MAASAI MARA UNIVERSITY

REGULAR UNIVERSITY EXAMINATIONS
2018/2019 ACADEMIC YEAR
FOURTH YEAR FIRST SEMESTER

SCHOOL OF TOURISM AND NATURAL RESOURCE MANAGEMENT
BACHELOR OF ARTS IN GEOGRAPHY

COURSE CODE: GEO 423
COURSE TITLE: DIGITAL IMAGE PROCESSING

DATE: 4TH DECEMBER 2018 **TIME: 1100 - 1300 HOURS**

INSTRUCTIONS TO CANDIDATES

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

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

SECTION A (25 MARKS)

1. An image is information. Justify this statement with an explanation **(4 marks)**
2. Explain the basic character of digital image **(2 marks)**
3. Explain why digitisation is important in digital image processing **(5 marks)**
4. Briefly explain any three reasons why image processing is necessary **(6 marks)**
5. Explain two data storage strategies in geographic information systems **(4 marks)**
6. Explain the reasons for correction of pixels in a scene with respect to their absolute position within some defined map projection in image pre-processing **(2 marks)**
7. Explain the reason for band ratioing in digital image processing **(2 marks)**

SECTION B (45 MARKS)

8. Describe the various components of an image processing system. Use illustrations where necessary **(15 marks)**

9. Radiometric distortions are common phenomena in remotely sensed data. Discuss the different sources and types of radiometric distortions, as well as their methods of correction **(15 marks)**

10. (i)Write short notes on the following terms **(10 marks)**
    a. Image restoration
    b. Image encoding
    c. Band Interleaved by Pixel (BIP)
    d. Image compression
    e. Image statistical evaluation

    (ii) Discuss the various factors to consider when choosing storage for geographic information **(5 marks)**

11. (i) With examples, discuss the fundamental steps in digital image processing **(10 marks)**

    (ii) Image pre-processing, enhancement and visualization are critical processes in deriving information from remotely sensed imagery, discuss briefly **(5 marks)**

//END