CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

FIRST YEAR EXAMINATION FOR AWARD OF THE BACHELOR OF AGRICULTURAL ECONOMICS AND NATURAL RESOURCE MANAGEMENT

RESIT/SPECIAL EXAM

AGEC 321: RESOURCE ECONOMICS

STREAMS: AGEC Y3S2, NARE (Y3S2)   **TIME: 2 HOURS**

DAY/DATE: MONDAY 16/11/2020   **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS:
 (i)   **Answer all questions in section A and any three in section B**
 (ii)   **Answer each question on separate pages**

SECTION A

SECTION A: ANSWER ALL QUESTIONS (25 MARKS)

1.

    a) Discuss the classification of resources under the following categories

        i)   Natures Goods   **(**2 marks)

        ii)   Natural Amenities   (2 marks)

        iii)   Natures services   (2 marks)

    b) The main factors affecting the reproduction and growth of a renewable resource such as fisheries include harvesting by man. The table below indicates the number of trips to a fishery and the associated catch per fleet trip. The estimated cost per trip is Kshs 70,000.It is assumed each trip is the same but when a large number of harvesting trips is made to the fishery, the catch per trip declines.

No of fishing Trips	Total catch ('000kg)
20	1000
21	1100
22	1200
23	1280
24	1350
25	1380
26	1400
27	1415
28	1425
29	1430
30	1430
31	1430

Required;

i) Calculate the extra catch by the fleet associated with the   number of harvesting trips. (2 marks)

ii) The average catch per trip (kgs) associated with the number of harvesting trips (2 marks)

iii) Assume a closed access fishery and calculate the optimal number of harvesting trips. Define the rules for your determination of your answer (5 marks)

iv) Assume an open access fishery and calculate the optimal number of harvesting trips. Compare with that of closed access (5 marks)

(a) 'Prices and costs are important economic entities which can help Resource Economists understand and observe the availability of a given resource', In light of the above statement, discuss the key indicators of resource scarcity. (5 marks)

SECTION B: ANSWER ANY THREE QUESTIONS (45 MARKS)

2.

a) Discuss the economic management of the following

   i) Forestry Resource (5 marks)

   ii) Land Resource (5 marks)

b) Define the assimilative capacity of the natural environment (1 mark)

c) Given that the functional relationship between waste emission and into the environment and economic activity is given as

$$W = f(X, t)$$

while the explicit functional form is

$$w = Bx$$

Given that w is level of waste generated and X is the level of economic activity. The variable t represents technology and ecological factors. Graphically represent the above relationship *vis a vis* the assimilative capacity of the environment   (4 marks)

3.

a) With the aid of diagram, discuss the concept of pareto efficiency and the distribution effects of a resource   (5 marks)

b) You are tasked by Tharaka Nithi County to carry out an environmental impact assessment of the proposed establishment of a large abattoir in Kanwa area. Discuss the pertinent aspects that you are likely to include in your environmental impact statement   (10 marks)

4.

a) With the aid of diagrams, discuss the pollution control costs and their salient properties
                (5 marks)

b) The manner in which producers and consumers use environmental resources depends on the property rights governing those resources. What characterizes an adequate set of property rights?   (4 marks)

c) Discuss at least six major challenges faced by resource economists in their bid to apply economic concepts and principles in the management and allocation of natural resources
                (6 marks)

5.

a) The relationship between carrying capacity and population growth has long been controversial. One of the original arguments appeared in 1798 by English economist Thomas Malthus who stated that continued population growth would cause over-consumption of resources. Malthus further argued that population was likely to grow at an exponential rate while food supplies would increase at an arithmetic rate, not keeping up with the exponential population growth. Malthus believed that an ever increasing population would continually strain society's ability to provide for itself and, as a result, mankind would be doomed to forever live in poverty. Discuss the application of Thomas Malthus' theory on the management of a restricted access fishery resource   (10 marks)

b) To classify resources, one needs to understand their dimensions. Discuss these dimensions with regard to resource economics   (5 marks)