



MASENO UNIVERSITY
UNIVERSITY EXAMINATIONS 2016/2017

**FOURTH YEAR FIRST SEMESTER EXAMINATION FOR DEGREE
OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE
WITH INFORMATION TECHNOLOGY**

MAIN CAMPUS

**NES 401: ECONOMIC VALUATION FOR ENVIRONMENTAL
PROTECTION**

Date: 28th November, 2016

Time: 12.00 - 3.00pm

INSTRUCTIONS:

- Answer Question ONE and any other TWO.



1. a) Using a suitable analogy, explain how you can simulate a price for a zero priced environmental resources. [10 mks]
 - b) Explain and depict graphically the phenomenon of increasing productivity that is synonymous with decreasing marginal variable cost. [10 mks]
 - c) Averted behaviour is a revealed preference method of valuation. Explain its applicability in environmental valuation. [10 mks]
2. Elucidate the inadequacies encountered when conducting environmental valuation using the Contingent Valuation Method (VCM) [20 mks]
3. To measure the strength of individuals' preferences, Willingness To Pay (WTP) and Willingness To Accept (WTA) compensation can be used as a basis for Cost Benefit Analysis as illustrated below.
Individual 1: WTP to move to B = Sh.1500
Individual 2: WTP to move to B = Sh.1300
Individual 3: WTA to tolerate a move to B = Sh.1700
Individual 4: WTA to tolerate a move to B = Sh.1100
- a) Illustrate the Cost Benefit rule that provides the foundation for Cost Benefit Analysis [3 mks]
 - b) Using the above figures calculate and hence determine the well being of each individual from the move to B [5 mks]

- c) Given that the society is an aggregate of individuals as illustrated above, explain whether the move to B is socially worthwhile or not and give reasons for your answer.

[5 mks]

- d) Based on the Cost Benefit rule, what would be your preferred advice to the society as far as the move to B is concerned? [4 mks]
- e) Explain how you can impute a potential Pareto improvement. [3 mks]
4. Free functioning markets cannot be relied upon to take care of the environment because they fail .Explain how the government intervenes to protect the environment when the market has failed.

[20 mks]

5. The table below shows hypothetical results obtained by observing consumer behaviour and by varying the price of a visit and seeing how many visits an average consumer makes per annum to Kima Hills which is a zero priced environmental resource. The value of the resource will be determined by individual preference expressed through Willingness To Pay.

WTP, Price paid and Consumer Surplus

1 No of visits	2 WTP (Sh.)	3 Price Paid (Sh.)	4 Consumer Surplus (Sh.)
0	550		
1	500		
2	400		
3	300		
4	200		
5	100		
6	0		
Totals			

- a) Show how you would determine:

- i) Actual price paid in the absence of a supply constraint [3
mks]
- ii) Total value [3
mks]
- iii) Consumer surplus

[3mks]

- b) Copy the table above and on the basis of entrance fee (WTP), fill in the blank spaces appropriately. [7 mks]
- c) From the table above, derive a demand curve. [4 mks]