UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE & PLANNING

FINAL EXAMINATION, MAY 2005

BA., B.SC., B.ED.

TITLE OF PAPER: REMOTE SENSING

COURSE CODE: GEP 313

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: ANSWER THREE (3) QUESTIONS INCLUDING QUESTION ONE (1) WHICH IS COMPULSORY

MARKS ALLOCATION: QUESTION ONE (1) CARRIES 40 MARKS . THE REST OF QUESTIONS CARRY 30 MARKS EACH

THIS QUESTION PAPER SHOULD NOT BE OPENED UNTIL PERMISSION HAS BEEN GRANTED BY THE INVIGILATOR.

SECTION A

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QUESTION 1 (COMPULSORY)

The Ministry of Agriculture intends to identify appropriate areas for the establishment of fattening ranches capable of handling 250 heads of cattle in each of the four regions of Swaziland. The decision-makers or planners have invited you to solicit some advice on the application of remote sensing techniques.

a) Discuss the remote sensing technique(s) you would recommend with justification. (20 marks)

b) Describe the step-by-step procedure you would advise the planners in executing the task under consideration. (20 marks)

SECTION B

Answer any TWO (2) questions from this section.

QUESTION 2

"The atmosphere and earth's surface features have a profound effect on, among other things, the intensity and spectral composition of electromagnetic energy available to any remote sensing system'. Discuss. (30 marks)

QUESTION 3

a) Describe density slicing and binary masking procedures as applied in remote sensing. (10 marks)

b) With illustrations and examples, describe the processes involved in supervised and unsupervised digital image classification. (20 marks)

QUESTION 4

a) Using examples, describe how the Normalised Difference Vegetative Index (NDVI) is used to identify various earth's surface features. (15 marks)

b) Compare and contrast overall accuracy and user's accuracy as applied in remote sensing system. (15 marks)

QUESTION 5

a) Explain the main procedures in aerial photographic interpretation. (15 marks)

b) With specific examples, outline the use of image interpretation keys in remote sensing. (15 marks)