



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY  
EXAMINATIONS  
2018/2019 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER**

**SCHOOL OF TOURISM AND NATURAL  
RESOURCE MANAGEMENT  
BACHELOR OF FOREST ECOSYSTEMS  
MANAGEMENT**

**COURSE CODE: FEM 3224**

**COURSE TITLE: APPLICATION OF  
REMOTE SENSING  
AND GIS**

**DATE: 18<sup>TH</sup> APRIL 2019**  
**0830 - 1030HRS**

**TIME:**

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**INSTRUCTIONS TO CANDIDATES**

Attempt **ALL** questions in section **A** and any other **THREE** in section **B**.

*This paper consists of 2 printed pages. Please turn over*

**SECTION A: ANSWER ALL QUESTIONS (25 marks)**

1. Describe a remotely sensed image. **(4 marks)**
2. Define remote sensing and mention three points on its importance in forest data analysis. **(5 marks)**
3. Explain why you would prefer either a supervised image classification over unsupervised classification and vice versa for a forestry study. **(4 marks)**
4. If you wanted to monitor the general health of all the vegetation cover over the Mau Forest for several months, what type of platform and sensor characteristics (spatial, spectral and temporal resolution) would be the best for this task and why? **(5 marks)**
5. Explain what GIS is and why it is important to foresters. **(3 marks)**
6. Explain what distinguishes the application of GIS in forestry from the traditional approaches. **(4 marks)**

**SECTION B**

7. (i) Recent developments in GIS and digital image processing make forest cover assessment and mapping more easier and accurate. Discuss your views. **(8 marks)**
- (ii) Discuss the limitans of integrating remote sensing in forestry management. **(7 marks)**

- 8.** Explain five forest attributes and how they can be monitored using remote sensing and GIS. **(15 marks)**
- 9.** Remotely sensed data are usually digital image data hence data processing is treated as digital image processing. With an aid of a flow diagram, show digital image processing. **[15 marks]**
- 10.** You are asked to prepare a map that shows the forest lands that are suitable for harvesting. You are given three digital maps showing roads, streams and forest stands, respectively. Describe the procedure (steps, required data, queries and spatial operations, and output) that you will use to complete the task. Use a flow chart to show the steps? **(15 marks)**
- 11.** Discuss the various methods of GIS data capture. **(15 marks)**

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