UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND

PLANNING

FINAL EXAMINATION PAPER – MAY, 2012

B.A., B.A.S.S., B. Ed., B. Sc.

TITLE OF PAPER: STATISTICAL GEOGRAPHY

COURSE NUMBER: GEP 223

TIME ALLOWED: THREE (3) HOURS

INSTRUCTIONS: 1. ANSWER THREE (3) QUESTIONS.

2. QUESTION 1 IS COMPULSORY.

3. CHOOSE TWO (2) QUESTIONS FROM SECTION B.

4. WHERE APPROPRIATE, ILLUSTRATE YOUR ANSWERS BY EXAMPLES.

5. ALL WORKING AND/OR CALCULATIONS MUST BE CLEARLY SHOWN.

6. YOU WILL BE PROVIDED WITH GRAPH PAPERS AND TABLES FOR CRITICAL VALUES AND SIGNIFICANCE LEVELS.

MARK ALLOCATION: QUESTION ONE (1) CARRIES FORTY (40) MARKS AND

THE OTHER QUESTIONS ARE THIRTY (30) MARKS EACH.

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GEP 223: STATISTICAL GEOGRAPHY – MAY, 2012

SECTION A: COMPULSORY QUESTION

QUESTION 1
Table 1 shows some basic indicators for countries under different income groups.
Using an appropriate measure:

(a) Establish the types of relationships between the GDP per capita and life expectancy at birth. (25 marks)

(b) Plot the relationship observed in (a) above. (10 marks)

(c) Comment on the relationships plotted in (b) above. (5 marks)

[40 Marks]

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2
You have been asked to establish whether the differences in soil types in one of the chiefdoms have any influence on the type of vegetation prevailing in the area. You have limitations of finance and time. Demonstrate how you will go about carrying out such a study. **[30 Marks]**

QUESTION 3
(a) Explain the main steps involved in the scientific approach in analysing geographical problems. (14 marks)

(b) Outline the functions of statistical techniques. (10 marks)

(c) Indicate situations where the following statistical tests can be used.

    (i)   Standard deviation. (2 marks)

    (ii)   The student t-test. (2 marks)

    (iii)   The Chi-Square test. (2 marks)

[30 Marks]

QUESTION 4
Figure 1 shows meteorological stations in Swaziland. Calculate the nearest neighbour index for the climatological stations. **[30 Marks]**

QUESTION 5
Data presented in Table 2 shows hypothetical figures on rainfall for some weather stations in highveld and lowveld ecological regions in Swaziland. Apply the t-test statistic to determine whether there is a significant difference in the amount of rainfall in these two ecological regions at 0.01 significance level. **[30 Marks]**

Table 1: Basic indicators for low, middle, upper-middle and high income countries

Countries	GDP per capita in US dollars, 1994	Life expectancy at birth in years, 1994
Low income countries		
	90	46
1	100	49
2	140	51
3	160	50
4	160	40
5	170	44
6		
Middle income Countries		
7	770	60
8	880	63
9	950	65
10	1 250	71
11	1 270	70
12	1 650	69
Upper-middle income countries		
13	2 970	67
14	3 040	64
15	3 880	54
16	4 180	71
17	5 240	70
18	8 110	72
High income countries		
19	9 320	75
20	13 350	76
21	18 340	76
22	19 510	78
23	25 880	77
24	26 390	78
25	34 630	79

Source: Hypothetical

Table 2. Rainfall for some weather stations in Highveld and Lowveld in Swaziland

Highveld stations	Lowveld stations
10.1	8.75
7.63	7.08
9.1	7.01
12.06	10.4
6.7	6.4
8.67	10.46
9.18	5.51
9.12	11.82
6.73	5.57
11.28	7.9
	8.4
	7.53
	6.33
	8.36
	5.2

