



AMREF INTERNATIONAL UNIVERSITY  
SCHOOL OF PUBLIC HEALTH  
DEPARTMENT OF HEALTH SYSTEMS MANAGEMENT AND DEVELOPMENT  
BACHELOR OF SCIENCE IN HEALTH SYSTEMS MANAGEMENT AND  
DEVELOPMENT

END OF SECOND SEMESTER EXAMINATION MAY-AUGUST 2025

HMD 211 Communicable and Non-Communicable Diseases

TIME: Two Hours

Date : 5 August 2025

TIME : Two (2) Hours Start 4.30PM-----End 6.30 PM.....

**INSTRUCTIONS**

1. This exam is marked out of 70 marks
2. This Examination comprises TWO Sections  
Section A: Compulsory Question (30 marks)  
Section B: Long Answer Questions (40 marks)

## SECTION A: SHORT ANSWER QUESTIONS

ANSWER ALL QUESTIONS. MAXIMUM SCORE – 40 MARKS

### SECTION A: SHORT ANSWER QUESTIONS

ANSWER ALL QUESTIONS. MAXIMUM SCORE – 40 MARKS

#### Case Study: Typhoid Fever Outbreak in an Urban Slum

##### Background

In September 2023, an urban slum in NeZambia reported a sudden surge in cases of high fever, abdominal pain, and diarrhea. Over 150 cases were documented in two weeks, with 10 deaths, primarily affecting young adults. The community depends on a contaminated municipal water supply, and poor sewage disposal exacerbates sanitation issues. Lab tests confirmed *Salmonella typhi* in water and stool samples.

##### Clinical Presentation

A 28-year-old man arrives at a temporary health center with persistent fever (39°C), headache, rose-colored spots on the abdomen, and bloody diarrhea. He mentions four neighbors have similar symptoms.

##### Interventions

- Antibiotic therapy (e.g., ciprofloxacin) was administered.
  - Severe cases were hospitalized for IV fluids and monitoring.
  - A hygiene campaign encouraged water purification, handwashing, and food safety.
  - Vaccination drives targeted high-density residential areas.
1. Name the most likely causative organism of this outbreak. (2 Marks)
  2. List two primary transmission routes of this pathogen. (2 Marks)
  3. State the importance of prompt antibiotic treatment critical in typhoid fever (1 Mark)
  4. List three key components of fluid management in typhoid fever. (3 Marks)
  5. Identify three environmental risk factors that facilitated this outbreak. (3 Marks)

6. Highlight ways *Salmonella typhi* invades intestinal cells and causes systemic infection. (2Marks)
7. Propose six public health strategies to prevent future typhoid outbreaks in this slum. (3Marks)
8. Differentiate between essential (primary) and secondary hypertension, providing one example of a cause for each (2 Marks)
9. List four preventable factors that increase the likelihood of developing rheumatic heart disease (4 Marks)
10. Outline the causative agent of trachoma (2 Marks)
11. Match the diseases in Column A with their correct descriptions in Column B. (4 Marks)

Column A (Diseases)

1. Tuberculosis
2. Malaria
3. Hepatitis B
4. Dengue Fever
5. Pneumonia
6. HIV/AIDS
7. Tetanus
8. Measles

Column B (Descriptions/Risk Factors)

- A. Mosquito-borne viral infection causing high fever and joint pain
- B. Bacterial infection leading to lockjaw and muscle spasms
- C. Airborne bacterial disease affecting the lungs
- D. Viral infection attacking the immune system, transmitted via bodily fluids
- E. Liver inflammation caused by a bloodborne virus
- F. Parasitic disease transmitted by *Anopheles* mosquitoes
- G. Highly contagious viral illness with a characteristic rash
- H. Lung infection caused by bacteria, viruses, or fungi

Column A							
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Column B							
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## Section B: Long Answer Questions

Answer Any Two (2) Questions. Each Question Carries 20 Marks.

9. (a) Define *Meningococcal Meningitis* (1Mark)
- (b) Describe the pathophysiology(4 Marks)
- (c) The management (6 Marks)
- (d) The prevention( 9) Marks
10. Using the WHO's six health system building blocks, analyze strategies to control Tuberculosis in low-resource settings. (20Marks).
11. Compare and contrast type 1 and type 2 diabetes mellitus under the following subheadings (10 Marks):
- i. Etiology/Cause (1 Mark)
  - ii. Age of Onset(1 Mark)
  - iii. Pathophysiology (How the disease develops)(3Marks)
  - iv. Risk Factors(1 Mark)
  - v. Treatment Approaches(2 Marks)
  - vi. Long-term Complications(2Marks)
- (b) Differentiate between primary (essential) and secondary hypertension using the following criteria (10 Marks):
- i. Definition and Causes)(1 Mark)
  - ii. Prevalence in the Population(2Marks)
  - iii. Underlying Mechanisms (e.g., hormonal vs. genetic factors)(2Marks)
  - iv. Diagnostic Approach(1 Mark)
  - v. Management Strategies(3 Mark)
  - vi. Prognosis (Likely Outcomes)(1 Mark)