collect from this child for laboratory diagnosis of influenza? (10 marks)
- 3.2. State the instructions you would give to the ward staff regarding collection and transport of these samples. (25 marks)
- 3.3. List the tests available at the National Influenza Centre (NIC), MRI for diagnosis. (15 marks)
- 3.4. The mother of this child is in the 2<sup>nd</sup> trimester of her pregnancy. What advice / recommendations would you give the mother in this situation? (30 marks)
- 3.5. State four (04) activities of the NIC as part of Global Influenza Surveillance Network? (20 marks)
4. A 27 year old woman presented to the outpatient department of Base Hospital, Matara with fever, painful inguinal lymphadenopathy and migrating, tender, reddish patches on the right thigh of 2 days duration. She has had similar episodes in the past.
- 4.1. What is the most likely causative organism for this presentation? (10 marks)
- 4.2. Outline the laboratory tests available to confirm your diagnosis. (20 marks)
- 4.3. What are the main steps in the management of this patient? (15 marks)
- 4.4. What other clinical manifestations would you expect in other residents of this area due to the causative organism mentioned above? (15 marks)
- 4.5. Describe strategies, ongoing and implemented in the past, for elimination of this infection. (40 marks)

5.

5.1. List the pathogenic yeasts that cause infections in humans. (20 marks)

5.2. Briefly describe the predisposing factors in the host that would lead to infections by these yeasts. (30 marks)

5.3. List the systemic infections caused by the yeasts listed in 5.1. (20 marks)

5.4. Briefly describe the collection of clinical specimens to diagnose the conditions listed in 5.3. (30 marks)

6.

6.1. List the cells of the innate immune system. (14 marks)

6.2. List the cells of the specific immune system. (06 marks)

6.3. Explain briefly the innate immune response to viral infections. (40 marks)

6.4. Explain how the specific immune system acts to contain extra cellular bacterial infection. (40 marks)