Source: Hypothetical

△ Rainfall station
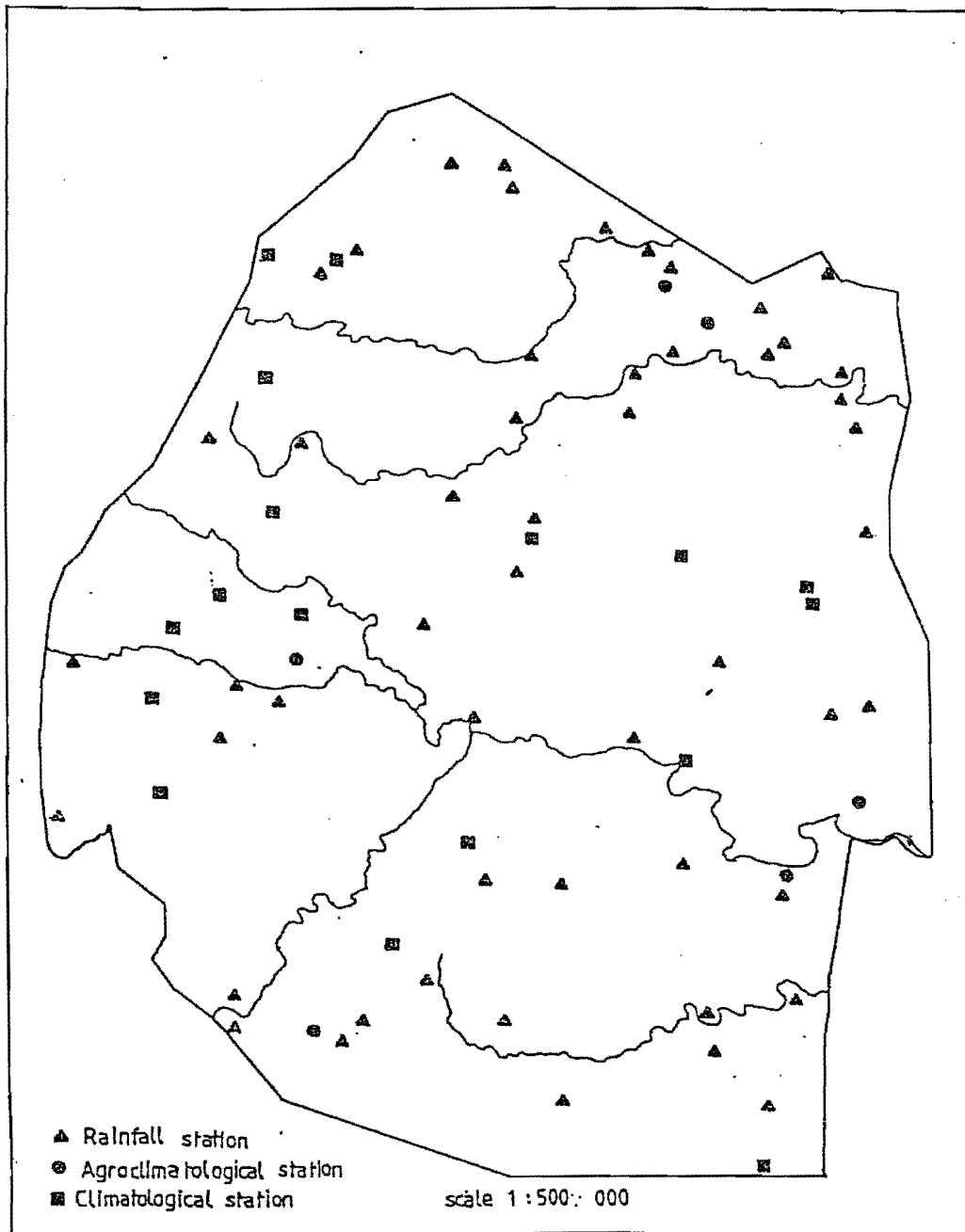⊕ Agroclimatological station
▣ Climatological station

scale 1 : 500 000

Figure 1 : Meteorological Stations in Swaziland