



ECS2601

(490721)

May/June 2018

MICROECONOMICS

Duration 2 Hours

100 Marks

EXAMINERS

FIRST

MS A BREYTENBACH

SECOND

PROF C HARMSE

Use of a non-programmable pocket calculator is permissible

Closed book examination

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This paper consists of 17 pages, instructions for the completion of a mark-reading sheet and a special front page

STUDENT NUMBER									

VERY IMPORTANT
The unique number for ECS2601 is 490721

[TURN OVER]

SECTION A

Questions 1 to 5 of the examination question paper are **PRACTICAL** questions

Please answer ALL five questions **Section A** counts 55 marks out of a total of 100

Please answer the questions by showing all the steps

QUESTION 1 (15 Marks)

- 1 1 The table below lists the demand curve for sport bags for each member of the Jones family Use this information to determine the Jones' aggregate family demand for sport bags

Family Member	Demand
Michael	$Q = 100 - 2P$
John	$Q = 50 - 5P$
Haley	$Q = 300$
Katy	$Q = 150 - P/2$
David	$Q = 0$
Family	

(3)

- 1 2 How is a market demand curve different from an individual demand curve?
Which curve is likely to be more price elastic? (Assume that there are no network externalities)

(3)

- 1 3 Explain the difference between a movement along the demand curve and a shift of the demand curve

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QUESTION 2 (10 Marks)

- 2 1 The Department of Agriculture is interested in analysing the domestic market for maize. The staff economists of the Department of Agriculture estimate the following equations for the demand and supply curves

$$Q_d = 1600 - 125P$$

$$Q_s = 400 + 165P$$

- 2 1 1 What is the equilibrium price of maize under a completely free market?

(3)

- 2 1 2 What is the equilibrium quantity of maize under a completely free market?

(2)

- 2 2 Consider the market for wheat. Using the standard rule of demand and supply, explain how the equilibrium price and quantity would change in each of the following situations, *ceteris paribus*

- 2 2 1 Considering the perceived negative health effects of wheat, people decide to eat less bread (wheat is an important ingredient in bread)

(1)

[TURN OVER]

2 2 2 Genetically modified wheat is grown on a large scale, resulting in an increased yield by farmers

(1)

2 2 3 Consumers expect the price of wheat to increase

(1)

2 2 4 There is an increase in the price of barley (barley and wheat are substitutes in production)

(1)

2 2 5 Floods destroyed a substantial proportion of the wheat harvest and at the same time the average income increased sharply (wheat is regarded as a normal product)

(1)

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QUESTION 3 (10 Marks)

3.1 Explain what is meant by the term "utility"

(1)

3.2 Describe the concept of marginal utility

(1)

3.3 When will a consumer be in equilibrium according to the utility approach?

(2)

3.4 The following table presents Odwa's marginal utility for each good while exhausting his income. Calculate the marginal rate of substitution (MRS). If the price of tuna is twice the price of peanut butter, at what consumption bundle in the table is Odwa maximising his level of satisfaction?

Bundle	Marginal Utility of Peanut Butter	Marginal Utility of Tuna	Marginal Rate of Substitution
A	0.25	2.41	
B	0.31	1.50	
C	0.42	0.84	
(6 marks)	0.66	0.33	

(6)

[TURN OVER]

QUESTION 4 (10 Marks)

4 1 A monopolist faces the following demand curve, marginal revenue curve, total cost curve and marginal cost curve for its product

$$Q = 250 - 4P$$

$$MR = 200 - 2Q$$

$$TC = 10Q$$

$$MC = 20$$

4 1 1 What is the profit-maximising level of output? Show all calculations

(4)

4 1 2 What is the profit-maximising price? Show all calculations

(3)

4 1 3 What is the total profit earned? Show all calculations

(3)

[TURN OVER]

QUESTION 5 (10 Marks)

- 5.1 Explain the meaning of a Nash equilibrium. How does it differ from an equilibrium in dominant strategies?

