HEBERT CHITEPO SHOOL OF LAW AND BUSINNESS SCIENCES

DEPARTMENT OF ECONOMICS AND FINANCE

MASTRR OF COMMERCE DEGREE

LEVEL 1	**SEMESTER 2**
MODULE CODE	**MED527**
MODULE NARRATION	**NATURAL RESOURCES AND ECONOMIC DEVELOPMENT**
DATE	**FEB 2025**
DURATION	**3 HOURS**

INSTRUCTIONS TO CANDIDATES:

1. Answer any four questions
2. All questions carry equal marks
3. Start each answer on a fresh page
4. Show all workings, where applicable

QUESTION 1

(a) Describe the major characteristics of non-renewable resources. [4 marks]

(b) Discuss the critical issues in the optimal utilization of non-renewable resources. [21 marks]

[Total 25 marks]

QUESTION 2

(a) Discuss with illustrations the link between natural resources and economic development. [15 marks]

(b) Using appropriate examples, examine how natural resources are classified. [10 marks]

[Total 25 marks]

QUESTION 3

Evaluate the resource curse thesis using the DRC and the USA. **[Total 25 marks]**

QUESTION 4

Suppose the relevant details of a non-renewable copper are as follows:

X_0= 10 tonnes: extractive quantity or initial reserves.

$Q_t = q_0, q_1$: quantity extracted in periods 0 and 1 respectively.

$P_t = 20-q_t$: demand for copper output in period t.

MC = $5 per tonne: constant marginal cost of extraction.

r = 0.10: discount rate.

t = 0, 1: set of time period periods for extracting coal; assumed to be two periods.

$X_T = X_2 = 0$: final function.

(a) Explain the net social benefit from extracting coal and then set up the maximizing problem for periods 0 and 1. State the Lagrangean function and obtain the first order necessary condition for this problem. [10 marks]

(b) Solve for the optimal values of q_0, q_1, P_0, and P_1 as well as the royalties in periods 0 and 1. [6 marks]

(c) From the optimal values in (b) above, demonstrate that a condition for optimal depletion, in this case, is that the present value of the royalty must be the same in both periods 0 and 1. [5 marks]

(d) From the results above, demonstrate that another condition for optimal depletion is that the price of coal is equal to the marginal cost of extraction plus royalty. [4 marks]

[Total 25 marks]

QUESTION 5

1. Critically examine Zimbabwe's and Botswana's historical experiences of the role of natural resources in economic development. **[Total 25 marks]**