MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND YEAR SECOND SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF ARTS IN URBAN & REGIONAL PLANNING WITH INFORMATION TECHNOLOGY
(MAIN CAMPUS)

NPL 207: QUANTITATIVE TECHNIQUES I

Date: 12ᵗʰ April, 2012   Time: 9.00 – 11.00 a.m.

INSTRUCTIONS:

♦ Answer QUESTION ONE and any other TWO questions.

♦ Use sketches and diagrams whenever appropriate.

NPL: 207 QUANTITATIVE TECHNIQUES
(SIRIBA CAMPUS)

Answer question **ONE** and any other **Two**

1.

    a. Define descriptive and inferential statistics   **(2 marks)**

    b. Discuss the scales of data measurements   **(8marks)**

    c. Describe three types of sampling techniques   **(15marks)**

    d. Explain three types of spatial data   **(5marks)**

2. Given below is the rainfall totals in millimeters for two towns for the last twenty years

Year	Town A	Town B
1933	108	106
1934	165	138
1935	79	125
1936	77	103
1937	132	128
1938	99	132
1939	85	118
1940	100	117
1941	68	120
1942	123	114
1943	129	130
1944	79	104
1945	180	144
1946	92	108
1947	105	152
1948	99	119
1949	168	135
1950	219	155
1951	135	134
1952	150	116

Using the given data above calculate the following:-

a. Mean rainfall for the two towns   **(6marks)**

b. Median for each town   **(4marks)**

c. Standard deviation for each town   **(6 marks)**

d. Comment on the mean and standard deviation as a measure of central tendency   **(4marks)**

3. In a study of farm records over 100 years showed that heavy crop losses were experienced as follows:-

   In 5 years as a result of hail

   In 4 years as a result of drought

   In 7 years as a result of frost

   Calculate the number of times the crops are likely to suffer from any of the three conditions if we assume that there is no connection between the incidence of the three types of weather   **(8marks)**

   b) If two dice are thrown together what is the number of possible outcomes?   **(2marks)**

   c) Tabulate the outcomes   **(10marks)**

4. The data below shows population distribution after census carried out in Mwer division. Use the data to answer the question below

Location	Mtee location		Ontange Location		Kimwaten Location		
Sub-location	A	B	C	D	E	F	G
Number of people	15000	23450	16890	22660	8900	13750	9420
Area per sub-location(km²)	24	18	15	17	5	10	6

a) Calculate the mean population size of the sub-locations   **(7 marks)**

b) Calculate the mean population densities per location and construct a pie chart to show this distribution   **(9 marks)**

c) Compare pie chart and bar graph representation of this distribution   **(4 marks)**

5. a) Explain a positive and a negative correlation (5marks)

   b) The data below shows the weights of fathers and their sons in a small village population. Use the data to calculate the correlation co-efficient using spearman's rank correlation coefficient

Weight of father's	weight of sons
65	68
63	66
67	68
64	65
68	69
62	66
70	68
67	65

(15marks)

6. a) Discuss three forms of hypothesis testing (6marks)

   b) In a study of intelligence in universities it was hypothesized that the female students were more intelligent than the male students. A random sample gave the following results.

	Mean score	Standard Deviation	Number
Female	75	10	50
Male	70	12	100

   d) Test at 5% level of significance whether the mean scores of male and female differ statistically (14marks)