(2)

- 5.2 Consider two firms, X and Y that produce super computers. Each can produce the next generation super computer for the military (M) or for civilian research (C). However, only one can successfully produce for both markets simultaneously. Also, if one produces M, the other might not be able to successfully produce M, because of the limited market. The following payoff matrix illustrates the problem.

		Firm Y	
		M	C
Firma X	M	2,1	2,2
	C	1,1	3,2

- 5.2.1 Find the Nash equilibrium and explain why it is a Nash equilibrium.

(4)

- 5.3 Describe the difference between the Cournot model and the Stackelberg model.

(4)

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SECTION B

In this section questions 1 to 30 are **MULTIPLE-CHOICE QUESTIONS**

Answer **ALL** the questions in this section on the **mark-reading sheet** provided **Carefully follow the instructions for the completion of mark-reading sheets** Also pay attention to the following

- (i) Only one of the alternatives options is correct
- (ii) For a correct answer you will receive **one and a half mark** No marks will be deducted for incorrect answers
- (iii) Section B consists of 30 questions and counts 45 marks out of a grand total of 100 marks
- (iv) **Place the completed mark-reading sheet in your examination book.**

Your mark-reading sheet may get lost and you MUST therefore also write down your answers to the questions in this section on page 17 of your examination book, for example 1 [4]; 2 [3]; 3 [1]; and so forth.

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- 1 Consider the following demand and supply functions Demand $Q_d = 800 - 80P$, Supply $Q_s = -200 + 120P$ What are the equilibrium price and output?
- 1 $P = R3$ and $Q = 560$
 - 2 $P = R10$ and $Q = 300$
 - 3 $P = R5$ and $Q = 400$
 - 4 $P = R33$ and $Q = 500$
- 2 The price of good A goes up and as a result, the demand for good B shifts to the left From this we can infer that
- 1 good A is a normal good
 - 2 good B is an inferior good
 - 3 goods A and B are substitutes
 - 4 goods A and B are complements
- 3 An important determinant of the amount of grains that will be harvested by Ethiopian farmers next year is the amount of seeds planted this year Given that foreign nations have guaranteed to donate five hundred tons of grain next year, this year the Ethiopian farmers will
- 1 plant more seeds as the food aid establishes a minimum price for grain
 - 2 plant more seeds as the farmers' confidence is restored
 - 3 plant the same amount of seeds, as they would have without the food aid
 - 4 plant less seeds as the price of grain will be lower with the food aid
- 4 A Giffen good
- 1 is always the same as an inferior good
 - 2 is the special subset of inferior goods in which the substitution effect dominates the income effect
 - 3 is the special subset of inferior goods in which the income effect dominates the substitution effect
 - 4 leads to a downward-sloping demand curve
- 5 Which of the following describes the Giffen good case? When the price
- 1 is always the same as an inferior good
 - 2 is the special subset of inferior goods in which the substitution effect dominates the income effect
 - 3 is the special subset of inferior goods in which the income effect dominates the substitution effect
 - 4 leads to a downward-sloping demand curve

[TURN OVER]

- 6 An increase in the price of a product from R40,00 to R45,00 causes the quantity demanded to decrease from 2 400 to 2 000 units. Using the arc elasticity of demand, the price elasticity of demand is
- 1 0.75
 - 2 -0.65
 - 3 1.15
 - 4 -1.55
- 7 If the supply equation is given as $Q_s = -300 + 15P$, the price elasticity of supply between R30 and R60 (calculated by using the arc elasticity of demand), is
- 1 0.6
 - 2 1.8
 - 3 0.56
 - 4 2.0
- 8 The income elasticity of an inferior good is
- 1 negative because when people get richer they increase their purchases of the good by smaller and smaller amounts
 - 2 one because the increased income offsets the desire to consume less of the good because it is inferior
 - 3 greater than one because the richer you get, the less you consume of the good
 - 4 negative because higher income leads to a reduction in the amount consumed of the product
- 9 If people always spend 25 per cent of their incomes on housing, then the income elasticity of demand for housing is
- 1 0.25
 - 2 1.00
 - 3 2.50
 - 4 indeterminate
- 10 Total economic well-being to society is the
- 1 consumer surplus less the producer surplus
 - 2 sum of consumer surplus plus producer surplus
 - 3 ratio of consumer surplus to producer surplus
 - 4 total gains to consumers, producers and government

