

**UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE &
PLANNING**

SUPPLEMENTARY EXAMINATION, JULY 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**QUESTION 1 (COMPULSORY)**

With specific examples and illustrations, discuss the factors involved in spatial planning and implementation of a development project through the use of remote sensing techniques in monitoring and management of natural environmental resources in a developing country. (40 marks)

SECTION B

Answer any TWO (2) Questions

QUESTION 2

- a) Describe the methods used to obtain reference data or 'ground truth' for the assessment of image classification. (15 marks)
- b) Discuss the spectral reflectance for green vegetation response at the following electromagnetic wavebands:
- i) Red;
 - ii) Near InfraRed; and
 - iii) Middle Infra-Red. (15 marks)

QUESTION 3

- a) With appropriate examples, describe spectral and spatial resolution and show how each is applied in environmental remote sensing. (15 marks)
- b) Outline the use of image interpretation keys in remote sensing. (15 marks)

QUESTION 4

With specific examples and illustrations, discuss the elements of image interpretation in remote sensing. (30 marks)

QUESTION 5

- a) Describe how the concept of error matrix and overall accuracy can be used to assess the accuracy of a digital image classification. (15 marks)
- b) Using examples, describe how the Normalised Difference Vegetative Index (NDVI) is used to distinguish various earth's surface features. (15 marks)
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