KISII UNIVERSITY
UNIVERSITY EXAMINATIONS
FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF BACHELOR OF ARTS IN GEOGRAPHY
SECOND SEMESTER 2023/2024
[JAN – APRIL, 2024]

GEOG 126: FUNDAMENTALS OF GEOGRAPHIC INFORMATION SYSTEMS

STREAM: Y1 S2   **TIME: 2 HOURS**

DAY: MONDAY, 9:00 - 11:00 A.M.   **DATE: 15 /04/2024**

INSTRUCTIONS

1. *Do not write anything on this question paper.*
2. *Answer question ONE (Compulsory) and any other TWO questions.*

QUESTION ONE
a) Use clear diagrams to elaborate the differences between the following:
   i) Geosynchronous satellite orbit and geostationary satellite orbit
                                                                      (4 marks)
   ii) True north and grid north   (2 marks)
b) Explain how geographic fields and geographic objects can be applied in spatial analyses of your choice   (5 marks)
c) Explain the criteria that imagery employing raster data to detect land use and land cover change must meet   (2 marks)
d) Use diagrams to discuss the guidelines used in topological data models
                                                                      (12 marks)
e) Examine the elements of data quality that a GIS analyst should observe
                                                                      (7 marks)

QUESTION TWO

a) Examine how the County Government of Kisii can benefit from establishing and maintaining a GIS database for land owners in Kisii County (12 marks).
b) Discuss how the analysis functions of GIS can be applied in urban planning
                                                                      (8 marks)

QUESTION THREE
a) Use examples to explain why time and space are important in GIS (2 marks)
b) Examine the types of data integrity in GIS   (8 marks)
c) Purchasing a GIS software and loading it on a computer does not mean that we have a GIS. Justify this argument using appropriate examples (5 marks)
d) Explain situations where raster data would be prefered over vector data in spatial analysis   (5 marks)

QUESTION FOUR
a) Discuss the functions of GIS software components   (14 marks)
b) Examine the solutions that a GIS Analyst may provide to ensure a successful integration of various sources of data in GIS   (6 marks)

QUESTION FIVE
a) Use a diagram to examine the rules of topological consistency in GIS.
                                                                (10 marks)
b) Use approporiate examples to examine the types of precision a spatial data must satisfy.   (6 marks)
c) Use diagrams to elaborate how the common topological errors may be resolved.   (4 marks)