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University Examinations 2024/2025

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTERS IN
EPIDEMIOLOGY

**HPE 7114: EPIDEMIOLOGY OF COMMUNICABLE AND VECTOR-BORNE
DISEASES**

DATE: DECEMBER 2024

TIME: 3 HOURS

INSTRUCTIONS:

Answer Question one and any other three Questions

QUESTION ONE (30 MARKS)

- a) Briefly describe prevention and control measures for Syphilis (6 marks)
- b) Describe briefly the life cycle of Chlamydia (7 marks)
- c) Describe briefly the clinical manifestations of anthrax (6 marks)
- d) Explain the clinical manifestations observed in yellow fever infection (7marks)
- e) Explain why breastfeeding is an intervention that acts at all three levels of primary prevention (4 marks)

QUESTION TWO (10 MARKS)

A sudden outbreak of *Shigella* infections has been reported in a coastal city over the past two weeks. Local hospitals have reported a spike in patients with symptoms of acute diarrhea, fever, abdominal cramps, and occasional bloody stools. Most cases have been identified in two urban neighborhoods where sanitation facilities are limited, and recent heavy rains have led to flooding and possible contamination of the water supply. Describe the steps involved in conducting an outbreak investigation for *Shigella* (10 marks)

QUESTION THREE (10 MARKS)

A 34-year-old woman presents to the emergency department with symptoms of abdominal pain, diarrhea, nausea, and fever. She mentions 'that her symptoms began 24 hours after attending a party



where she consumed homemade mayonnaise prepared with raw eggs and undercooked chicken. Upon further questioning, she reveals a preference for eating raw or lightly cooked eggs and poultry. Her stool sample was sent for laboratory testing.

- a) Outline the most likely causative agent (1 marks)
- b) Discuss the epidemiological significance of the pathogen (9 marks)

QUESTION FOUR (10 MARKS)

A 25-year-old man arrives at the clinic displaying symptoms suggestive of a sexually transmitted disease. He presents with a solitary lesion observed on both the penis and the anus. Laboratory tests reveal the presence of a bacteria that can be transmitted both through sexual contact and from mother to fetus during pregnancy. This particular bacterium can lead to chronic infections and is known to cause granulomatous lesions in the cardiovascular system and central nervous system.

- a) State the likely diagnosis (1 mark)
- b) Discuss the epidemiological significance of the pathogen (9 marks)

QUESTION FIVE (10 MARKS)

A 22-year-old student, Moffat, visits the MUST hospital complaining of a sore throat. He presents with a fever exceeding 38°C , severe pharyngeal pain, noticeable redness in the throat and enlarged, dark-red tonsils with occasional pus spots. Additionally, small red spots (petechiae) are observed on both the soft and hard palate. Moffat's submandibular lymph nodes beneath the jaw are noticeably swollen. A Throat swab was obtained and a gram stain test revealed the presence of gram-positive cocci bacteria.

- a) State the likely diagnosis (1 mark)
- b) Discuss the epidemiological significance or the pathogen (9 marks)

