



(University of Choice)

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

**UNIVERSITY EXAMINATIONS
2021 / 2022 ACADEMIC YEAR**

2ND YEAR SECOND TRIMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN OCCUPATIONAL SAFETY AND HEALTH**

COURSE CODE: NCG 225

COURSE TITLE: MEDICAL GEOGRAPHY

DATE: Tuesday 19TH APRIL, 2022

TIME: 3PM to 6 PM

INSTRUCTIONS TO CANDIDATES

All Questions Are Compulsory

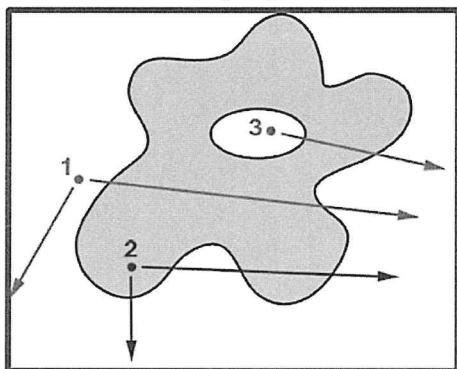
TIME: 3 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over. ►

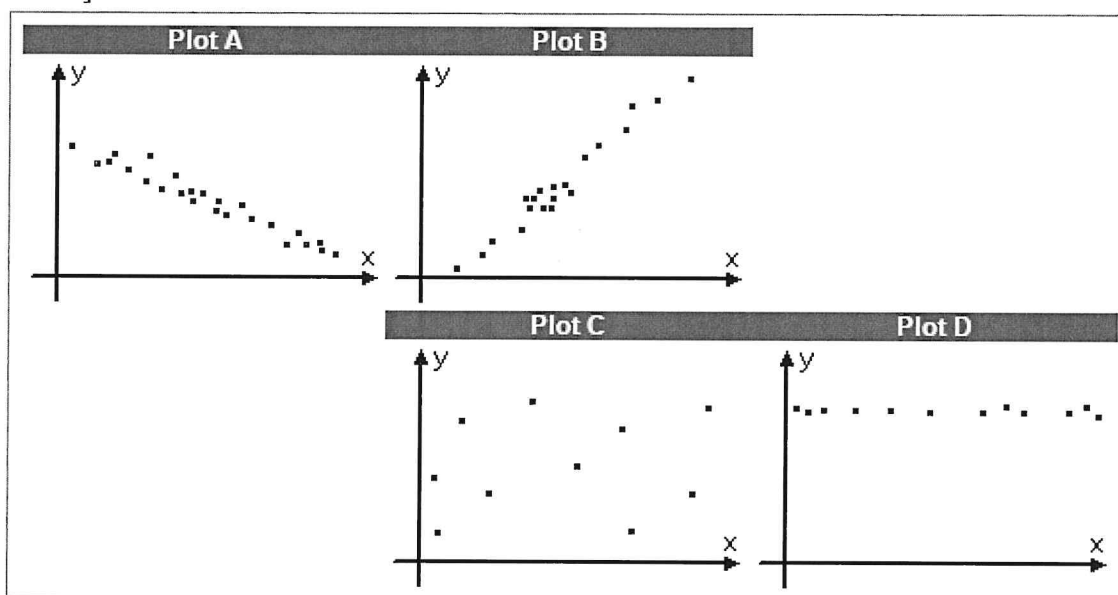
PART ONE: MULTIPLE CHOICE QUESTIONS, MCQ (20 MARKS)

1. To what extent do you agree with the statement that “80% of health data is geographic in nature” [2 marks]
2. Describe what GIS is highlighting the difference between science and system [3 marks]
3. Using concrete examples, describe the six functions of geographic information system [6 marks]
4. Which of the following is not a vector data storage? [1 marks]
 - a. Point
 - b. Line
 - c. Polygon
 - d. Raster
5. The diagram below shows points within and around the polygon. Supposing you are tasked to identify the point that plots within the polygon i.e. point “2”, which of the following pseudo query code will yield the desired result [2 marks]
 - a. Attribute query: Select all from points where point = 2
 - b. Attribute query: select all from points where point = 2 and intersects polygon
 - c. Location query: select point from points where point intersects polygon and point is 2
 - d. Location query: select all from points where points intersects polygon



6. What are some of the inherent differences between vector and raster data? Describe using examples where possible [4 marks]
7. Suppose you have been given the coordinate of a Kakamega County General Teaching and Referral Hospital as (latitude = 0.2746, longitude = 34.7618) and the coordinate for Masinde Muliro University of Science and Technology as (0.2927, 34.7624). You are required to compute straight-line distance between the two. Show with clear steps how you will arrive at your answer [5 marks].
8. The use of drones in medical applications is on the rise within the space of health, but at a slower pace. As a medical geography student, discuss how drones have been used in health as well as the privacy concerns raised by drones that have affected their rapid adoption [5 marks].
9. All but one is not an example of a location query, please select a non-spatial query [1 marks]
 - a. distance,
 - b. intersect,
 - c. overlaps,
 - d. feature name
10. Differentiate between GIS display and GIS output giving concrete examples [3 marks]
11. What is a geospatial data model? [2 marks]

12. Describe the differences between spatial data and aspatial data [2 marks]
13. Distinguish between geometrical information and topological information [3 marks]
14. Using concrete examples, distinguish between continuous and discrete data types [2 marks]
15. A 3-dimensional representation of terrain uses the function $w = f(x,y,z)$. Define what x , y and z are [3 marks].
16. Given a raster of spatial resolution 30m, you are required to increase the resolution to 10m. How many grids will be generated for the raster? What value will be assigned to the resulting cell value if the original cell value was 77.6 [5 marks]
17. When converting raster to vector data type, highlight some of the pros and cons of raster data model? [3 marks]
18. When converting vector to raster data type, highlight some of the pros and cons of raster data model? [3 marks]
19. Define spatial analysis and list its usefulness in public health [2 marks]
20. Describe the components of geospatial analytical framework [4 marks]
21. List 4 basic aims of spatial data analysis [2 marks]
22. Below diagram shows a scatter plot. Describe with examples what plot A, B and D are? [3 marks]



23. There are two broad categories of maps i.e. maps for examining data frequencies and maps for examining outliers. List the three types of maps for examining data frequencies [2 marks].
24. Differentiate between equal interval map and quantile map [2 marks]