



*(Knowledge for development)*

**KIBABII UNIVERSITY**

**(KIBU)**

**UNIVERSITY EXAMINATIONS**

**2020/2021 ACADEMIC YEAR**

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**FOURTH YEAR SECOND SEMESTER**

**FOR THE DEGREE OF BACHELOR OF**

**(INFORMATION TECHNOLOGY)**

**COURSE CODE: BIT 424**

**COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS**

**DATE: 24/11/2022 TIME: 8.00 A.M.-10.00 A.M.**

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**INSTRUCTIONS TO CANDIDATES**

- 1. ANSWER QUESTION ONE (Q1) COMPULSORY**
- 2. ANSWER ANY OTHER TWO (2) QUESTIONS**
- 3. USE ILLUSTRATION WHERE APPROPRIATE**

**THIS PAPER CONSISTS OF 3 PRINTED PAGES. PLEASE TURN OVER.**

### QUESTION 1 (COMPULSORY) [30 MARKS]

- Describe the following concepts (5 Marks)
- a. Digital Elevation Models (5 Marks)
  - b. GIS (5Marks)
  - c. LULC (15 Marks)
- Discuss the various forms of analysis carried out on Raster data

### QUESTION 2 [20 MARKS]

The county council of Kisumu wants to determine how land uses change has affected Lake Victoria in the county for the last twenty years. They have given you three shape files.

- a) Kenyan Shapefile
- b) Landsat Imageries for Western Kenya 1999
- c) Landsat Imageries for Western Kenya 2019

Describe the spatial analysis that you would perform to answer their question (20 Marks)

### QUESTION 3 [20 MARKS]

The county council of Kakamega intend to determine and map the status of the grey crowned crane (*Balearica regulorum*) in the county. They have given you two sets of data files.

- i. Kenyan shapefile
- ii. Text Data acquired from GBIF website

Describe the spatial analysis that you would perform to answer their question (20 Marks)

### QUESTION 4 [20 MARKS]

- a) Discuss the various components of GIS (10 Marks)
- b) Distinguish between Passive and Active Sensors (10 Marks)

### QUESTION 5 [20 MARKS]

You have been provided with shapefile of Kenyan settlements (points) and a shapefile of Kenyan road (line). You want to create a new shapefile containing settlements that are within 2 km and 5 km of the Eldoret Malaba road..

Describe the spatial analysis that you would perform to answer their question (20 Marks)