



UNIVERSITY EXAMINATIONS 2016/2017

ORDINARY EXAMINATION FOR BSC ACTUARIAL SCIENCE

CFU2203 INTERMEDIATE MICROECONOMICS  
(EVENING/WEEKEND)

DATE: APRIL, 2017

TIME: 2 HOURS

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INSTRUCTIONS: Answer question ONE and Any other TWO questions

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### QUESTION ONE

- a) With the help of relevant economic tools/methodologies, briefly explain the meaning of the following terms. **(15 Marks)**
- Budget set
  - Consumer equilibrium
  - Monotonic technology
  - Isoprofit line
  - Marginal Rate of Substitution
- b) Given a multiplant monopolist with a price function  $P = 100 - 0.5Q$  and cost functions for the two plants as  $C_1 = 10Q_1$  and  $C_2 = 0.25Q_2^2$ . Obtain the optimal output and profit for the monopolist. **(10 Marks)**
- c) “Convexity is a necessary and sufficient condition for optimum point consumption” Is this statement true or false? Explain using relevant diagrams **(5 Marks)**

### QUESTION TWO

- a) Given the following

$$Q = 100K^{0.35}L^{0.65}, C = \text{Ksh.}1000, w = \text{Ksh.}25, r = \text{Ksh.}30$$

#### *Required*

- Determine the quantity of labour and capital that the firm should use in order to minimize the cost **(8 Marks)**
- What is the level of output produced at this level? **(2 Marks)**

- b) With the help of well labeled diagrams, explain the differences in indifference curves for the neutral goods, perfect substitutes, bad goods and perfect complements. **(10 Marks)**

### QUESTION THREE

- a) Given two individuals' endowments and preferences, show with aid of a well labeled diagram how improvement of one individual's level of consumption will occur without worsening the other individual's welfare. **(8 Marks)**
- b) Efficiency in production where there are two goods 1 and 2, and two inputs L and K occurs if Marginal Rate of Technical Substitution of labour for good 1 and 2 equals Marginal Rate of Technical Substitution of capital for good 1 and 2. Derive the condition for efficiency. **(8 Marks)**
- c) Differentiate between cardinal and ordinal utility **(4 Marks)**

### QUESTION FOUR

- a) Given the demand function for a monopolist as  $Q = b_0 - b_1P$  show that the slope of the marginal revenue (MR) of a monopolist is twice the slope of the average revenue (AR) and illustrate graphically. **(5 Marks)**
- b) Using a well labeled diagram compare the inefficiency of a monopolist in relation to efficiency in perfect competition. **(5 Marks)**
- c) Given a consumer consumes two goods,  $x_1$  and  $x_2$  which he purchases at prices  $p_1$  and  $p_2$  respectively. Show that the consumer is in equilibrium. Where,  $MU_1$  and  $MU_2$  are the marginal utilities with respect to good  $x_1$  and  $x_2$  respectively. **(10 Marks)**

### QUESTION FIVE

- a) Explain the distinguishing characteristics of perfect competition and monopoly market structures. **(10 Marks)**
- b) With the help of well labeled diagram(s), differentiate between the short run and long run equilibrium for a perfectly competitive firm. **(6 Marks)**
- c) Using the function provided below, obtain both the conditional factor demand functions. **(4 Marks)**

$$Y^2 = \sqrt{X_1 X_2}$$

**THE END**