



**EMBU UNIVERSITY COLLEGE**

**(A CONSTITUENT COLLEGE OF THE UNIVERSITY OF NAIROBI)**

**FIRST SEMESTER EXAMINATION 2014/2015**

**THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN  
MAGEMENT OF AGROECOSYSTEMS AND ENVIRONMENT**

**ASS 301: APPLICATION OF REMOTE SENSING & GIS IN LAND USE  
MANAGEMENT**

**DATE: DECEMBER 11, 2014**

**TIME: 08:00 – 10:00AM**

---

**INSTRUCTIONS:**

**Answer Question ONE and ANY Other TWO Questions.**

---

**QUESTION ONE**

- a) Define the term remote sensing and explain its importance in agricultural resources management. (6 marks)
- b) Explain the importance of radiometric and geometric corrections in image visualization. (4 marks)
- c) Define the term geographical information system (GIS), and state its main components. (6 marks)
- d) Differentiate between discrete and continuous data giving specific examples. (4 marks)
- e) State and describe the two methods used in image classification. (6 marks)
- f) Explain the term spatial referencing? Why is important in remote sensing and GIS. (4 marks)

## **QUESTION TWO**

- a) Explain the difference between vector and raster data. (4 marks)
- b) Distinguish between a database and a database management system as used in GIS (4 marks)
- c) Discuss the advantages of using a database management system (DBMS) for data storage and processing in a GIS. (8 marks)
- d) Describe two methods used to interpolate point data. (4 marks)

## **QUESTION THREE**

- a) Using a diagram describe the paths followed by electromagnetic radiation (EMR) from the source to the sensor and its application in the remote sensing process. (16 marks)
- b) State and briefly explain the two types of sensors. (4 marks)

## **QUESTION FOUR**

- a) Distinguish between accuracy and precision as used in data quality management (2 marks)
- b) Describe the stages involved in handling of spatial data. (8 marks)
- c) Explain how errors propagate in spatial data processing. (4 marks)
- d) Briefly describe two methods used in image enhancement, stating the purpose in data visualization. (6 marks)

## **QUESTION FIVE**

- a) Remote sensing and GIS techniques are used widely in water and land use management. Using two specific examples, discuss how these techniques have been used to assist in the decision making process. (10 marks)
- b) Discuss the advantages of using remote sensing in agriculture. (10 marks)

**--END--**