

UNIVERSITY OF SWAZILAND
DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND PLANNING

FINAL EXAMINATION PAPER MAY 2015

B.SC., B.A., BASS and 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) OTHER QUESTIONS FROM SECTION B.**
- 4. WHERE APPROPRIATE ILLUSTRATE YOUR ANSWERS WITH EXAMPLES**

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 – FINAL EXAMINATION PAPER MAY 2015

SECTION A:

COMPULSORY

QUESTION 1

Using data provided on Table 1 showing the production of major crops in Swaziland,

- a) Plot a line graph showing the production of maize in Swaziland between 1966 and 1990
(10 marks)
 - b) Calculate the 5-year running means for maize production. (20 marks)
 - c) Using the same graph plotted for (a) above, plot another line graph showing the 5-year running means obtained in (b) above. (10 marks)
- (40 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS

QUESTION 2

- a) Identify three (3) geographical problems where participant observation would be a suitable technique for data collection. (18 marks)
- b) Discuss the disadvantages of using secondary data in a research. (12 marks)

(30 Marks)

QUESTION 3

Table 2 shows the ages of sampled heads of households at Ngwane Park a suburb of Manzini urban area and Mkhulamini a rural area in the Manzini district. The Null (H_0) hypothesis was stated as: There is no difference between the mean ages of the urban and rural settlement children. The alternative hypothesis (H_1) states that: There is a difference between the mean ages of the urban and rural settlements. The significant 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 would accept or reject H_0 based on the results in (a)
(10marks)

(30 Marks)

QUESTION 4

Identify three main sampling techniques and explain how each one of them is applied.

(30 Marks)

QUESTION 5

The Ministry of Education and Training has commissioned surveyors to undertake a survey that is aimed at determining the relationship between age and weight of students in high schools in Swaziland. Due to financial constraints, the Ministry is unable to cover all the schools in the whole country, thus chose only ten (10) schools in the Hhohho district.

- a) Justify why this is not a representative sample of high schools in the country
(10 marks)
- b) With data provided on table 3 which shows the age and weight of students from Londunduma High School one of the selected schools in the Hhohho district, calculate the Pearson Product Moment Correlation and the Spearman Rank Correlation Coefficient.
(20 marks)

(30 Marks)

Table 1 Production of sugar cane and maize in Swaziland ('000 tonnes)

Year	Sugar cane	Maize
1966	13 083	1 545
1967	13 985	1 648
1968	14 569	1 589
1969	15 056	1 739
1970	16 058	1 889
1971	18 563	1 998
1972	18 985	2 189
1973	19 568	2 369
1974	19 990	2 457
1975	21 785	2 656
1976	22 378	2 789
1977	23 955	2 867
1978	24 179	2 900
1979	24 184	3 038
1980	25 990	3 268
1981	26 708	3 386
1982	27 655	3 567
1983	28 585	3 767
1984	29 788	3 869
1985	31 566	3 998
1986	33 794	4 178
1987	35 999	4 236
1988	37 967	4 436
1989	38 599	4 688
1990	39 990	4 867

Source: Hypothetical

Table 2 Ages of sampled heads of households at Ngwane Park and Mkhulamini

Ngwane Park (Age x)	Mkhulamini (Age y)
57	38
43	37
38	46
49	43
47	33
53	34
59	41
49	45
38	40
59	32

Source: Hypothetical

Table 3 Age and Weight of students from Londunduma High School

Student No.	Age	Weight
1	18	64
2	17	60
3	20	68
4	17	61
5	19	66
6	16	63
7	14	58
8	19	65
9	13	54
10	15	60

Source: Hypothetical

TABLES OF CRITICAL VALUES

C4 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.