KISII UNIVERSITY

UNIVERSITY EXAMINATIONS

**FIRST YEAR EXAMINATION FOR THE AWARD OF THE DEGREE OF
BACHELOR OF ARTS IN GEOGRAPHY
SECOND SEMESTER, 2021/2022
(FEBRUARY - JUNE, 2022)**

GEOG 126: FUNDAMENTALS OF GEOGRAPHIC SYSTEMS

STREAM: Y1 S1   **TIME: 3 HOURS**

DAY: **DATE:**

INSTRUCTIONS:
1. Do not write anything on this question paper.
2. Anser Question ONE and any other TWO Questions.

QUESTION ONE

a) Using clear illustrations, differentiate among the following geographic concepts:

   i) Geosynchronous satellite and geostationary satellite.   [2 marks]
   ii) True north, magnetic north, grid north and georeferencing.   [4 marks]

b) Using diagrams, discuss the application of the four vector data models.
                                                                                                      [20 marks]
c) Using examples, differentiate between geographic fields and geographic objects.   [4 marks]

QUESTION TWO

a) Explain the advantages of maintaining spatial databases.   [12 marks]
b) With examples, elaborate on the types and use of GIS spatial analysis functions.   [8 marks]

QUESTION THREE

a) Explain the difference between active sensors and passive sensors.
[4 marks]

b) Explain the hardware components of a GIS. [6 marks]

c) Purchasing a GIS software and loading it on a computer does not mean that we instantly have a GIS. Briefly discuss and provide a justification for this argument. [10 marks]

QUESTION FOUR

Using diagrams, write short notes on the following features of the UTM projection.

a) Eastings [10 marks]

b) Northings [10 marks]

QUESTION FIVE

a) Using appropriate examples, diffrerentiate between spatial data and attribute data. [4 marks]

b) Using diagrams, explain the differences between the three typologies/spatial relationship of GIS vector data. [6marks]

c) According to the topological rules of consistency, every arc must be bounded by two nodes, namely its beginning and end node; every arc border two polygons, namely its left and right polygons; and every polygon has a closed boundary consisting of an alternating (and cyclic) sequence of nodes and arcs. Illustrate these rules using diagrams. [6 marks]

d) Outline the advantages and disadvantages of raster data in spatial analysis.
[4 marks]