



MAASAI MARA UNIVERSITY

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

FIRST YEAR FIRST SEMESTER

**SCHOOL OF TOURISM AND NATURAL RESOURCE
MANAGEMENT**

**BACHELOR OF SCIENCE IN ENVIRONMENTAL STUDIES (URBAN PLANNING
AND MANAGEMENT/ENVIRONMENTAL HEALTH AND BIOLOGY)**

BACHELOR OF SCIENCE (WILDLIFE MANAGEMENT)

BACHELOR IN FORESTRY

BACHELOR IN EDUCATION

COURSE CODE: URP2102/ENS 2103/GE01104

COURSE TITLES:

**URP 2102: GEOGRAPHIC INFORMATION SYSTEMS AND
REMOTE SENSING APPLICATIONS (URP)**

**ENS 2103: INTRODUCTION TO GEOGRAPHIC INFORMATION
SYSTEMS AND REMOTE SENSING
(EBH/WRM/ED)**

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

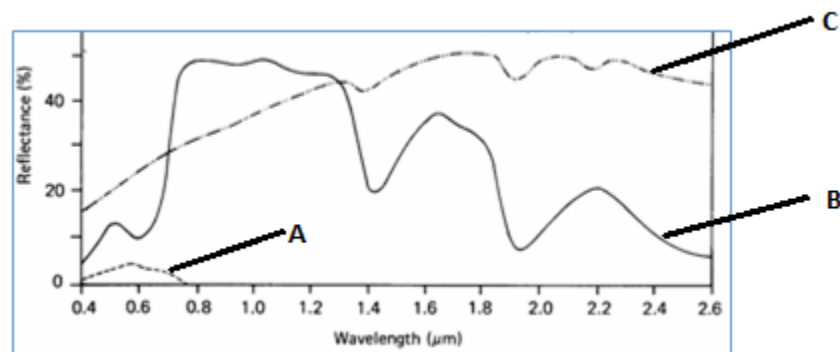
Answer **ALL** questions in section **A** and any other **THREE** in section **B**.
This paper consists of 3 printed pages. Please turn over

1. Differentiate between photographic and non-photographic RS systems and state one advantage of each **(4 marks)**
2. Explain how useful is the electromagnetic spectrum to remote sensing? **(1 marks)**
3. Remote Sensing provides solutions to the GIS question. Explain how **(4 marks)**
4. Explain the most useful wavelength for imaging from a satellite in cloud-covered conditions? **(2 marks)**
5. Distinguish between spatial and non-spatial data **(2 marks)**
6. What is the difference between a database and a database management system? Give an example of each **(4 marks)**
7. Describe two (2) commonly used methods of inputting digital data **(4 marks)**
8. Explain two (2) advantages of using GIS over the traditional methods of handling data? **(4 marks)**

SECTION B (45 MARKS)

9. (a) Differentiate between active and passive remote sensing systems? Give one example for each system. **(4 marks)**

(b) Below are spectral curve for various objects on the earth's surface. Using the letters A, B, and C, identify the spectral signature for (i) water and (ii) vegetation (iii) soil and give reasons for your answer **(6 marks)**



- (c) On identification of the spectral curve for vegetation in (b) above and with the help of a sketch, explain the effect of the presence of water in vegetation on the appearance of the curve **(2 marks)**

- (d) Explain how the spectral characteristics of water changes due to the presence of phytoplankton **(3 marks)**
- 10.** Give an account of the electromagnetic spectrum and explain why certain portions of the spectrum are more important for remote sensing than others. Explain the components of Remote sensing with sketch **(15 marks)**
- 11.** What are the advantages and disadvantages that remote sensing offers over other methods of data collection? **(15 marks)**
- 12.** (i) Discuss the various components that make up a GIS **(10 marks)**
(ii) Compare the advantages and disadvantages between raster and vector model for representing geographic features **(5 marks)**