



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF APPLIED AND HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENT & HEALTH SCIENCES
UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH
BSCH/BSEH 2020S&2021J/YEAR 4/SEMESTER 2

APH 4451: APPLIED EPIDEMIOLOGY
END OF SEMESTER EXAMINATION
SERIES: AUGUST 2024
TIME: 2 HOURS

Instructions to Candidates

This paper consists of FIVE questions

Answer question ONE (COMPULSORY) and any other TWO questions.

This paper consists of two printed pages.

Mobile phones are NOT allowed in the examination room

QUESTION ONE [COMPULSORY]

(30 MARKS)

- a). Briefly explain four types of epidemiological information useful for influencing public health policy and planning and in individual decision making (4 marks)
- b). Distinguish between case-cohort design and the nested case-control design [2 marks
- c). A case-control study of 1700 participants looked at the association between Tamoxifen and uterine cancer. The study included 689 cases. There were 139 cases and 58 controls taking Tamoxifen
 - i. Tabulate the information [2 marks]
 - ii. Calculate the Odds ratio and interpret the results [3 marks]
- d). Highlight the applications, merits and demerits of Randomized controlled trials [5 mark]
- e). Outline three ways of controlling confounding at the design stage of the study [3 marks]

f). You are investigating a new drug for malaria among children in a disease endemic community. As per the protocol, the parents are expected to consent for their children to participate in the research. How would you proceed with consenting of parents who cannot read or write? (5 marks)

h). Briefly explain the advanced model of epidemiologic triangle [6 marks]

QUESTION TWO

a). In a study examining the relationship between oral contraceptives and bacteriuria, you follow women who do and do not use oral contraceptives over three-year period, and find that 70 of the 500 individuals who use OC acquired bacteriuria, while 150 of 3000 individuals who don't use OC acquired bacteriuria.

- i. Describe what study design this is [1 marks]
- ii. what is the incidence among the exposed [2 marks]
- iii. what is incidence among the unexposed [2 marks]
- iv. calculate the relative risk [2 marks]
- v. What is the attributable risk [2 marks]
- vi. Suppose that the prevalence of use of OC in the population is 20%. What is the expected incidence of bacteriuria in our population [2 marks]

b). Describe four factors to consider when choosing a study design [4 marks]

c). Explain why is it **NOT** appropriate to use the odds ratio to approximate the relative risk

[5 marks]

QUESTION THREE

Discuss in details the concepts used in assessing whether a relationship, an exposure and a disease is casual (20 marks).

QUESTION FOUR

The Randomized Clinical Trial (RCT) is considered the gold standard of study designs. Using HIV candidate vaccine trial in a hypothetical situation, describe what an RCT involves. [20 mark]

QUESTION FIVE

Write an essay on Disease Surveillance (20 marks)