

**W1-2-60-1-6**

**JOMO KENYATTA UNIVERSITY OF AGRICULTURE AND TECHNOLOGY**

**UNIVERSITY EXAMINATIONS 2020/2021**

**THIRD YEAR SUPPLEMENTARY/SPECIAL EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN HORTICULTURE**

**AHL 2402: REMOTE SENSING AND GEOGRAPHICAL INFORMATION SYSTEMS**

**DATE: MARCH 2021 TIME: 2 HOURS**

INSTRUCTIONS: ANSWER QUESTION ONE (COMPULSORY) AND ANY OTHER TWO QUESTIONS

**QUESTION ONE: 30 MARKS**

i a. With the use of illustration, describe components of remote sensing system. (5 marks)

b. What are the three common applications for remote sensing imagery data? (5 marks)

c. Describe energy target object reaction and how it contributes to remote sensing of the earth. (5 marks)

ii. Describe the following terms with relevant examples:-

a. Geographic Information System (GIS) (3 marks)

b. Geographical data. (2 marks)

c. Vector data format. (2 marks)

d. Raster data format. (2 marks)

e. Spectral signature. (2 marks)

f. GPS mapping. (2 marks)

g. Attribute data. (2 marks)

**QUESTION TWO: 20 MARKS**

i. Describe four resolutions applied in remote sensing and GIA. (10 marks)

ii. Discuss a detailed example of an application of GIS and Remote sensing in the field of agriculture/horticulture. (10 marks)

**QUESTION THREE: 20 MARKS**

i. Describe the characteristics of the following sensors and for each give example of where it can be applied and why

a. AVHRR (3 marks)

b. Landsat TM (3 marks)

c. Landsat ETM+ (3 marks)

ii. a. What is map projection in GIS? (4 marks)

b. Explain why different latitudes use different sets of datum. (4 marks)

c. Describe the distortions that occur during the process of earth projection. (3 marks)

**QUESTION FOUR: 20 MARKS**

You have a Landsat TM image from a County in Kenya. Part of the image shows a forest and part of the image shows water bodies, bare rock surface with no vegetation. How would you assess the stress level due to biotic stress on the forest?