



(University of Choice)

**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY**

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

MAIN EXAM

2023/2024 ACADEMIC YEAR

SECOND YEAR SECOND SEMESTER EXAMINATION

FOR THE DIPLOMA IN COMMUNITY HEALTH AND DEVELOPMENT.

COURSE CODE: CHD 216

COURSE TITLE: PRINCIPLES OF EPIDEMIOLOGY

DATE: 14TH /12/ 2023

TIME: 9.00 - 1100AM

INSTRUCTIONS TO CANDIDATES:

Answer SECTION A (COMPULSORY) and any other TWO SECTION B

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Paper Consists of 2 Printed Pages. Please Turn Over



INSTRUCTIONS

- Answer question 1 (COMPULSORY) and any other three questions.

QUESTION 1

Consider the table below and use it to answer questions that follows;

COMMUNITY A				COMMUNITY B		
AGE (YEAR)	POPULATION	DEATHS	DEATH RATE (PER 1000)	POPULATION	DEATHS	DEATH RATE (PER 1000)
UNDER 1	1000	15	?	5000	100	?
1-14	3000	30	?	20000	35	?
15-34	6000	60	?	35000	35	?
35-54	13000	52	?	17000	85	?
55-64	7000	105	?	8000	160	?
OVER 64	20000	1600	?	15000	1350	?
TOTAL						

Compute the standardized Mortality Ratio (SMR) in the community and describe your answer (20marks)

QUESTION 2

Consider the following information and answer the questions that follows:

Total average population= 50000

Total number of live births= 5000

Total number of deaths= 500

Total number of deaths before the age of 28days= 50

Total number of infant deaths= 250

Number of women who died from pregnancy related causes= 150

New cases of TB= 100

All cases of TB= 500

Deaths from TB= 50

Based on the above information, calculate the following (20 marks)

- i. The incidence rate of TB and give two uses of incidence rate
- ii. The prevalence rate of TB and list two uses of prevalence
- iii. The case fatality rate of TB and interpret your answer
- iv. The neonatal mortality rate
- v. The infant mortality rate
- vi. The crude death rate
- vii. The maternal mortality rate

QUESTION 3

Discuss Epidemiological surveillance under the following sub titles (20 marks)

- a. Definition
- b. Purpose of surveillance
- c. Types of surveillance
- d. Activities in surveillance
- e. Features of a good surveillance system

QUESTION 4

- a. Define incidence rate (2mks)
- b. 25 new cases of lung cancer were identified among 10000 smokers in a follow up study of 20 years duration. What is the incident risk rate of lung cancer among the smokers in percentage? (4 marks)
- c. 11,000 people in an area with large nuclear power plant were followed up for 7 years until development of cancer in the blood. 30 cases were identified over the 7 years period. What's the risk of development of blood cancer per 1000 population? (4 marks)
- d. Define the term Prevalence rate (2 marks)
- e. During flu season, there are 20 sick children and 80 healthy children taking a course in statistics. Compute prevalence of flu among the children (3 mks)
- f. Explain two factors that influence prevalence of diseases in a community (4 marks)

QUESTION 5

Discuss the determinants of health in a community (20 marks)

QUESTION 6

- a. Highlight the functions of epidemiology in health sector (5 marks)
- b. Explain the various sources of data in a health sector (4 marks)
- c. Expound on the various types of interview a researcher may employ during data collection (4 marks)

- d. Describe the different types of randomization in research (4 marks)
- e. List 3 factors that may influence the choice of a research design by a researcher (3 marks)