

**UNIVERSITY OF SWAZILAND  
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND  
PLANNING  
FINAL EXAMINATION, DECEMBER 2008  
B.A., B.Ed., B.Sc., B.A.S.S**

**TITLE OF PAPER: INTRODUCTION TO THE NATURAL ENVIRONMENT**

**COURSE CODE: GEP 111**

**TIME ALLOWED: THREE HOURS**

**INSTRUCTIONS: THIS PAPER IS DIVIDED INTO TWO SECTIONS**

**MATERIALS NEEDED: (1) MAP OF SWAZILAND (PWD 18),  
(2) GRAPH PAPER.**

**SECTION A: ANSWER ANY THREE QUESTIONS**

**SECTION B: TECHNIQUES AND SKILLS  
ANSWER ONE QUESTION**

**DO NOT OPEN THIS PAPER UNTIL PERMISSION HAS BEEN GRANTED BY  
THE INVIGILATOR**

## SECTION A

### ANSWER ANY THREE QUESTIONS

#### QUESTION 1

Explain how the Earth's rotation, inclination and polarity results in the various seasonal patterns experienced on earth. **(20 marks)**

#### QUESTION 2

- a. What are the functions of the atmosphere? **(5 marks)**
- b. Explain how albedo, absorption and scattering affect the amount of energy received on the surface of the earth **(15 marks)**

**(20 marks)**

#### QUESTION 3

Explain how temperature, density, altitude and latitude affect atmospheric pressure and winds. **(20 marks)**

#### QUESTION 4

Explain how plate movements may result in the formation of Islands, Fold Mountains, and the creation of new crustal plates. **(20 marks)**

#### QUESTION 5

Describe the ecological functions of soil and their significance to humanity **(20 marks)**

**SECTION B: TECHNIQUES AND SKILLS**

**ANSWER ONE QUESTION ONLY**

**QUESTION 1**

- a) What is?  
i) A map (2 marks)  
ii) A map scale? (2 marks)
- b) Explain how a map scale can be expressed. (6 marks)
- c) Explain how you would calculate an area of an irregular feature using the Graph Paper Method. (10 marks)
- d) With reference to the topographical map of Swaziland (PWD 18), calculate the surface area of farm No. 521 in kilometres squared and in hectares. (Show all the working clearly). (8 marks)
- e) Copy and complete the table below. (6 marks)

Location	Time	Day	Location	Time	Day
162°E	9:50 am	Thursday	90°W	.....	.....
27°W	.....	.....	1°E	07:34 am	Wednesday
155°W	11:00 am	Saturday	.....	07:00 am	.....

- f) List six attributes of a map. (6 marks)
- (40 Marks)**

**QUESTION 2**

- a) Define the following: (10 marks)  
i) Relative humidity  
ii) Drainage net  
iii) Soil horizon  
iv) Southing  
v) Dew point
- b) Using the map of Swaziland (PWD 18), draw a profile from Kirkhill Dipping Tank (054227) to Ensokolweni School (117219). Use a vertical exaggeration of 10. (8 marks)

c) With reference to topographical map of Swaziland (PWD 18), state the distance from the Equator, meridian of origin, and the Greenwich meridian to the following locations in kilometres. (14 marks)

i) Nhlambeni School

ii) Lwandeni Trigonometrical Station

d) Explain the steps involved in measuring a river discharge using a current meter.

(8 marks)

(40 marks)

Examination NO.....

