



AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF COMMUNITY HEALTH
MASTER OF PUBLIC HEALTH
END OF AUGUST 2026 EXAMINATION

UNIT CODE: MPH713 **UNIT NAME:** PRINCIPLES OF EPIDEMIOLOGY
DATE: 6TH AUGUST 2026
TIME: Three Hours **Start:** 1730Hours **Finish** 2030Hours

INSTRUCTIONS

1. This exam is marked out of 100 marks
2. This Examination comprises TWO Sections

Section A: Compulsory Question (25 marks)

Section B: Long Answer Questions (75 marks): Choose any three from five

SECTION A: COMPULSORY (25 Marks)

Short Answer Questions (Each question carries 5 marks)

1. Explain when primordial, primary, and secondary prevention strategies are used for cardiovascular diseases, providing a concrete example for each level
2. Explain three applications of public health
3. Explain any model of disease causation and its relevance in the contemporary society
4. Describe sporadic, endemic and pandemic in relation to any disease of your choice
5. Discuss any two factors that affect infectivity of an agent while giving examples

SECTION B: THIS SECTION HAS FIVE QUESTIONS. CHOOSE ANY THREE QUESTIONS (EACH QUESTION CARRIES 25 MARKS)

6. Discuss the natural history of a disease of your choice and identify the types of prevention measures that can be undertaken at the different stages of the disease progression

7. A study tracks a dynamic cohort of 2,000 textile workers to monitor occupational asthma. At the start of the monitoring period, 100 workers are diagnosed with asthma. Over the next two years, researchers log a total of 3,600 person-years of follow-up among the healthy workforce, during which 72 workers develop new cases of asthma. Because of severe complications, 9 of these newly diagnosed workers die during the study period.

Calculate:

- The baseline prevalence of asthma
 - The incidence rate (density) using person-time, and
 - The case fatality rate among the newly diagnosed cases.
8. An isolated island has a stable population of 10,000 residents, all initially free of a specific tropical virus. On March 1, an outbreak begins. By June 1, public health surveillance confirms that 800 people have contracted the virus. A snapshot survey on June 1 reveals that 600 people are actively sick, 150 have fully recovered, and 50 have died from the virus.
- Calculate the:
- Cumulative incidence of the virus over the 3-month period,
 - Point prevalence on June 1, and
 - The case fatality rate of the outbreak.
9. A 5-year prospective cohort study tracked the relationship between high daily caffeine intake (Exposer) and the development of generalized anxiety disorder (Events) in a high-stress workplace:

	Developed Anxiety	Remained Healthy
High Caffeine Intake	120	180
Low/No Caffeine Intake	60	440

- Draw and complete the 2 X 2 table (5marks)
 - Use the table to calculate the Relative Risk (RR) for this cohort (10marks)
 - Use the table to calculate the Odds Ratio (OR) for this cohort (5marks)
10. Answer the following questions in relation to disease dynamics in a community
- Distinguish between incidence and prevalence of a disease in the community (5marks)
 - Discuss three factors that increase the prevalence of a disease in a population (10 marks)
 - Discuss three factors that decrease the prevalence of a disease in a population (10 marks)