

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING

SUPPLEMENTARY EXAMINATION PAPER JULY 2014

B.SC., B.A., BASS & B.ED

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 WITH EXAMPLES.**
- 5. ALL WORKING AND/OR CALCULATIONS MUST BE SHOWN.**
- 6. YOU WILL BE PROVIDED WITH GRPAH PAPERS AND TABLES FOR CRITICAL VALUES AND SIGNIFICANT LEVELS.**

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

THIS PAPER SHOULD NOT BE OPENED UNTIL PERMISSION IS GRANTED BY THE INVIGILATOR

GEP 223 - SUPPLEMENTARY EXAMINATION PAPER JULY 2014

SECTION A: COMPULSORY

QUESTION 1

Using data provided on table 1 showing the distribution of cattle ownership and holding size on title deed in Swaziland,

- (a) Calculate the Spearman Rank Correlation Coefficient (15 marks)
 - (b) Calculate the Pearson Correlation Coefficient (20 marks)
 - (c) Compare and contrast the Spearman Rank Correlation Coefficient and the Pearson Correlation Coefficient (5 marks)
- (40 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

Table 2 shows hypothetical scores for a sample of students from three (3) different high schools in the country. The null hypothesis (H_0) states that: There is no difference in the scores obtained by the students from the three high schools. The alternative hypothesis (H_1) states that there is actually a difference in the scores obtained by the students in the three high schools. Apply the Kruskal-Wallis test to establish whether the H_0 can be rejected at 0.01 significance level in favour of H_1 . (30 Marks)

QUESTION 3

- (a) Identify the main sources of quantitative or statistical information generally available to a geographer conducting research. (10 marks)
 - (b) With reference to the situation in developing countries, discuss the availability and quality of the sources identified in (a) above. (20 marks)
- (30 Marks)**

QUESTION 4

- (a) Define the measures of skewness. (5 marks)

- (b) Find the skewness of 4, 5, 5, 6, 6, 7, 7, 8 (20 marks)
- (c) Explain the meaning of skewness measure obtained in (b) above (5 marks)
- (30 Marks)**

QUESTION 5

- (a) Outline the functions of statistical techniques in human geography. (10 marks)
- (b) Explain the main steps involved in the scientific approach in analysing geographical problems. (12 marks)
- (c) Indicate instances where you can use the following statistics:
- (i) Students t-test (2 marks)
 - (ii) Regression analysis (2 marks)
 - (iii) Pearson Correlation Co-efficient (2 marks)
 - (iv) Chi-square test (2 marks)
- (30 Marks)**

Table 1 The distribution of cattle ownership and holding size on title in Swaziland

Homestead No	No. of Cattle	Holding Size
1	80	121
2	29	68
3	61	49
4	92	154
5	01	62
6	42	62
7	88	140
8	23	30
9	74	88
10	67	67
11	88	39
12	19	12
13	01	07
14	76	28
15	87	134
16	16	20
17	48	90
18	10	06
19	12	19
20	10	51

Source: Hypothetical

Table 2 Hypothetical scores for sampled students of three high schools

Mhubhe High	St. Michaels High	Hluthi Central High
98	81	84
87	76	89
99	94	91
88	77	85
79	84	88
82	80	83

Source: Hypothetical

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	38.88	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.