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(University of Choice)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

(MAIN CAMPUS)

UNIVERSITY EXAMINATIONS 2021/2022 ACADEMIC YEAR

FIRST YEAR SECOND SEMESTER MAIN EXAMINATIONS

FOR THE BACHELOR OF SCIENCE IN EPIDEMIOLOGY AND BIOSTATISTICS& B.Sc. IN COMMUNITY HEALTH AND DEVELOPMENT

COURSE CODE: HEM 121/HCD 127

COURSE TITLE: FOUNDATION OF EPIDEMIOLOGY

DATE: 19/4/2022 **TIME:** 8-10 AM

INSTRUCTIONS:

1. This paper consists of two sections (Section A and Section B)
2. Answer ALL the questions in section A and any TWO questions in section B

This Paper Consists of 2 Printed Pages. Please Turn Over

SECTION A: SHORT ANSWER QUESTIONS (40 Marks)

Instructions

- The section has a total of Ten (10) short answer questions (SAQs), carrying a maximum of forty (40) marks total.
- Answer all the questions
- Write your answers on the provided university examination booklet

1. Define the following terms as used in Epidemiology
   i. Pattern
   ii. Prevalence
   iii. Endemic
   iv. Attack rate

2. Identify four functions of epidemiology 4 marks
3. List the names of individuals who studied the following in regards to the history development of Epidemiology (4mks)
   i. Tested the hypothesis on the origin of epidemic of cholera_____
   ii. Quantified births, deaths and diseases_____
   iii. Established application of vital statistics for the evaluation of health problems_____
   iv. Suggested the criteria for establishing causation_____

   4 marks
4. Differentiate between direct and indirect transmission giving examples in each case . 4 marks
5. Ethical issues is critical in epidemiologic studies, identify the basic principles of ethics that guide studies dealing with human subjects 4 marks
6. Highlight the four advantages and disadvantages of experimental studies 4 marks
7. Briefly explain four factors that influence the choice of sampling methods 4 marks
8. Data collected in December at Lukuyani village revealed that there were 260 cases of COVID-19 at the time of data collection. If Karungu village had a total population of 5800 persons, calculate the prevalence of COVID-19 at that time highlighting its significance 4 marks
9. State eight criteria considered for implementing effective screening program 4 marks
10. Highlight five the sources of data for epidemiological studies 4 marks

LONG ANSWER QUESTIONS (30 Marks)

Instructions

- The section has TWO (3) Long Answer Questions (LAQs), totaling to a maximum of thirty 30) marks
- Answer Any two questions
- Write your answers on the provided university examination booklet

9. Disease does not occur randomly but happen upon the disturbance of the balance of the elements within ecological niche. The elements interact in a variety of ways for disease to occur. Using Cholera as an example as discuss the Epidemiologic Triad to explain disease causation 15 marks
10. Discuss determinants of health in community 15 marks
11. Table 2 Deaths Attributed to HIV or Leukemia by Age Group — United States, 2002

Age group (Years)	**Population (× 1,000)**	**Number HIV Deaths**	**of Number of Leukemia Deaths**
Total	288,357	14,095	21,498
0–4	19,597	12	125
5–14	41,037	25	316
15–24	40,590	178	472
25–34	39,928	1,839	471
35–44	44,917	5,707	767
45–54	40,084	4,474	1,459
55–64	26,602	1,347	2,611
65+	35,602	509	15,277
Not stated		4	0

Use the HIV data in Table 1 to answer the following questions:

i. What is the HIV-related mortality rate, all ages?
ii. What is the HIV-related mortality rate for persons under 65 years?
iii. What is the HIV-related YPLL before age 65?
iv. What is the HIV-related $YPLL_{65}$ rate?
v. Create a table comparing the mortality rates and YPLL for leukemia and HIV. Which measure(s) might you prefer if you were trying to support increased funding for leukemia research? For HIV research?