

UNIVERSITY OF KABIANGA
UNIVERSITY EXAMINATIONS THIRD YEAR FIRST SEMESTER 2016/2017

AFR 314 NATURAL RESOURCE AND ENVIRONMENTAL ECONOMICS

INSTRUCTIONS TO CANDIDATES

SECTION A: ANSWER ALL QUESTIONS IN THIS SECTION (30 MARKS)

- Q1: Explain 3 types of biases under Contingent Valuation Method. (6 marks)
- Q2: Suppose that a particular emissions abatement strategy would result in a Ksh 500 Billion reduction in damages 50 years into the future. How would the maximum amount spent now to eliminate those damages change if the discount rate is 2%, rather than 10%? (6 marks)
- Q3: Explain types of command and control regulations. (6 marks)
- Q4: Using relevant examples, describe the types of externalities. (4 marks)
- Q5: Explain four characteristics of the structure of property rights that could produce efficient allocations in a well-functioning market economy. (8 marks)

SECTION B: ANSWER ANY TWO QUESTIONS IN THIS SECTION (40 MARKS)

Q6: In the past, Mau Forest had been experiencing unrestricted access resulting to over extraction of forest and non-forest products. You have been employed as a forest expert at Kenya Forest Services with the key responsibility of advising the directors on efficient levels of harvesting the forest. With illustrations, how will you advise the directors to consider the concept of intergenerational equity? (20 Marks)

Q7: (a) Discuss five methods available for society to increase use of recycled products. (10 Marks)

(b) With illustration, comment on the relationship between income and waste. (10 Marks)

Q8: (a) Assume that the relationship between the growth of a fish population and the population size can be expressed as;

$$g = 4P - 0.1P^2$$

Where;

$$g = P$$

g = the growth in tons,
 P = the size of the population (in thousands of tons).

The marginal benefit of smaller population sizes can be computed as;

$$20P - 400.$$

$$g = 4P - 0.1P^2$$

Required:

- (i) Compute the population size that is compatible with the maximum sustainable yield. (4 Marks)
- (ii) If the marginal cost of additional catches (expressed in terms of the population size) is;

$$MC = 2(160 - P)$$

What is the population size that is compatible with the efficient sustainable yield? (3 Marks)

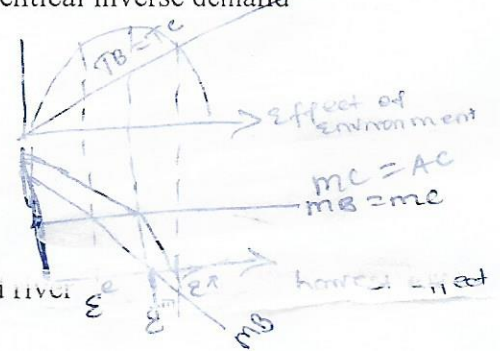
(b) Suppose Narok County is trying to decide how many miles of Mara River it should preserve. There are 100 households living along the river, each of whom has an identical inverse demand function given by;

$$P = 10 - 1q$$

Where;

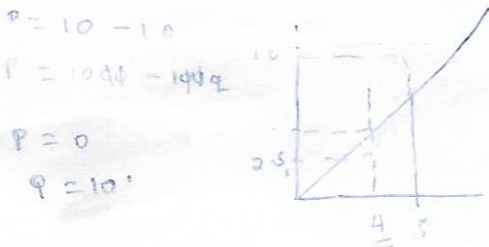
q = the number of miles preserved,

P = the per-mile price he or she is willing to pay for q miles of preserved river



Required:

- i. If the marginal cost of preservation is Ksh 500 per mile, how many miles would be preserved in an efficient allocation? (8 Marks)
- ii. How large is the economic surplus? (5 Marks)



Handwritten notes on the right side of the page. It starts with 'Σ marginal benefit = 0 hence' and continues with 'complete' and 'Sust... field'. There are also some other scribbles and numbers.