



UNIVERSITY OF JAFFNA, SRI LANKA
SECOND EXAMINATION FOR MEDICAL DEGREES (1st)

October 2018

Microbiology Paper II

Date: 09. 11. 2018

Time allowed: 2 hours

Answer all four questions

1. A 41 year old man presented to the surgical ward with a history of fever, malaise and painful swelling of the left leg for three days. On examination the leg was reddish, swollen, warm and tender. His left inguinal lymph nodes were enlarged.
 - 1.1 What is the likely clinical diagnosis? (10 marks)
 - 1.2 Name the two most common causative organisms responsible for this condition? (10 marks)
 - 1.3 Briefly describe the virulent virulence factors of the two organisms mentioned in 1.2 and the different mechanisms which contribute to the pathogenesis of the infection mentioned in 1.1. (30 marks)
 - 1.4 Describe the nonspecific immune responses that normally protect patients from the type of infection mentioned in 1.1. (30 marks)
 - 1.5 Describe briefly the role of the inguinal lymph nodes in controlling the infection in this patient. (20 marks)

2. A 17 year-old boy presented to Teaching Hospital, Jaffna with a history of fever for four days with arthralgia, myalgia, retro-orbital pain and headache. On admission he had nausea, vomiting and right upper abdominal pain. On examination he was dehydrated and confused. His blood report showed severe thrombocytopenia ($22,000/\text{mm}^3$) and his hepatic transaminases (ALT and AST) were elevated. Ultrasound scan revealed pleural effusion.
 - 2.1 What is most likely clinical diagnosis for the case? (10 Marks)
 - 2.2 Describe the pathogenesis of the infection stated in 2.1. (30 Marks)
 - 2.3 Discuss the specific tests to confirm the diagnosis given in 2.1 considering the progression of the infection. (30Marks)
 - 2.4 Briefly describe the preventive measures for this infectious disease. (30 Marks)

3. A 9 year old boy presented with a history of diarrhoea with watery stools of three days duration which developed into a blood and mucus containing diarrhoea on the day of admission. He also had vomiting and abdominal cramps. The child was febrile and his vital parameters were stable and managed in the paediatric ward.

3.1 What is the probable diagnosis in this child? (10 Marks)

3.2 List the possible causative organisms for the above infection. (20 Marks)

3.3 Briefly describe the laboratory investigations you would order to confirm the diagnosis? (15 Marks)

3.4 Discuss the treatment strategies available for this disease condition. (15 Marks)

A week later the child got readmitted in an acutely ill state with poor urine output and yellowish discolouration of the skin.

3.5 State the possible clinical diagnosis in the child, which is related to the previous infection. (10 Marks)

3.6 Describe the pathogenesis of this clinical condition. (15 Marks)

3.7 Discuss what advice you would give to prevent such infections in the future. (15 Marks)

4. A 66 year old man was admitted with a history of sudden onset of fever for three days associated with chills, cough, difficulty in breathing and sharp chest pain worsened by deep breathing. He is a cigarette smoker.

He looked ill on admission, with a temperature of 39.5 °C, and respiratory rate 24/minute. On auscultation, there were coarse crepitations over the right mid zone of the chest.

His white blood cell count was 14,500/ μ l, 85% being neutrophils and his C reactive protein was 100mg/L.

4.1 What is the most probable diagnosis? (10marks)

4.2 Name the most common causative organism for this infection. (10marks)

4.3 Name the two important investigations done to detect the causative organism. (10marks)

4.4 Describe briefly how to collect, store and transport the specimens to the laboratory for the investigations mentioned in 4.3. (50marks)

4.5 Discuss how this infection could have been prevented in this patient. (20marks)