UNIVERSITY OF SWAZILAND

FINAL EXAMINATION PAPER MAY 2006

B.SC, B.A, B.A.S.S AND B.ED

TITLE	:	STATISTICAL GEOGRAPHY
COURSE NUMBER	:	GEP 223
TIME ALLOWED	:	THREE (3) HOURS
INSTRUCTIONS	:	1. ANSWER THREE (3) QUESTIONS. 2. QUESTION ONE (1) IS COMPULSORY. 3. CHOOSE TWO (2) QUESTIONS FROM SECTION B. 4. WHERE APPROPRIATE, ILLUSTRATE YOUR ANSWERS WITH 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 SIGNIFICANT LEVELS.

MARK ALLOCATION: QUESTION ONE (1) CARRIES FORTY (40) MARKS AND THE OTHER QUESTIONS ARE THIRTY (30) MARKS EACH.

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SECTION A COMPULSORY QUESTION

QUESTION 1

Table 1 shows the ages and weights of Form 5 students at Salesian High School.

a) Calculate the Pearson's Product Moment and Spearman's Rank correlation coefficients between age and weight [14 marks]
b) Plot a scatter diagram and a regression line of the students' ages and students' weight. [08 marks]
c) Comment on the results obtained in b) above [04 marks]
d) Test the correlation coefficients at 0.01 significance level. [06 marks)
e) Distinguish between Pearson's Product Moment and Spearman's Ranks Correlation methods as measures of relationships. [08 marks]

[40 marks]

SECTION B ANSWER ANY TWO QUESTIONS

QUESTION 2

The Swaziland Government has commissioned you to carry out a study on the 500 industrial firms in Matsapha and evaluate their contribution to the National economic development of the country. 250 of the firms are small scale, 100 are of medium scale and 150 are of large scale. The available funds are sufficient to cover only 20% of the industries.

(a) Demonstrate clearly how you would choose a representative sample for this study [15 marks]

(b) (i) Indicate the type of information you will need for this study [05 marks]
(ii) Identify the possible sources of relevant information [05 marks]
(iii) Identify the necessary instruments you will employ to get the information [05 marks]

[30 marks]

QUESTION 3

(a) Discuss the advantages and disadvantages of any three methods of obtaining primary data [15 marks]

(b) What are the limitations of using secondary data? [10 marks]

(c) How would you minimise the limitations observed in (b) above? [05 marks]

[30 marks]

QUESTION 4

Table 2 shows the sampled ages of heads of households in Extension 5 (a formal settlement) and Mathendele (an informal settlement) in Nhlangano. The Null hypothesis (H_0) states that: There is no difference between the means of the two settlements. The Alternative hypothesis (H_1) states that there is a difference between the means of the two settlements. The rejection level was set at 0.05.

(a) Calculate the students' t-test to establish the difference between the two samples. [20 marks]

(b) Establish whether you are going to reject or accept H_0 based on the results obtained in (a) above. [10 marks]

[30 marks]

QUESTION 5

Using specific examples explain how the following types of data differ from each other

(a)	Interval and ratio data	[6marks]
(b)	Nominal and ordinal data	[6marks]
(c)	Primary and secondary data	[6marks]
(d)	Discrete and continuous data	[6marks]
(e)	Individual and grouped data	[6marks]

[30 marks]

Table 1 Age and Weight of Form 5 students of Salesian High School

Student No.	Age (years	Weight (kg)	Student No.	Age (years)	Weight (kg)
1.	20	59	16.	18	56
2.	17	51	17.	17	61
3.	18	62	18.	20	62
4.	17	54	19.	19	61
5.	19	65	20.	21	59
6.	22	66	21.	16	52
7.	21	60	22.	24	65
8.	17	66	23.	17	56
9.	23	68	24.	20	62
10.	20	63	25.	23	59
11.	21	59	26.	18	60
12.	22	59	27.	16	54
13.	19	57	28.	20	59
14.	21	58	29	19	64
15.	18	63	30.	18	57

Source: Hypothetical

Table 2 Sampled heads of households at Extension 5 and Mathendele in Nhlangano

Mathendele (x)	Extension 5 (y)
39	35
51	40
53	53
46	29
57	32
43	48
48	28
50	42
38	47
47	38

