



**UNIVERSITY OF SWAZILAND**

**FINAL EXAMINATION PAPER**

**PROGRAMME: BSc. in Agricultural Economics and Agribusiness  
Management Year IV  
BSc. in Land and Water Management Year IV**

**COURSE CODE: AEM 405**

**TITLE OF PAPER: Environmental and Natural Resource  
Economics**

**TIME ALLOWED: 2:00 Hours**

**INSTRUCTION: 1. ANSWER ANY FOUR QUESTIONS  
2. Each question carries 25 marks.**

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GRANTED BY THE CHIEF INVIGILATOR**

**Question 1**

- a. Explain briefly the four main characteristics of property rights for a competitive market economy. [12 marks]
- b. What is meant by a polluter-pays-principle? How can it be implemented in practice? [13 marks]

**Question 2**

With the help of a diagram or diagrams, discuss the concept of scarcity rent. [25 marks]

**Question 3**

Discuss the main indicators of resource scarcity and their limitations. [25 Marks]

**Question 4**

$$\text{Given } F(X) = B(-X^2 + kX) = H(t)$$

Where:

Carrying capacity  $k = 100$

MSY = point where biomass is  $K/2$

$B = 0.05$

- i. Calculate the harvest rate  $H(t)$  for  $X = 10, 20, 50, 80, 90$  [10marks]
- ii. Plot the values of  $H(t)$  [10 marks]
- iii. State the level of stock that supports MSY [3 marks]
- iv. What may be deduced from the above analysis? [2 marks]

**Question 5**

- a. Discuss the three basic criteria for an ideal resource scarcity indicator  
[9 marks]
- b. Briefly explain the four main conservation practices/ strategies [12marks]
- c. How would you summarize the concept of time to exhaustion for stock resources?  
[4 marks]