



W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY
UNIVERSITY EXAMINATIONS 2018/2019

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN LAND RESOURCE PLANNING AND MANAGEMENT
ALP 2409: GEOGRAPHIC INFORMATION SYSTEM APPLICATIONS

DATE: APRIL 2019

TIME: 2 HOURS

INSTRUCTIONS: ANSWER QUESTION ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE (30 Marks)

- a) Define the following terms and acronyms as used in GIS applications. (10 Marks)
- Spatial data
 - Mashing data sets
 - GIS as a computer application
 - EPIC
 - AGNPS
- b) Explain how the following applications are useful in real time mapping of agriculture resources. (8 Marks)
- CropCape
 - AgroMap
 - Plan Hardiness
 - Canadian Land inventory
- c) State and explain various models used in mashing together various inputs to model and understand crop production using GIS. (12 Marks)

QUESTION TWO (20 Marks)

"GIS can help win the farm". discuss some of agriculture technologies farmers and researchers use in farming to justify the statement.

QUESTIONS THREE (20 MARKS)

Discuss how GIS is applied in the following fields:

- Hydrology and water resources
- Urban planning and modelling
- Forestry
- Wildlife research and conservation

QUESTION FOUR (20 MARKS)

- a. Explain the integration of GIS in the following aspects of urban planning. (7 Marks)
- Resource inventory
 - Selection of planning options
 - Planning implementation
 - Development of planning options
 - Analysis of existing situations
 - Modelling and projection
- b. Using an illustrated diagram, derive, clearly indicating the inputs of fire risk zone map as stipulated in (Ajin et al, 2016) (8 Marks)
- c. Name the data some real time applications use in agriculture technology to relay online. (5 Marks)

QUESTION FIVE (20 MARKS)

Discuss how GPS, Satellite, Drone and Remote sensing influence Agriculture Technology (20 Marks)