



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

MAIN CAMPUS

**UNIVERSITY EXAMINATIONS
2021/2022 ACADEMIC YEAR**

FIRST YEAR, FIRST SEMESTER EXAMINATION

FOR THE MASTERS IN HEALTH PROFESSIONS EDUCATION

COURSE CODE: HPE 833

COURSE TITLE: ADVANCED EPIDEMIOLOGY

DATE: Wednesday 20th APRIL 2022

TIME: 8:00-10:00Am

INSTRUCTIONS TO CANDIDATES

Answer All Questions

TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating.

This Paper Consists of 4 Printed Pages. Please Turn Over.

QUESTION ONE (COMPULSORY, 25 MARKS)

- (a) Explain the concept of is epidemiology? [3 Marks]
- (b) Discuss the six major components of epidemiology. [12 Marks]
- (c) State four advantages of cross sectional studies. [4Marks]
- (d) State three features of a good surveillance. [3 Marks]
- (e) Define the term prevalence rate and state its uses. [3 Marks]

QUESTION TWO [20 MARKS]

- (a) Define the following as used in epidemiology.
- Portal of exit. [4 Marks]
 - Susceptible human host. [3 Marks]
- (b) Why is epidemiology important to the community? [10 Marks]
- (c) Describe four stages in the natural history of a disease. [8 Marks]

QUESTION THREE [20 MARKS]

- (a) Discuss the epidemiologic triangle. [6 Marks]
- (b) Describe the epidemic with respect to person, place and time. [6 Marks]
- (c) State and discuss two types of epidemics. [4 Marks]
- (d) Differentiate between sensitivity and specificity. [4 Marks]
- (e) A cytological test was undertaken to screen women for cervical cancer. Consider a group of 24,103 women consisting of 379 women whose cervixes are abnormal (to an extent sufficient to justify concern with respect to possible cancer) and 23,724 women whose cervixes are acceptably healthy. A test was applied and results are tabulated

| | | Tests | | |
|------|--------|-------|-------|--|
| True | - | + | Total | |
| - | 23,362 | 362 | 23724 | |
| + | 225 | 154 | 379 | |

Calculate sensitivity and specificity

QUESTION FOUR [20 MARKS]

- a) What is communicable/infectious disease? [5 Marks]
- b) Discuss the components of infectious process. [3 Marks]
- c) What is case control study? [8 Marks]
- d) Describe different modes of disease transmission. [2 Marks]
- [12 Marks]

QUESTION FIVE [20 MARKS]

- a) What is descriptive epidemiology? [3 Marks]
- b) Differentiate between neo natal and perinatal mortality rate. [4 Marks]
- c) Given the following data

| Age at Death | Number of Infant Deaths | |
|------------------------------|-------------------------|---------------|
| | 1945 | 1946 |
| Under one Week | 864 | 1163 |
| 1 Week to 1 Month | 354 | 346 |
| 1 to 6 Months | 3232 | 1396 |
| 6 to 12 Months | 827 | 567 |
| All Ages Under 1 Year | 5277 | 3467 |
| Live Births | 24,441 | 38,654 |

Calculate as accurately as the data permit the infant mortality rate for

- i. The year 1946 [3 Marks]
- ii. The children born in 1945 who died in 1946. [3 Marks]
- iii. The separation factor. [3 Marks]
- d) Discuss the difference and the advantages of retrospective, cohort and prospective studies. [9 Marks]