(*University of Choice*)

MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY

(MMUST)

MAIN CAMPUS

UNIVERSITY EXAMINATIONS

MAIN EXAM

2023/2024 ACADEMIC YEAR

FOURTH/ THIRD YEAR SECOND SEMESTER EXAMINATION

FOR THE DEGREE OF BSc IN EPIDEMIOLOGY AND BIOSTATISTICS AND DEGREE OF BSc IN PUBLIC HEALTH

COURSE CODE: HEM 326 AND HEH 426

COURSE TITLE: - GIS AND GPS IN EPIDEMIOLOGY AND PUBLIC HEALTH

DATE: 12/4/2024 TIME: 8.00-10.00 AM

INSTRUCTIONS TO CANDIDATES:

- This paper contains FOUR (4) questions
- SECTION A (Answer all questions)(Total =40 Marks)
- SECTION B (Attempt any two (2)questions) (total = 30 Marks) TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

Paper Consists of 3 Printed Pages. Please Turn Over

SECTION A: Answer all questions [40 Marks]

Question ONE [40 Marks]

a) Briefly explain how data records in GIS can be retrieved [2Marks]
b) Briefly describe how spatial data is applied to health data acquisition [4 Marks]
c) Discuss the application of ESRI ArcGIS software in health data management [4 Marks]
d) Briefly discuss the application of KoBoToolbox in health data management [4 Marks]
e) Briefly describe GIS as a tool in health data capture and analysis [4 Marks]
f) Describe the advantage of ESRI ArcGIS software over open source GIS software in health data management [4 Marks]
g) With an aid of a diagram describe geospatial data resources [4 Marks]
h) Discuss conceptual frame work for spatial analysis in epidemiology and public health [4 Marks]
h) Explain the importance of a two-variable table in health data management . [3 Marks]
i) Describe the entities ODK-X suite in data collection [4 marks]
j) Explain the capacity of GPS in data collection [3 Marks]

SECTION B: Answer any TWO questions [30 Marks]

Question TWO [15 Marks]

a) Discuss the types of spatial Epidemiology inquiry in relation to area scale [7 Marks]
b) Discuss how health related data is selected for graph or chart illustrations [8 Marks]

Question THREE [15 Marks]

a) Explain how KoboToolbox can be used to formulate a question matrix while collecting data in the field [7 Marks]
b) Research was carried on exposed and unexposed illness and recorded the findings indicated below:

	Ill	Well
Exposed	a	b
Unexposed	c	d

Compute the following

i) Exposed attack rate (Risk) [2 Marks]
ii) Unexposed attack rate (Risk) [2 Marks]
iii) Total attack rate (Risk) [4 Marks]

Question FOUR [15 Marks]

a) Discuss GIS software functionalities in relation to health data management . [10 marks]

b) Discuss the advantages of GIS in spatial analysis in health data [5 Marks]