



W1-2-60-1-6

**JOMO KENYATTA UNIVERSITY
OF
AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2022/2023**

**SEMESTER II EXAMINATIONS FOR THE DEGREE OF
MASTER OF SCIENCE**

PEH 3106: APPLIED EPIDEMIOLOGY

DATE: FEBRUARY 2023

TIME: 3 HOURS

INSTRUCTIONS: ANSWER ANY FOUR (4) QUESTIONS

Question 1

- a) Describe the importance of disease surveillance information in epidemiology. (10 marks)
- b) Outline the criteria used by epidemiologists to establish disease exposure and causal relationship (10 marks)
- c) In epidemiology of non-communicable diseases, what are modifiable risk factors? List three (3) examples (5 marks)

Question 2

- a) What is your understanding of the term confounding. How does it affect validity of results in epidemiological studies? (10 marks)
- b) Briefly discuss the uses of epidemiology (15 marks)

Question 3

- a) Describe data sources commonly utilized in descriptive studies (10 marks)
- b) Describe a role for epidemiology in the field of policy evaluation. Consider how the field epidemiology might inform policy evaluation of laws that regulate tobacco consumption in public places (15 marks)

Question 4

- a) A study in Kajiado county looked for an association between trachoma (a chronic eye infection by Chlamydia bacteria) and overcrowding. All individuals in one community were examined over the period of one week for the presence of trachoma. Following examination members of the community filled in a questionnaire about the size of their homes and the number of people living in it. Based on this information suggest appropriate
 - i) Study design (1 mark)
 - ii) Primary exposure (1 mark)
 - iii) Primary outcome (1 mark)
 - iv) Measure of disease (outcome) occurrence (1 mark)
 - v) Possible measures of exposure effect (3 marks)

- b) You are the focal person for infectious diseases in the Ministry of Health. Hepatitis C virus infection affects around 1 % of the general population in the country. This infection may be transmitted by needles, sex or from mother to newborn child. You are requested by the Ministry of Health to conduct a study to determine who is at high risk of infection so that control policy can be devised. What study design would you use?
- i) Your choice of design (1 mark)
 - ii) Why (4 marks)
 - iii) Disadvantages (3 marks)
- c) Briefly describe any 5 characteristics of non-communicable diseases - NCDs (10 marks)

Question 5

- a) Describe epidemiology steps involved in an outbreak investigation. (13 marks)
- b) How could descriptive epidemiological studies examine the following health issues in Kenya
- i. Increase in obesity among city dwellers (4 marks)
 - ii. Increasing traffic injuries among “bodaboda” riders both in urban and rural settings (4 marks)
 - iii. Surge in type-diabetes among youths (4 marks)

Question 6

- a) Briefly discuss limitations faced by epidemiologists in studying relationships between exposure and disease outcomes in relation to community environmental pollution (16 marks)
- b) Explain THREE (3) functions of descriptive epidemiology. (3 marks)
- c) Explain ecological fallacy and its occurrence in epidemiology (3 marks)
- d) Highlight key activities in developing disease control strategies (3 marks)