Source: Hypothetical

24 Critical Values of Student's t

Degrees of freedom	Significance level (one-tailed) 0.05	0.025	0.01	0.005	0.0005
	Significance level (two-tailed) 0.1	0.05	0.02	0.01	0.001
1	6.31	12.71	31.82	63.66	636.62
2	2.92	4.30	6.97	9.93	31.60
3	2.35	3.18	4.54	5.84	12.92
4	2.13	2.78	3.75	4.60	8.61
5	2.01	2.57	3.37	4.03	6.86
6	1.94	2.45	3.14	3.71	5.96
7	1.89	2.37	3.00	3.50	5.41
8	1.86	2.31	2.90	3.35	5.04
9	1.83	2.26	2.82	3.25	4.78
10	1.81	2.23	2.76	3.17	4.59
11	1.80	2.20	2.72	3.11	4.44
12	1.78	2.18	2.68	3.05	4.32
13	1.77	2.16	2.65	3.01	4.22
14	1.76	2.15	2.62	2.98	4.14
15	1.75	2.13	2.60	2.95	4.07
16	1.75	2.12	2.58	2.92	4.01
17	1.74	2.11	2.57	2.90	3.97
18	1.73	2.10	2.55	2.88	3.92
19	1.73	2.09	2.54	2.86	3.88
20	1.73	2.09	2.53	2.85	3.85
21	1.72	2.08	2.52	2.83	3.82
22	1.72	2.07	2.51	2.82	3.79
23	1.71	2.07	2.50	2.81	3.77
24	1.71	2.06	2.49	2.80	3.75
25	1.71	2.06	2.49	2.79	3.73
26	1.71	2.06	2.48	2.78	3.71
27	1.70	2.05	2.47	2.77	3.69
28	1.70	2.05	2.47	2.76	3.67
29	1.70	2.05	2.46	2.76	3.66
30	1.70	2.04	2.46	2.75	3.65
40	1.68	2.02	2.42	2.70	3.55
60	1.67	2.00	2.39	2.66	3.46
120	1.66	1.98	2.36	2.62	3.37
∞	1.65	1.96	2.33	2.58	3.29

Reject H_0 if calculated value of t is **greater than** critical value at chosen significance level.

C5 Critical Values of Chi Square

Degrees of freedom	Significance level 0.1	0.05	0.01	0.005	0.001
1	2.71	3.84	6.64	7.88	10.83
2	4.60	5.99	9.21	10.60	13.82
3	6.25	7.82	11.34	12.84	16.27
4	7.78	9.49	13.28	14.86	18.46
5	9.24	11.07	15.09	16.75	20.52
6	10.64	12.59	16.81	18.55	22.46
7	12.02	14.07	18.48	20.28	24.32
8	13.36	15.51	20.09	21.96	26.12
9	14.68	16.92	21.67	23.59	27.88
10	15.99	18.31	23.21	25.19	29.59
11	17.28	19.68	24.72	26.76	31.26
12	18.55	21.03	26.22	28.30	32.91
13	19.81	22.36	27.69	30.82	34.53
14	21.06	23.68	29.14	31.32	36.12
15	22.31	25.00	30.58	32.80	37.70
16	23.54	26.30	32.00	34.27	39.29
17	24.77	27.59	33.41	35.72	40.75
18	25.99	28.87	34.80	37.16	42.31
19	27.20	30.14	36.19	38.58	43.82
20	28.41	31.41	37.57	40.00	45.32
21	29.62	32.67	38.93	41.40	46.80
22	30.81	33.92	40.29	42.80	48.27
23	32.01	35.17	41.64	44.18	49.73
24	33.20	36.42	42.98	45.56	51.18
25	34.38	37.65	44.31	46.93	52.62
26	35.56	35.88	45.64	48.29	54.05
27	36.74	40.11	46.96	49.65	55.48
28	37.92	41.34	48.28	50.99	56.89
29	39.09	42.56	49.59	52.34	58.30
30	40.26	43.77	50.89	53.67	59.70
40	51.81	55.76	63.69	66.77	73.40
50	63.17	67.51	76.15	79.49	86.66
60	74.40	79.08	88.38	91.95	99.61
70	85.53	90.53	100.43	104.22	112.32
80	96.58	101.88	112.33	116.32	124.84
90	107.57	113.15	124.12	128.30	137.21
100	118.50	124.34	135.81	140.17	149.45

Reject H_0 if calculated value of chi square is **greater than** the critical value at the chosen significance level.

C8 Critical Values of Pearson's Product-Moment Correlation Coefficient r

Degrees of freedom	Significance level (one-tailed) 0.05	0.025	0.01	0.005
	Significance level (two-tailed) 0.1	0.05	0.02	0.01
1	0.9877	0.9969	0.9995	0.9999
2	0.900	0.950	0.980	0.990
3	0.805	0.878	0.934	0.959
4	0.729	0.811	0.882	0.917
5	0.669	0.755	0.833	0.875
6	0.622	0.707	0.789	0.834
7	0.582	0.666	0.750	0.798
8	0.549	0.632	0.716	0.765
9	0.521	0.602	0.685	0.735
10	0.497	0.576	0.658	0.708
11	0.476	0.553	0.634	0.684
12	0.458	0.532	0.612	0.661
13	0.441	0.514	0.592	0.641
14	0.426	0.497	0.574	0.623
15	0.412	0.482	0.558	0.606
16	0.400	0.468	0.543	0.590
17	0.389	0.456	0.529	0.575
18	0.378	0.444	0.516	0.561
19	0.369	0.433	0.503	0.549
20	0.360	0.423	0.492	0.537
25	0.323	0.381	0.445	0.487
30	0.296	0.349	0.409	0.449
35	0.275	0.325	0.381	0.418
40	0.257	0.304	0.358	0.393
45	0.243	0.288	0.338	0.372
50	0.231	0.273	0.322	0.354
60	0.211	0.250	0.295	0.325
70	0.195	0.232	0.274	0.302
80	0.183	0.217	0.257	0.283
90	0.173	0.205	0.242	0.267
100	0.164	0.195	0.230	0.254

Reject H_0 if calculated value of r is **greater than** critical value at chosen significance level (in absolute terms).

