(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

MAIN EXAM

2021/2022 ACADEMIC YEAR

SECOND YEAR FIRST SEMESTER EXAMINATION

FOR THE DEGREE OF BACHELOR OF SCIENCE IN EPIDEMIOLOGY AND BIOSTATISTICS

COURSE CODE: HEM 227

COURSE TITLE: SPATIAL EPIDEMIOLOGY AND STATISTICS

DATE: TIME:

INSTRUCTIONS TO CANDIDATES:

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

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 2 Printed Pages. Please Turn Over

SECTION A: SHORT ANSWER QUESTIONS (40 Marks)

Instructions

- The section has a total of Six (6) 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. Describe the five spatial analysis functions of Geographic Information Systems software (5 marks)

2. List the sources of spatial data (6 marks)

3. Define the following concepts (6 marks)
    i. Cartography
    ii. Remote sensing
    iii. Scanning

4. Describe FOUR factors to be considered as a requisite criterion for a confounding factor (8 marks)

5. Describe the following measures of disease occurrence (8 marks)
    - Incidence
    - Prevalence
    - Risk
    - Vector

6. Outline the for types of spatial analysis in epidemiology (8 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

7. Globally, there is a growing interest in spatial epidemiology. Highlight some of the key factors contributing to this (15 marks)

8. Discuss observational studies under the following topics (15 marks)
   - Cohort study
   - Case-control studies
   - Cross-sectional studies
   - Ecological studies
   - Semi-ecological studies

9. Visualization of spatial data is a key role in your practice as an epidemiologist. Discuss any four different types of statistical maps that can be used (15 marks)