(KNOWLEDGE FOR DEVELOPMENT)

KIBABII UNIVERSITY

UNIVERSITY EXAMINATIONS

2022/2023 ACADEMIC YEAR

MAIN EXAMINATION

FOURTH YEAR SECOND SEMESTER

FOR THE DEGREE OF BACHELOR OF EDUCATION ARTS

COURSE CODE: GEO 321

COURSE TITLE: GEOGRAPHIC INFORMATION SYSTEMS

DATE: 17 APRIL 2023 **TIME:** 2:00PM-4:00PM

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.

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QUESTION 1 (COMPULSORY)

a) Describe the following concepts

i. NDVI (5 Marks)

ii. Change Detection (5 Marks)

iii. Watershed Delineation (5Marks)

Discuss the significance of GIS in geographical research (15 Marks)

QUESTION 2

a) Highlight the major causes of reduction of water in Kenyas Rift Valley lakes (5 Marks)

b) The county government of Nakuru have concerns on the changing amount of water in the rift valley lakes. They have an interest in determining the percentage changes in the size of lake between 1990 and 2022. Using ArcGIS PRO describe the procedure that you would and the spatial analysis that you would perform to answer these question. (20 Marks)

QUESTION 3

a) Describe any five factors influencing the quality of vegetation in Kenyas forests. (5 Marks)

b) The residents of Bungoma county have raised concerns about the changes in quality of vegetation in the county between 2010 and 2022. Describe the spatial analysis procedure that you would use to confirm this using ArcGIS PRO (15 Marks)

QUESTION 4

a) Discuss any three ways of representing relief on a map (3 Marks)

b) Describe the procedure that you would use to visualize the elevation of Migori county using ArcGIS PRO (17 Marks)

QUESTION 5

a) Discuss any three mechanisms that could be adopted by National Environment Authority to protect and conserve water bodies in Kenya (6 Marks)

b) The county government of Kakamega is interested in determining the watershed along river Isikhu, determining the area of the watershed and the length of the river from its source to a point near Kakamega town. Using ArcGIS PRO, describe the process of answering this question. (14 Marks)