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: 18TH APRIL 2019   **TIME: 0830 – 1030HRS**

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)**

//END