

# UNIVERSITY OF JAFFNA, SRI LANKA

SECOND EXAMINATION FOR MEDICAL DEGREES (PART 1) May 2013

## Microbiology

Date : 20.05.2013

Time allowed: 2 hours

Answer all **four** questions

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1. 1.1 Describe briefly how you would
  - 1.1.1 clean an accidental blood spillage during venepuncture in a patient in the ward (25marks)
  - 1.1.2 instruct a female patient with urinary tract infection to collect urine for culture (25marks)
  - 1.1.3 collect, store and transport blood for culture from a patient suspected to have typhoid fever (25marks)
- 1.2 Discuss briefly the factors that decide your choice of an antibiotic. (25marks)
2. A 4 year old girl was admitted to the Jaffna Teaching Hospital with a history of fever for 3 days associated with headache, vomiting, neck pain and left ear pain. On the night before admission she became drowsy. During the previous week she and her 2 month old brother had upper respiratory tract infections with nasal congestion. Her medical history was otherwise unremarkable. She had a poor immunization history.

On examination she was lethargic and had a stiff neck. Her white blood cell count (WBC) was  $11,300/\mu\text{l}$ , 93% being neutrophils. Random blood sugar was 128mg/dl.

Her CSF report was as follows; appearance - turbid, WBC count  $1300/\mu\text{l}$ , neutrophils 87%, red blood cells  $163/\mu\text{l}$ , CSF sugar 29mg/dl and CSF protein 155mg/dl. CSF microscopy revealed Gram negative short bacilli.

  - 2.1 What is the most probable diagnosis and the causative microorganism? (4marks)
  - 2.2 Explain how you arrived at your diagnosis. (15marks)
  - 2.3 Mention 3 other bacteria that cause the illness you mentioned in 2.1. (6marks)
  - 2.4 Describe the mode of transmission of the organism you mentioned in 2.1 and the role of its major virulence factor. (20marks)
  - 2.5 Discuss the measures which will reduce the risk of a similar illness in her younger brother. (20marks)
  - 2.6 Describe briefly how to collect, store and transport a CSF specimen to the laboratory (35marks)

3. A 46 year old man, recently returned from Indonesia, was admitted to the medical ward with a history of loss of appetite, and nausea for 3 weeks. He did not have fever or jaundice. His physician wants to exclude hepatitis B viral infection.
- 3.1 Mention 5 viruses other than hepatitis B virus that can cause hepatitis. (10marks)
- 3.2 Describe the microbiological diagnosis of hepatitis B infection. (30marks)
- 3.3 Describe briefly the mode of transmission of hepatitis B virus. (30marks)
- 3.4 Discuss the preventive measures for hepatitis B infection (30marks)
4. A 10 year old girl was admitted to the Jaffna Teaching Hospital with a history of fever for 4 days associated with migrating polyarthrits. Pain and swelling initially affected the left knee joint, then progressed to the right elbow followed by the right ankle and then the left elbow. On examination her painful joint was very tender and warm. On inquiry she remembered having had throat pain 2 weeks before.
- Her ESR was 92mm in the 1<sup>st</sup> hr. The ASOT was 400units/ml. Her throat swab for culture yielded Gram positive cocci in chains which on grouping belonged to group A.
- 4.1 What is the most probable diagnosis? (5marks)
- 4.2 Mention the causative agent (species) for this illness. (5marks)
- 4.3 Describe briefly the pathogenesis of the illness you mentioned in 4.1 (30marks)
- 4.4 Discuss briefly the use of antibiotics in the management of the illness you mentioned in 4.1 (30marks)
- 4.5 Mention 5 other illnesses caused by the organism you mentioned in 4.2 (10marks)
- 4.6 Name 5 **other** Gram positive cocci and 3 illnesses caused by each of them. (20marks)