



# CENTRAL UNIVERSITY

CENTRAL BUSINESS SCHOOL

END OF FIRST SEMESTER EXAMINATION 2018 – 2019

**DEPARTMENT OF BANKING AND FINANCE**

**CBAC307: MANAGERIAL ECONOMICS**

**MATAHEKO & MIOTSO CAMPUS**

**2.5 Hours**

STUDENT ID No.....

## INSTRUCTIONS

Answer ALL questions from sections 'A' and THREE questions from Section 'B'

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THE INVIGILATOR

## Section A

Answer all the questions in this section

### Question 1

It is estimated that over 50,000 students will apply to the top 5 M.B.A programs in Ghana this year. Among the schools include Central University.

i. *Using the concept of net present value and opportunity cost, explain when it is rational for an individual to pursue an M.B.A. degree.*

[2 marks]

ii. *What would you expect to happen to the number of applicants if the starting salaries of managers with M.B.A. degrees remained constant but salaries of managers without such degrees increased by 15 percent? Why?*

[2 marks]

### Question 2

The Makosah Group produces 'Good M' in a competitive market using input B. Explain what would happen to the supply of Good M in each of the following situations:

a. The price of input B increases. [1 mark]

b. An excise tax of GHS 1 is imposed on good M. [1 mark]

c. An ad valorem tax of 5 percent is imposed on good M. [1 mark]

d. A technological change reduces the cost of producing additional units of good M.

[1 mark]

### Question 3

Generally, there are positive and negative effects of inflation. However, the negative effect of inflation fluctuations or uncertainty outweighs the positives. State four adverse effect of inflation on businesses

[4 marks]

#### Question 4

Suppose the demand function for a firm's product is given by

$$\ln Q_x^d = 3 - 0.5 \ln P_X - 2.5 \ln P_Y + \ln M + 2 \ln A$$

where  $P_X = \text{GHS } 10$ ;  $P_Y = \text{GHS } 4$ ;  $M = \text{GHS } 20,000$ ;  $A = \text{GHS } 250$

- Determine the own price elasticity of demand, and state whether demand is elastic, inelastic, or unitary elastic.
- Determine the cross-price elasticity of demand between good  $X$  and good  $Y$ , and state whether these two goods are substitutes or complements.
- Determine the income elasticity of demand, and state whether good  $X$  is abnormal or inferior good.
- Determine the own advertising elasticity of demand. [4 marks]

#### Question 5

Suppose the cross-price elasticity of demand between goods  $X$  and  $Y$  is  $-5$ . How much would the price of good  $Y$  have to change in order to increase the consumption of good  $X$  by 50 percent? [4 marks]

#### Question 6

- Why should a person in charge of hiring productive inputs care more about marginal products than about average products? [2 marks]
- Distinguish between diminishing returns to a variable input and decreasing returns to scale. [2 marks]

#### Question 7

Differentiate between an Isoquant and the Marginal Rate of Technical Substitution (MRTS), and state the mathematical formulae for the MRTS between labour and capital. [4 marks]

### Question 8

A). A firm produces output according to a production function

$$Q = F(K,L) = \min \{2K, 4L\}.$$

How much output is produced when  $K = 2$  and  $L = 3$ ?

[2 marks]

B). A firm produces output according to the production function  $Q = F(K,L) = 2K + 4L$ .

How much output is produced when  $K = 2$  and  $L = 3$ ?

[2 marks]

### Question 9

State four (4) characteristics of a perfectly competitive market

[4 marks]

### Question 10

A). What is the difference between economies of scale and economies of scope? [2 marks]

B). Explain the production possibility frontier

[2 marks]

## SECTION B

Answer **any three** question from this section. All questions carry equal marks

### Question 1

A). You are in the market for a new refrigerator for your company's lounge, and you have narrowed the search down to two models. The energy efficient model sells for GHS 500 and will save you GHS 25 at the end of each of the next five years in electricity costs. The standard model has features similar to the energy efficient model but provides no future saving in electricity costs. It is priced at only GHS 400.

