



**MASENO UNIVERSITY**  
**UNIVERSITY EXAMINATIONS 2013/2014**

**FIRST YEAR SECOND SEMESTER EXAMINATIONS FOR THE  
DEGREE OF MASTER OF SCIENCE IN ENVIRONMENTAL  
SCIENCE  
(HOMA BAY CAMPUS)**

**NES 828: ENVIRONMENTAL SYSTEMS ANALYSIS**

Date: 6<sup>th</sup> April, 2014

Time: 8.00 - 11.00 a.m.

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**INSTRUCTIONS:**

- **Answer ANY FOUR questions.**
- **All questions carry equal marks.**



(HOMA - BAY LEARNING CENTRE)

NES 828 : ENVIRONMENTAL SYSTEMS ANALYSIS

TIME : 3 HOURS

INSTRUCTIONS: Answer any FOUR questions

- (a) Discuss strategic environmental assessment as a formal analysis of the environment. (8mks)  
(b). Give a comparison between Environmental impact assessment and strategic Environmental assessment. (7mks)
- Compute the complete probability distribution of all combination for  $k = 8$  when  $p = 0.5$  (15mks)
- A frequency table of the numbers of nematodes in all 60 squares of counting chamber is presented below. Does the dispersion of worms over the base of the chamber constitute a poisson distribution (15mks)

Number of nematodes X	0	1	2	3	4	5	6	7	8
Frequency Y	3	12	17	13	9	3	1	2	0

- A biologist investigating the effects of applying different amounts of fertilizer on the yield of grass on reclaimed derelict land. Grass seed is sown uniformly over the area. Ten  $1\text{m}^2$  plots are located randomly and a different mass of commercial fertilizer is applied evenly to each. Two months later the grass is carefully harvested from each plot, dried and weighed. The results of the experiment are tabulated below.

X variable: Mass of fertilizer ( $\text{g}/\text{m}^2$ )	25	50	75	100	125	150	175	200	225	250
y. Variable: Yield of grass ( $\text{g}/\text{m}^2$ )	84	80	90	154	148	169	206	244	212	248

Determine the simple linear regression (15mks)

- (a). Describe life cycle assessment as a tool for environmental systems analysis (8mks)  
(b). What are the strengths and weaknesses of life cycle assessment. (7mks)
- Discuss risks assessment as a tool for environmental systems analysis (15mks)