



MACHAKOS UNIVERSITY

University Examinations 2019/2020 Academic year

SCHOOL OF HEALTH SCIENCES

DEPARTMENT OF PUBLIC AND COMMUNITY HEALTH

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE IN POPULATION HEALTH.

HEH 400: APPLIED EPIDEMIOLOGY

DATE: 23/10/2020

TIME: 8.30-10.30 AM

INSTRUCTIONS

This paper consists of two sections A and B

SECTION A

Specific Instructions

- This section has one question
- The question is compulsory
- The question is 30 marks

QUESTION ONE (30 MARKS)

- Explain the following terms as used in disease association; -
 - Causal
 - Noncausal
 - Artifactual (3 marks)
- State the importance of epidemiology in public health (3 marks)
- Using, an example, explain observational epidemiological study designs (3 marks)
- Explain ecological fallacy and its occurrence in epidemiology (3 marks)
- The relative risk of lung cancer associated with passive smoking is low, but the population attributable risk is considerable. Explain (3 marks)
- Explain how random errors contribute to bias in epidemiology (3 marks)
- Explain the principles of public health disease surveillance (3 marks)
- Explain the common methods of analyzing data in disease outbreak investigations (3 marks)
- Highlight key activities in developing disease control strategies (3 marks)

- j) Outline the various types of disease screening methods (3 marks)

SECTION B:

Specific Instructions

- **This section has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) You are the Team Leader of a research investigating the development of cardiovascular diseases among adult smokers in Nairobi, Kenya. Discuss factors that may contribute to confounding in your study and how they would be minimized. (10 marks)
- b) Discuss the epidemic patterns classifications in disease spread (10 marks)

QUESTION THREE (20 MARKS)

- a) You are planning a study that will involve drawing blood from children to monitor micronutrient levels. Discuss ethical principles that govern the conduct of such an epidemiological study (10 marks)
- b) As an epidemiologist you have been charged with the responsibility of investigating the association of a high-fat diet with development of bowel cancer in older persons. Discuss three (3) experimental studies that you would utilize. (10 marks)

QUESTION FOUR (20 MARKS)

- a) You have been placed at Bela Health centre for your field attachment. Your supervisor has requested you to prepare a talk on public health screening. Based on these explain the characteristics of a disease that would prompt you to initiate a screening programme (10 marks)
- b) Explain the criteria used by epidemiologists to establish disease exposure causal relationship (10 marks)

QUESTION FIVE (20 MARKS)

- a) As a student of epidemiology, identify a specific public health problem of your choice, design a plan for conducting surveillance of the problem (10 marks)

b) Explain the various strategies used in disease control

(10 marks)