Assuming your opportunity cost of funds is 5 percent, **which refrigerator should you purchase?**

[5 marks]

B) Suppose demand and supply are given by

$$Q^d = 50 - P \text{ and } Q^s = 1/2P - 10.$$

- i. What are the equilibrium quantity and price in this market? [4 marks]
- ii. Determine the quantity demanded, the quantity supplied, and the magnitude of the surplus if a price floor of GHS 42 is imposed in this market. [4 marks]
- iii. Determine the quantity demanded, the quantity supplied, and the magnitude of the shortage if a price ceiling of GHS 30 is imposed in this market. [4 marks]
- iv. Determine the full economic price paid by consumers [3 marks]

[Total Q.1 = 20 marks]

**Question 2**

A). Maame spends GHS 20,000 per year on painting supplies and storage space. She recently received two job offers from a famous marketing firm—one offer was for GHS 100,000 per year, and the other was for GHS 90,000. However, she turned both jobs down to continue a painting career. If Maame sells 20 paintings per year at a price of GHS 10,000 each:

- i. What are her accounting profits? [2 marks]
- ii. What are her economic profits? [2 marks]

B). Suppose the own price elasticity of demand for good  $X$  is  $-2$ , its income elasticity is  $3$ , its advertising elasticity is  $4$ , and the cross-price elasticity of demand between it and good  $Y$  is  $-6$ . Determine how much the consumption of this good will change if:

- a. The price of good  $X$  increases by 5 percent. [4 marks]
- b. The price of good  $Y$  increases by 10 percent. [4 marks]
- c. Advertising decreases by 2 percent. [4 marks]
- d. Income falls by 3 percent. [4 marks]

[Total Q.2 = 20 marks]

**Question 3**

A). A multiproduct firm's cost function was recently estimated as:

$$TC = 100 - .5Q_1Q_2 + Q_1^2 + Q_2^2$$

where  $Q_1$  and  $Q_2$  represent the number of units of goods 1 and 2, respectively.

**Required:**

The firm wishes to produce 5 units of good 1 and 4 units of good 2.

- i. Do cost complementarities exist? [5 marks]
  - ii. Do economies of scope exist? [5 marks]
  - iii. Assume the company is considering selling the subsidiary that produces good 2 to firm B, in which case it will produce only good 1. What will happen to the firm's costs if it continues to produce 5 units of good 1? [5 marks]
- B). Differentiate between a decision to shut down and a decision to exit the market in a perfect competitive market [5 marks]

[Total Q. = 20 Marks]

**Question 4**

A). Silver Star Auto Ltd supplies car manufacturers with super turbo engines that are used on super-fast cars. Manufacturing these turbo engines requires only five sheet metal-forming machines, which cost GHS 300 each, and workers. These workers can be hired on an as-needed basis in the labor market at GHS 7,000 each. Given the simplicity of the manufacturing process, the turbo engine market is highly competitive. Therefore, the market price for one of Silver Star engine is GHS 50.

**Required:**

- i. Based on the production data in the accompanying table, complete the table:

Machines	Workers	Output	MPL	VMPL	Wage
5	0	0			
5	1	600			
5	2	1000			

5	3	1290			
5	4	1480			
5	5	1600			
5	6	1680			

[6.3 marks]

- ii. How many workers should Silver Star hire to maximize its profits? Explain the basis for your answer [3.7 marks]
- iii. Estimate the maximum profits this firm can earn at this labour hired. [4 marks]

**B).** The Ghana Grid Company (GRIDCO) in recent times have increased its tariffs to the electricity company of Ghana for onwards distribution to consumers. This has been necessary due to its high cost of production. The company's total cost function is:  $TC = Q^2 + 300Q + 100$  and demand function for the GRIDCO is:

$$Q = 4000 - 4P.$$

**Required:**

- i.) GRIDCO is the sole producer by a Government of Ghana legislation. Determine the profit maximizing quantity and price for GRIDCO [4 marks]
- ii.) Determine GRIDCO's optimum profit [2 marks]

[Total Q. 4 = 20 Marks]