W1-2-60-1-6

JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY

UNIVERITY EXAMINATION 2015/2016

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN LAND RESOURCE PLANNING AND MANAGEMENT

SECOND SEMESTER

ALP 2206: REMOTE SENSING I

DATE: APRIL 2016 **TIME: 2HOURS**

INSTRUCTIONS

Answer QUESTION ONE and ANY OTHER TWO QUESTIONS.

Question One [30 marks]

(a) Define the following terms as used in remote sensing:

(i) Swath

(ii) Orthophoto

(iii) Specular reflection **(6 marks)**

(b) Outline the elements of the remote sensing process. **(7 marks)**

(c) Describe the elements of visual image analysis. **(7 marks)**

(d) Define a sensor and describe the two main modes or methods of scanning employed to acquire multispectral image data by sensors ***(10 marks)***

Question Two [20 marks]

(a) Define remote sensing. **(4 marks)**

(b) Describe aerial photographs in terms of orientation of camera axis. **(6 marks)**

(c) Describe the relationship between focal length and ground coverage for a vertical photograph **(6 marks)**

(d) Describe the functions of a magazine in an aerial camera. **(4 marks)**

Question Three [20 marks]

(a) (i) Describe three main options for transmitting data acquired by satellites to the surface. **(6 marks)**

(ii) List the main common media used for Satellite data. distribution. **(4 marks)**

(b) Using a suitable diagram describe spectral Characteristics of Vegetation. **(10 marks)**

Question Four [20 marks]

(a) Define electromagnetic Radiation in terms of the particle theory. **(4 marks)**

(b) With the aid of a diagram describe the wavelength ranges of the electromagnetic spectrum that are used for remote sensing? **(10 marks)**

(c) Describe the main types of remote sensing in terms of energy sources. **(6 marks)**

Question Five [20 marks]

(a) Explain the two main types of interactions between EMR and atmosphere. **(8 marks)**

(b) What do you understand by the term "atmospheric windows" **(4 marks)**

(c) Identify and discuss four different areas of application of remote sensing in Urban Planning. **(8 marks)**

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