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1st SEM. 2019/2020

UNIVERSITY OF ESWATINI

RE-SIT/SUPPLEMENTARY EXAMINATION PAPER

PROGRAMME: BSc. in Agricultural Economics and Agribusiness Management Year 4

COURSE CODE: AEM403

TITLE OF PAPER: ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

TIME ALLOWED: TWO (2): HOURS

INSTRUCTION: 1. ANSWER ALL FOUR QUESTIONS
2. EACH QUESTION CARRIES 25 POINTS

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Question 1 (25 MARKS)

a) Distinguish between Current Annual Increment (CAI) and Mean Annual Increment (MAI).

5 MARKS

b) In biological point of view what is the optimum harvesting stage of timber? What are the factors that are missed when analyzing the problem in biological point of view?

10 MARKS

c) In economists point of view when should trees be cut down? Explain logically.

5 MARKS

d) How is the Hartman Model different from the Faustmann model? Explain briefly.

5 MARKS

Question 2 (25 MARKS)

Mlilwane game reserve is threatened by development in the surrounding area. Pollution and other impacts from this development could destroy the game reserve, resulting in a serious decline in, or total loss of the site's ability to provide recreational services. As an Environmental and natural resource economist you are tasked with estimating the value of Mlilwane game reserve (or the value of the recreational services of Mlilwane game reserve) using the zonal travel cost method. Discuss in length how will you go about determine the value of preserving Mlilwane game reserve using the zonal travel cost method? **25 MARKS**

Question 3 (25 MARKS)

The Eswatini government is in a dilemma on whether to treat water as an economic good or to treat water as a human right. As an Environmental and Natural Resource Economist can you help the government in its dilemma by putting forth arguments for treating water as an economic good versus arguments for treating water as a human right? **25 MARKS**

Question 4 (25 MARKS)

Assume that the demand curve for an environmental good is fully coincidental with the Marginal Social Benefit (MSB) function and can be described as MSB = MPB (i.e. Marginal Private Benefit) = 12 - 3q, where q refers to the quantity of the good. Assume that the Marginal Private Cost (MPC) function can be described by MPC = q, and that Marginal Social Costs (MSC) are always triple the Marginal Private Cost (MPC).

a) Determine an equation for the marginal social costs **3 MARKS**

b) Algebraically determine:

i. The market level of output *(i.e. output linked with the inefficient market equilibrium)*

3 MARKS

ii. The market price *(i.e. price linked with the inefficient market equilibrium)*

3 MARKS

iii. The optimal level of output *(i.e. output linked with the efficient market equilibrium)*

3 MARKS

iv. The optimal price*(i.e. price linked with the efficient market equilibrium)*

3 MARKS

c) Graph all the functions

10 MARKS