"Investing in Africa's future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

NANR 409: ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS

END OF SECOND SEMESTER FINAL EXAMINATIONS

APRIL 2022

LECTURER: G. MANDEWO

DURATION: 3 HOURS

INSTRUCTIONS
Answer Question Number 1 and **any other 3 Questions**
Total possible mark is 100

Start each question on a new page in your answer Booklet. Credit will be awarded for logical, syst

Use of non-programmable calculator is permitted

Best wishes!!

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO BEGIN THE EXAM

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1. (a) There are deleterious effects of global air pollutants.

(i) Discuss the evidence of ozone depletion and that of global warming. **[6]**

(ii) Discuss practical methods that can be used to redress Climate change. **[6]**

(b) (i) Explicitly define the cartel problem. **[8]**

(ii) Critically demonstrate the national security problem. **[4]**

(ii) The natural environment cannot be separated from the economy and economic activity

Draw a well labelled diagram that shows the fundamental balance between the environment and the economy and State and relate the two laws of thermodynamics. **[8]**

(c) (i) What are the fundamental problems of common property resources? **[4]**

(ii) With reference to fisheries is there a difference in the biological and economic allocative efficiency? **[4]**

2. (a) Discuss pollutant taxonomy. **[10]**

(b) Explain in detail cost effective policies for non-uniformly mixed surface pollutants. **[10]**

3. (a) How would you define the socially optimal rate of depletion of a non-renewable natural resource? **[10]**

(b) Describe and analyse the factors that might prevent depletion from being at a socially optimal rate. **[10]**

4. (a) In a static model, explain why private ownership of a fishery would produce an optimal allocation of such a renewable resource. **[7]**

(b) Explain why open access resource may be extinct. **[7]**

(c) Define the following terms, in each case providing TWO examples;

i. Renewable resource. **[2]**

ii. Non-renewable resource. **[2]**

iii. Recyclable resource. **[2]**

5. (a) Explain what is meant by the statement that the extraction of natural resources is a 'dynamic process'. **[10]**

(b) Present and describe a model to identify the main factors that would determine the rate at which forests should be harvested. **[10]**

6. In what way are the following concepts affect policies to redress the problem of toxic substances?
    a. number of substances. **[4]**
    b. latency **[8]**
    c. uncertainty **[8]**
7. (a) Distinguish between point and non-point sources of pollution. **[6]**
    (b) What are the effects of water pollution? **[6]**
    (c) Suggest practical solutions to the problem of water pollution. **[8]**

End of Examination Paper