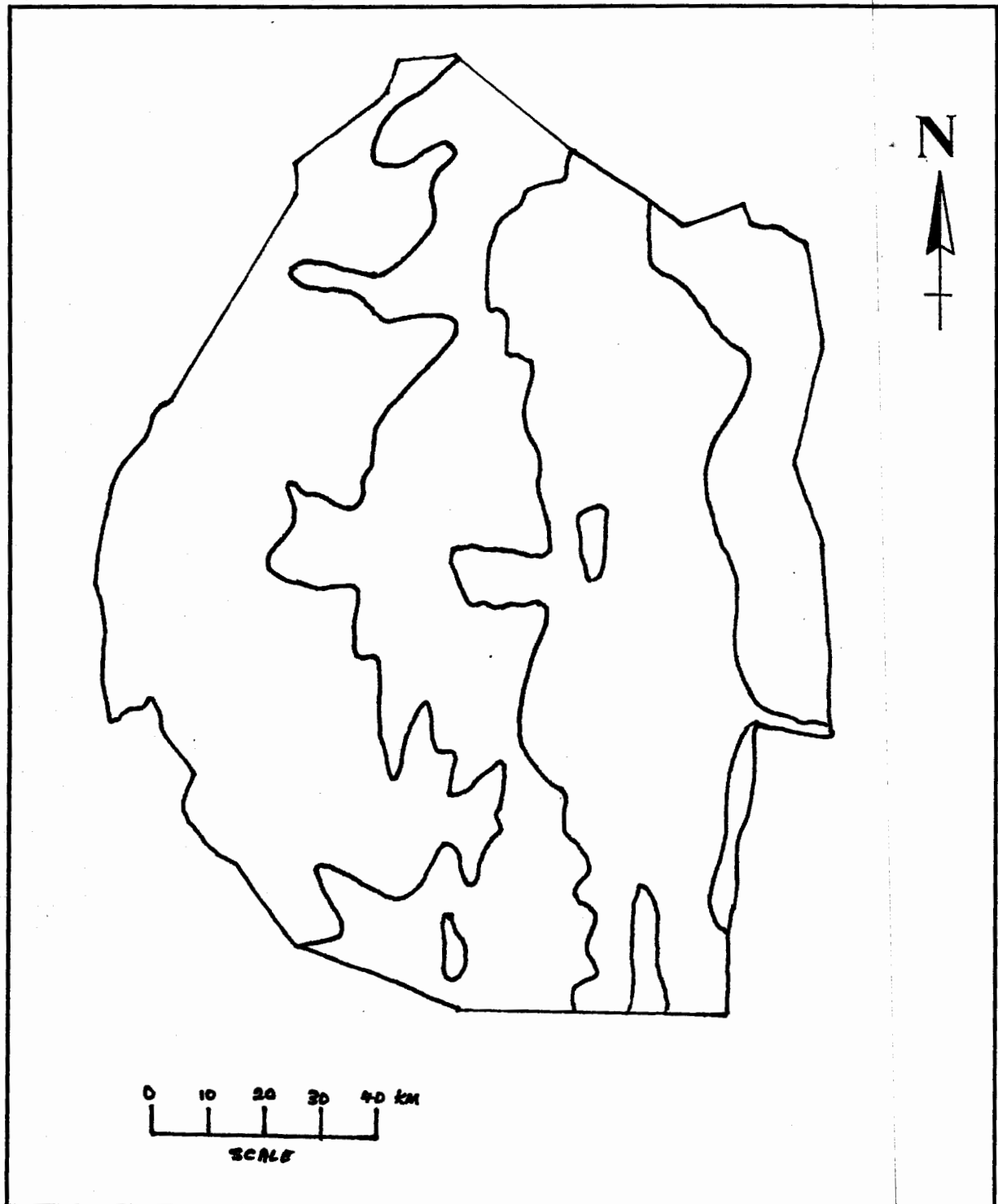


Figure 3. Major ecological zones of Swaziland

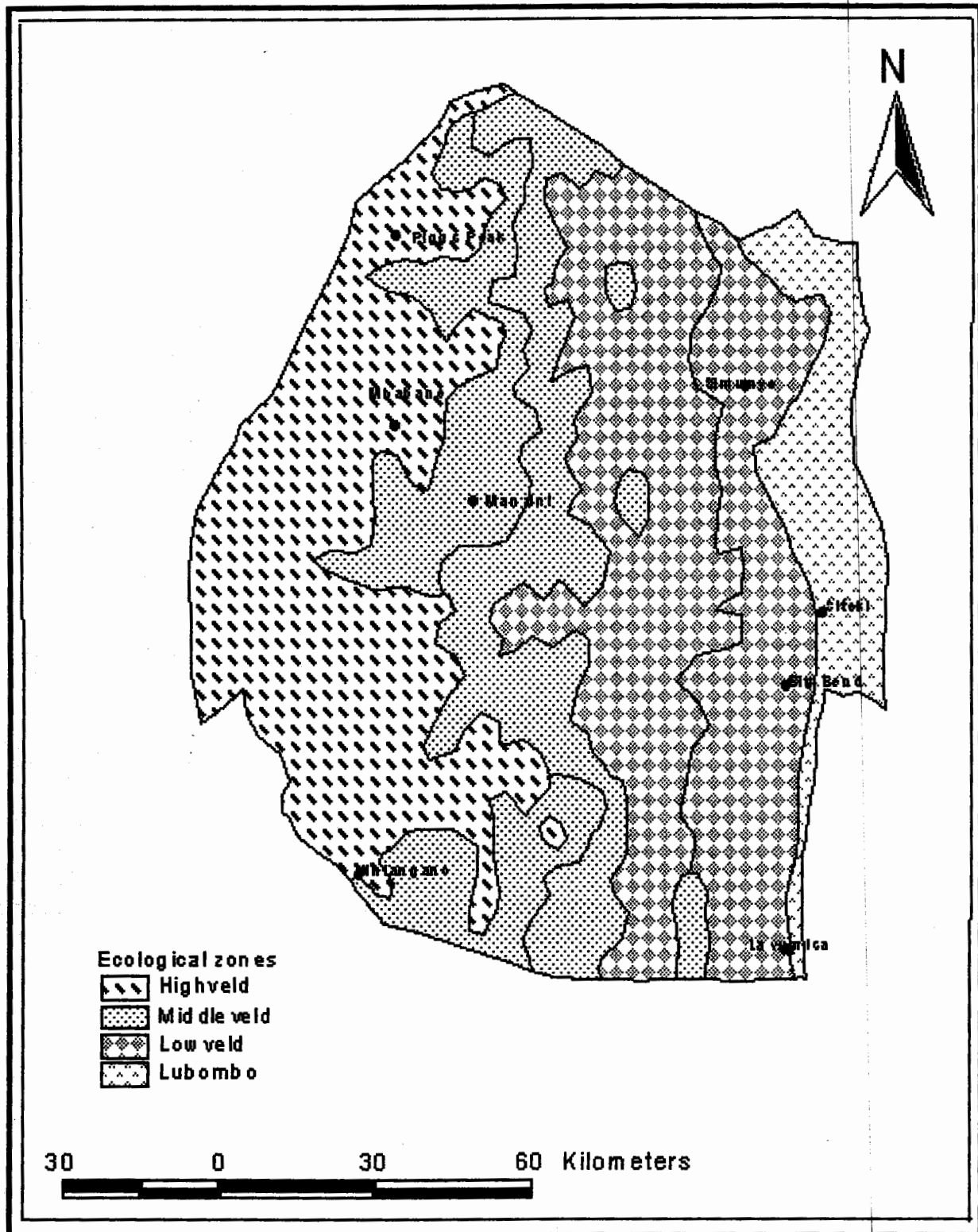


Figure 4. Major ecological zones of Swaziland