

UNIVERSITY OF SWAZILAND

**DEPARTMENT OF GEOGRAPHY, ENVIRONMENTAL SCIENCE AND
PLANNING**

FINAL EXAMINATION PAPER – MAY, 2009

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, 2009

SECTION A: COMPULSORY QUESTION

QUESTION 1

Table 1 shows some basic indicators for selected countries under different income groups.

- (a) Using an appropriate measure, establish the types of relationships between:
- The size of population and GDP per capita. (10 marks)
 - The GDP per capita and life expectancy at birth. (10 marks)
- (b) Plot the relationship observed in (i) and (ii) above. (10 marks)
- (c) Comment on the relationships plotted in (b) above. (10 marks)

[40 marks]

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

Country	Population (in millions)	GDP per capita dollars, 1994	Life expectancy at birth in years, 1994
Low income			
1. Mozambique	15.5	90	46
2. Ethiopia	54.9	100	49
3. Tanzania	28.8	140	51
4. Burundi	6.2	160	50
5. Sierra Leone	4.4	160	40
6. Malawi	9.5	170	44
Middle income			
7. Bolivia	7.2	770	60
8. Indonesia	190.4	880	63
9. Philippines	67.0	950	65
10. Bulgaria	8.4	1 250	71
11. Romania	22.7	1 270	70
12. Algeria	27.4	1 650	69
Upper-middle income			
13. Brazil	159.1	2 970	67
14. South Africa	40.5	3 040	64
15. Gabon	1.3	3 880	54
16. Mexico	88.5	4 180	71
17. Oman	2.1	5 240	70
18. Argentina	34.2	8 110	72
High income			
19. Portugal	9.9	9 320	75
20. New Zealand	3.5	13 350	76
21. United Kingdom	58.4	18 340	76
22. Canada	29.2	19 510	78
23. United States	260.6	25 880	77
24. Norway	4.3	26 390	78
25. Japan	125.0	34 630	79

Source: Adapted from World Development Report, 1996

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 such a study.

[30 marks]**QUESTION 3**

Using data matrix in Table 2, do the following:

- Calculate the standard deviation of the percentage of working males in social classes 1 and II (variable A). (10 marks)
- Calculate the skewness of children in care of local authority as a percentage of all children under 18 (variable C). (15 marks)
- Explain the meaning of the skewness measure obtained in (b) above. (5 marks)

[30 marks]**Table 2: Data Matrix**

INDIVIDUALS	VARIABLES					
	A	B	C	D	E	F
1. Basildon	20.38	8.3	***	***	***	1.06
2. Birkenhead	12.70	6.9	5.5	8.14	1.96	0.68
3. Birmingham	12.70	7.8	10.7	2.34	0.00	0.64
4. Blackpool	19.56	11.9	5.5	3.96	0.00	0.45
5. Bolton	14.14	7.5	8.0	3.12	0.00	0.53
6. Bournemouth	23.85	14.1	10.0	2.76	3.62	0.97
7. Bradford	13.67	8.9	11.9	6.78	0.00	0.41
8. Brighton	20.33	11.4	9.9	3.69	0.00	0.61
9. Bristol	14.13	7.9	10.0	10.60	28.40	0.99
10. Cardiff	13.36	9.9	6.8	5.57	37.73	0.85
11. Coventry	9.46	6.4	6.5	3.09	4.41	0.74
12. Derby	13.71	5.1	7.1	1.19	0.00	0.59
13. Dudley	10.24	7.4	4.3	3.49	0.00	0.72
14. Gateshead	12.78	6.0	10.1	3.56	0.00	0.51
15. Huddersfield	13.95	10.1	7.2	1.58	0.00	0.54
16. Hull	12.20	7.2	6.6	2.20	47.59	0.29
17. Ipswich	13.38	7.6	6.0	4.20	67.76	0.59
18. Leeds	13.65	9.3	9.1	2.94	5.88	0.45
19. Leicester	13.72	8.8	9.2	1.10	0.00	0.61
20. Liverpool	14.06	7.5	8.1	1.10	26.94	0.45
21. London	12.97	14.7	9.2	5.15	10.17	0.92
22. Luton	9.42	6.9	4.3	1.87	18.60	0.74
23. Manchester	14.05	6.9	13.0	3.05	16.06	0.41
24. Newcastle	15.75	7.7	14.4	3.46	0.00	0.34
25. Newport	11.85	7.7	6.2	3.83	8.11	0.66

Source: Adapted from Ebdon, 1985, p. 226-227.

QUESTION 4

Using data in Table 3 showing a hypothetical distribution of industrial establishments by towns in one of the Southern African Development Countries (SADC):

- (a) Draw a Lorenz curve and a bar graph to depict the distribution of the industries in the country. (10 marks)
- (b) Comment on the distribution of industries as portrayed in the two types of graphs drawn in (a) above. (6 marks)
- (c) Compare the two graphs as ways of portraying spatial geographical data. (6 marks)
- (d) Establish the best tool among the two types of graphs for portraying geographical data and suggest justifications for your choice. (8 marks)

[30 marks]

Table 3: Distribution of industrial establishments by towns in one of the SADC countries.

Town number	No of establishments
1	28
2	96
3	47
4	15
5	26
6	9
7	31
8	57
9	34
10	85
11	454
12	13
13	51
14	34
15	61
16	74
17	36
18	86
19	11
20	38

Source: Hypothetical

QUESTION 5

- (a) Outline the functions of statistical techniques. (10 marks)
- (b) Explain the main steps involved in the scientific approach in analyzing geographical problems. (12 marks)
- (c) Indicate situations where the following statistical tests can be used.
 - (i) Spearman Rank Correlation Coefficient. (2 marks)
 - (ii) Standard deviation. (2 marks).
 - (iii) The student t-test. (2 marks).
 - (iv) The Chi-Square test. (2 marks).

[30 marks]