



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF MASTER OF
ECONOMICS AND FINANCE, AND MASTER OF ECONOMETRICS

EET 800: ADVANCED MICROECONOMICS THEORY I

DATE: Tuesday, 16th May, 2017

TIME: 9.00 a.m. - 12.00 p.m.

INSTRUCTIONS:

Answer **ALL** questions.

Question One

Suppose that firms' production technology in a certain industry is such that all inputs are essential in the production process. There are only two inputs Labor (L) and Capital (K). Labor accounts for 75% of a unit of output while the input Capital accounts for the rest. All firms in the industry are equally efficient. Letting w and r be the unit prices of the two inputs respectively.

- a) State the described production function. (2 marks)
- b) The firm plans to restructure its technology by laying off 10% of its labor force. By how much would the firm have to increase capital in order to preserve output? (3 marks)
- c) "The cost function is a sufficient statistic for the technology since all the economically relevant information about the technology can be obtained from the cost function". Demonstrate this statement from the technology specified in (a) above. (15 marks)

Question Two

- a) The profit function is said to be convex and positively linearly homogenous in both input and output prices. Consider the candidate profit function below:

$$\pi(p, w) = \frac{p^r}{w_1^s w_2^t} \text{ where } p \text{ is output and } w_1 \text{ and } w_2 \text{ are the prices of two inputs } x_1 \text{ and } x_2 \text{ respectively. For what values of } r, s \text{ and } t \text{ is the above profit function legitimate?}$$

(10 marks)

- b) Suppose $r = 3$, $s = t = 1$. If $p = sh.500$, $w_1 = w_2 = sh.100$, determine the profit maximizing input demands and output. (10 marks)

Question Three

“The minimum expenditure necessary for a consumer to reach the maximum utility $V(p, M)$ is the level of income M ”. Given the maximum utility $V(P, M) = \frac{M}{\sqrt{P_1 P_2}}$,

where P_1 and P_2 are the prices of two goods X_1 and X_2 respectively, and M is the consumer's income:

- a) Find the consumer's expenditure function. (2 marks)
- b) Verify the above statement. (3 marks)
- c) Using the above information, state and demonstrate the Slutsky's equation. (15 marks)

Question Four

Write brief notes on each of the following concepts. Be as precise as you can. (5 marks each)

- a) The Production function
- b) The Shepherd's lemma
- c) Elasticity of substitution
- d) The Roy's identity
- e) The Slutsky's Equation