



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2017/2018

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF SCIENCE

(AGRIBUSINESS MANAGEMENT AND TRADE)

KBT 807: CONSUMER DEMAND ANALYSIS

DATE: Friday, 1st December, 2017

TIME: 2.00 p.m. - 5.00 p.m.

INSTRUCTIONS: Answer question **ONE** and any other **TWO** questions.

1. a) Describe the main practical applications of duality theory in economics. (7 marks)
- (b). An agent has a utility function defined by $u(x_1, x_2) = \frac{3}{8}x_1^5x_2$ and has an income of 3000 and face prices $p_1 = 200$ and $p_2 = 100$. Solve for the optimality condition by setting marginal rate of substitution. (8 marks)
- (c) Using relevant examples in agribusiness distinguish between the following sets of terms
 - (i) Arc elasticity and point elasticity
 - (ii) Marginal rate of substitution and Marginal rate of technical substitution
 - (iii) Change in supply and change in quantity supplied
 - (iv) Satiation and demand
 - (v) Veblen and giffen goods(10 marks)
- (d). Suppose meat costs 400 per kg and potatoes cost 200 per kg and Jane have an income of 20,000. Suppose also that her utility function is given by the equation $u(M, P) = 2M + P$. Calculate the combination of meat and potatoes that she should buy to maximize her utility. (5 marks)
2. Suppose Paul consumes two items: good X and good Y. The price of good X is 250, the price of good Y is 62.5, and Paul has income $I=1000$. Paul's utility function is
$$U = (XY)^{1/2}.$$
 - (i) Find the utility maximizing amount of good X and good Y for Paul to consume.
 - (ii) Now suppose Paul seeks to identify the lowest-cost way of attaining utility of $U = 4$. Compute how much of good X and good Y should Paul consume?
 - (iii) Explain under what circumstances the utility maximization setup is equivalent to the cost minimization setup (15 marks)

3. Using relevant examples discuss the basic properties and axioms of preferences. (15 marks)

4. A consumer has the following utility function: $U = \ln(x_1^c x_2^d)$. Assume all income is spent on the 2 goods so that the budget constraint is: $M = p_1 x_1 + p_2 x_2$. Calculate:

(i) Marshallian demand functions by maximising utility (U) subject to the budget constraint (M).

(ii) Utility maximizing combination of x_1 and x_2 . (15 marks)