C9 Critical Values of Spearman's Rank Correlation Coefficient r_s

	Significance level (one-tailed)			
	0.05	0.025	0.01	0.005
Degrees of freedom	Significance level (two-tailed) 0.1	0.05	0.02	0.01
4	1.000			
5	0.900	1.000	1.000	
6	0.829	0.886	0.943	1.000
7	0.714	0.786	0.893	0.929
8	0.643	0.738	0.833	0.881
9	0.600	0.683	0.783	0.833
10	0.564	0.648	0.745	0.794
11	0.523	0.623	0.736	0.818
12	0.497	0.591	0.703	0.780
13	0.475	0.566	0.673	0.745
14	0.457	0.545	0.646	0.716
15	0.441	0.525	0.623	0.689
16	0.425	0.507	0.601	0.666
17	0.412	0.490	0.582	0.645
18	0.399	0.476	0.564	0.625
19	0.388	0.462	0.549	0.608
20	0.377	0.450	0.534	0.591
21	0.368	0.438	0.521	0.576
22	0.359	0.428	0.508	0.562
23	0.351	0.418	0.496	0.549
24	0.343	0.409	0.485	0.537
25	0.336	0.400	0.475	0.526
26	0.329	0.392	0.465	0.515
27	0.323	0.385	0.456	0.505
28	0.317	0.377	0.448	0.496
29	0.311	0.370	0.440	0.487
30	0.305	0.364	0.432	0.478
35	0.282	0.336	0.399	0.442
40	0.263	0.314	0.373	0.413
45	0.248	0.296	0.351	0.388
50	0.235	0.280	0.332	0.368
55	0.224	0.267	0.317	0.351
60	0.214	0.255	0.303	0.335
65	0.206	0.245	0.291	0.322
70	0.198	0.236	0.280	0.310
75	0.191	0.228	0.271	0.300
80	0.185	0.221	0.262	0.290
85	0.180	0.214	0.254	0.281
90	0.174	0.208	0.247	0.273
95	0.170	0.202	0.240	0.266
100	0.165	0.197	0.234	0.259

Reject H_0 if calculated value of r_s is **greater than** the critical value at the chosen significance level (in absolute terms).

For degrees of freedom greater than 30 other critical values can be found from the following relationship:

$$r_s = z\sqrt{1/(n-1)}$$

where r_s is the critical value of r_s, n is the number of individuals in the data set (the degrees of freedom), and z is the appropriate critical value of a standard normal deviate (from Appendix C10). For a two-tailed test at the 0.01 level the appropriate value of z is 2.576, so the critical value of r_s with 72 degrees of freedom is:

$$\begin{aligned} 2.576\sqrt{1/(72-1)} &= 2.576\sqrt{0.014} \\ &= 2.576 \times 0.119 \\ &= 0.306 \end{aligned}$$

C10 Critical Values of a Standard Normal Deviate z

	Significance level (one-tailed)				
	0.1	0.05	0.01	0.005	0.001
z	1.282	1.645	2.326	2.576	3.090
−z	−1.282	−1.645	−2.326	−2.576	−3.090
	Significance level (two-tailed)				
	0.1	0.05	0.01	0.005	0.001
z	1.645	1.960	2.576	2.813	3.291
−z	−1.645	−1.960	−2.576	−2.813	−3.291

UNIVERSITY OF SWAZILAND

DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE & PLANNING

FINAL EXAMINATION, MAY 2006

B.A., B.ED.

TITLE OF PAPER: **SOCIAL AND ECONOMIC GEOGRAPHY**

COURSE CODE: **GEP 226**

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 OTHER QUESTIONS CARRY 30 MARKS EACH**

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

GEP – 226 FINAL EXAMINATION MAY - 2006

Section: A
Compulsory Question

Question 1

a) Using examples, discuss the factors which influence exploitation of mineral resources in African countries. 25 Marks

b) Critically discuss the strategies the Swaziland government is implementing to attract foreign investment into the country. 15 Marks

(40 Marks)

SECTION: B
Choose Any Two Questions From Section B

Question 2

Discuss the applicability of von Thunen's agricultural location theory in Swaziland.
(30 Marks)

Question 3

Discuss the socio-economic influence on agricultural production in Africa.
(30 Marks)

Question 4

Identify and describe the main indices used to measure socio-economic inequality and discuss their merits and limitations. **(30 Marks)**

Question 5

Using examples, comment on the way social services are distributed between rural and urban areas in the region or country most familiar to you in Southern Africa.
(30 Marks)