MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2013/2014

THIRD YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE WITH INFORMATION TECHNOLOGY

(MAIN CAMPUS)

NES 303: STATISTICS I

Date: 22nd November, 2013 *Time: 11.00 a.m. - 1.00 p.m.*

INSTRUCTIONS:

- **Answer Question ONE and any other TWO questions.**

INSTRUCTIONS: ANY FOUR QUESTIONS

1) a) Discuss strategic Environmental assessment as a tool for Environment systems analysis. (10 Marks)

b) State comparisons between Environmental impact Assessments and Strategic Environmental Assessments. (5Marks)

a)Calculate the means standard deviation and variance of the following ten observations (mm) (20 Marks)

81 79 82 80 78 80 87 82 82

2) a)Describe the performance of risk assessments as a tool for environmental system analysis. (10 Marks)

A biologist wishes to know if the masses of the starlings sampled in four different roost situations are different. A sample of 10 units (starlings) is obtained from such a situation are tabled below.

MASSES OF STARLING FROM FOUR SITUATIONS (g)

Situation 1	**Situation 2**	**Situation 3**	**Situation 4**
Sample 1	Sample 2	Sample 3	Sample 4
78	78	79	77
88	78	73	69
87	83	79	75
88	81	75	70
83	78	77	74
82	81	78	83
81	81	80	80
20	82	78	75
80	76	83	76
89	76	84	75

Calculate one way analysis of variance

3) Sample of one species is randomly selected from a box on a fishing boat each fish is weighed and measured and then dissected to remove the Otoliths which are also measured. The data are tabulated below:

Otolith	**Fish**
Length (mm)	Mass (g)
6.6	86
6.9	92
7.3	71
7.5	74
8.2	185
8.3	85
9.1	201
9.2	283
9.4	255
10.2	222

Calculate the product moment correlation coefficient (15 Marks)

4) Discuss life cycle assessment as a tool for environmental systems analysis. (15 Marks)

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89	76	84	75

Calculate the poison probability distribution for x = 0 to 10 when x (the estimate of λ) is 4.0 (20 mks)

4. Sample of one species is randomly selected from a box on a fishing boat each fish is weighed and then dissected to remove the otoliths which are also measured. The data are tabulated below:

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Calculate the product moment correlation coefficient (20 marks)

5. Calculate the complete probability distribution of all combination for $k = 8$ when $p = 0.5$ (20 mks)
6. Calculate the poison probability distribution for $x = 0$ to 10 when $\bar{x}$ (the estimate of λ) is 4.0