ΠAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

FACULTY OF NATURAL RESOURCE AND SPATIAL SCIENCES

DEPARTMENT OF AGRICULTURE & NATURAL RESOURCES SCIENCES

QUALIFICATION : BACHELOR OF AGRICULTURE/BACHELOR OF REGIONAL AND RURAL DEVELOPMENT	
QUALIFICATION CODE: 27BAGR/07BRRD	**LEVEL:** 5
COURSE CODE: AEM520S	**COURSE NAME**: AGRICULTURAL ECONOMICS
DATE: January 2019	**PAPER:** THEORY
DURATION: 3 Hours	**MARKS:** 100

SECOND OPPORTUNITY/ SUPPLEMENTARY EXAMINATION QUESTION PAPER	
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INSTRUCTIONS
1. Answer ALL four (4) questions.
2. Read all questions carefully before answering.
3. Number your answers clearly.
4. Make sure your student number appears on the answering script.

PERMISSIBLE MATERIALS

1. Examination paper.
2. Examination script.
3. Calculator

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Including this front page)

QUESTION ONE   [MARKS]

a. Explain the difference between production efficiency and allocative efficiency.   (2)

b. Explain the difference between positive and normative economic analyses.   (2)

c. The Production Possibilities Frontier is one of the basic models in economics.

  i.   Give a concise description of the Production Possibilities Frontier (PPF).   (3)

  ii.   Using the PPF, illustrate the following concepts: economic recession; production inefficiency; production efficiency; and infeasible region.   (4)

d. South African and Namibian workers can each produce 4 cars a year. A South African worker can produce 10 tons of grain a year, whereas a Namibian worker can produce 5 tons of grain a year. To keep things simple, assume that each country has 100 thousand workers.

  i.   For Namibia, what is the opportunity cost of a car? Of grain?   (2)

  ii.   Without trade, half of each country's workers produce cars and half produce grain. What quantities of cars and grain does each country produce?   (4)

  iii. Calculate the price of cars in terms of grain and the price of grain in terms of cars that would result in mutual beneficial trade.   (8)

TOTAL MARKS   [25]

QUESTION TWO [MARKS]

a. Explain the following concepts:

   i.   Price ceiling.   (1)

   ii.   Consumer Surplus.   (1)

   iii. Dead weight loss.   (1)

b. State any four negative externalities of a price floor.   (4)

c. Assume you are a Policy Analyst in the Ministry of Fisheries, and you are tasked with
    the management of a 1000 tons Hake quota for the domestic market. Your specific tasks
    involve determining: the price at which government should sell the quota; the revenue
    government will generate from the quota; the negative externality of the quota; and the
    responsiveness of consumers to changes in the price of Hake. To accomplish your task,
    you conduct a research that reveals the following information about the market demand
    and supply of Hake:

$$P = 7000 - 0.5Q$$
$$P = 1250 + 2.5Q$$

Where **P** represents the price of Namibian Hake (in N$ per ton): **Q** represents the
quantity of Namibian Hake demand and supplied (in thousands of tons). Use this
information to answer the questions below

   i.   Using the demand and supply curves, draw a graph to show the market of
         Namibian Hake after the introduction of the quota. Your graph should also
         show, in quantitative terms, the following: the quota; the quota rent; the   (4)
         demand price; and the selling price (or supply price).

   ii.   Estimate the quota price and the quota revenue?   (2)

   iii. Calculate the deadweight loss created by the quota.
                                                                                              (4)

   iv.   Calculate the price elasticity of demand between the market price of hake
         before the introduction of the quota and the market price of hake after the
         introduction of the quota.   (5)

   v.   Interpret the elasticity coefficient you have estimated in part iv. Based on the
         elasticity coefficient is demand elastic or inelastic? Explain your answer.   (3)

TOTAL MARKS   **[25]**

QUESTION THREE [MARKS]

a. Explain the substitution effect and income effect of a price change. (2)

b. Briefly explain the two principles that are used to make a tax system fair? (2)

c. Briefly explain how a tax system is made efficient. (2)

d. Consider a rational household, that spends its monthly food budget of N$6,000 on food and non-food goods. A unit of food items costs N$600, while a unit of non-food items costs N$800. Suppose the household its preferences are represented by the following indifference function:

$$U = -2x^2 - 3y^2 + 48x + 54y$$

Where **U** represents the household's current indifference curve; x represents the units of food items that the household is consuming; and y represents quantities of non-food items the household is consuming.

i. If the household had unlimited income, determine the household's optimum consumption bundle. (6)

ii. Given household's budget and the prevailing costs of food and non-food items, determine the household's optimal consumption bundle. (8)

iii. Draw a diagram to illustrate the household's optimal consumption bundle. (5)

TOTAL MARKS **[25]**

QUESTION FOUR   [MARKS]

a. State three assumptions of consumer preferences.

(3)

b. Briefly describe the shapes of indifference curves for:

    i.   two goods that are complements.

(1)

    ii.   two goods that are substitutes.

(1)

    iii. two goods that are imperfect substitutes.

(1)

    iv.   two giffen goods.

(1)

c. Consider a tomato farmer that is operating in a competitive industry. Suppose the farmer's total cost function is given as:

$$TC = 200 + 2Q^2$$

Where **Q** is number of tomato crates produced (in thousands) per year. Use the information to answer the questions below:

    i.   Determine the farmer's efficient scale of production?

(4)

    ii.   Suppose the current price of tomato is N$80 per crate, determine the optimum number of crates the farmer should produce every year to in order to maximize profit.

(4)

    iii. Determine the farmer's breakeven price per crate of tomato.

(5)

    iv.   Suppose the price of tomatoes is N$80 per crate, how much profit/loss does the farmer make when he produces the output that maximizes its profit?

(5)

TOTAL MARKS   **[25]**

THE END