[TURN OVER]

- 11 If the price of a good shown on the vertical axis of a budget graph is cut in half and the price of the good on the horizontal axis is cut by 25%, then the budget constraint
- 1 shifts left and becomes steeper
 - 2 shifts right and becomes steeper
 - 3 shifts left and becomes flatter
 - 4 shifts right and becomes flatter

Consider the following three market baskets to answer question 12

	Food	Clothing
A	6	3
B	8	5
C	5	8

- 12 If preferences satisfy all four of the usual assumptions,
- 1 A is on the same indifference curve as B
 - 2 B is on the same indifference curve as C
 - 3 A is preferred to C
 - 4 B is preferred to A
- 13 If the marginal cost is 50 and the average total cost is 75, we can be sure that
- 1 marginal cost is rising
 - 2 average total cost is rising
 - 3 marginal cost is falling
 - 4 average total cost is falling
- 14 If a consumer must spend her entire income on some combination of two commodities but chooses to spend it all on just one of the commodities, then the
- 1 other commodity is an economic bad
 - 2 other commodity must have zero marginal utility
 - 3 other commodity generates less utility per rand spent on the good
 - 4 two commodities must be perfect substitutes
- 15 Kate's income-consumption curve between Q_a and Q_b is given as $Q_a = Q_b$. Her budget constraint is given as $160 = Q_a + 4Q_b$.
How much Q_a will Kate consume to maximise utility?
- 1 0
 - 2 32
 - 3 40
 - 4 80

[TURN OVER]

- 16 A firm's average fixed cost is R20 if it produces six units of output. If it produces four units, its average fixed cost will be
- 1 R15
 - 2 R18
 - 3 R20
 - 4 R30
- 17 Suppose that the first four units of a variable input generate total outputs of 100, 250, 350 and 400 respectively. The marginal product of the third unit of input is
- 1 50
 - 2 100
 - 3 150
 - 4 350
- 18 At a firm's current output level of 300 units per week, it has 10 employees at a weekly wage of R700 each. Raw materials, which are ordered and delivered daily, cost R2 000 per week. The weekly cost of the firm's capital is R2 250. Which one of the following statements is TRUE?
- 1 Total variable cost is R7 000, total fixed cost is R4 250, total cost is R11 250
 - 2 Total variable cost is R9 000, total fixed cost is R2 250, total cost is R11 250
 - 3 Total variable cost is R2 250, total fixed cost is R9 000, total cost is R11 250
 - 4 Total variable cost is R4 250, total fixed cost is R700, total cost is R4 950
- 19 A firm never operates
- 1 at the minimum of its average total cost (ATC) curve
 - 2 at the minimum of its average variable cost (AVC) curve
 - 3 on the downward-sloping portion of its ATC curve
 - 4 on the downward-sloping portion of its AVC curve
- 20 What happens in a perfectly competitive industry when economic profit is greater than zero?
- 1 New firms may enter the industry
 - 2 Firms may move along their long-run average cost (LRAC) curves to new outputs
 - 3 There may be pressure on prices to fall
 - 4 All of the above may occur
- 21 Which of the following is not a necessary condition for long-run equilibrium under perfect competition?
- 1 No firm has an incentive to enter the market
 - 2 No firm has an incentive to exit the market
 - 3 Prices are relatively low
 - 4 Each firm earns zero economic profit

[TURN OVER]

- 22 If a perfectly competitive firm increases production from 10 to 12 units and the market price is R25 per unit, the total revenue for 12 units would be
- 1 R10
 - 2 R25
 - 3 R250
 - 4 R300
- 23 The monopolist that maximises profit
- 1 imposes a cost on society because the selling price is above marginal cost
 - 2 impose a cost on society because the selling price is equal to marginal cost
 - 3 does not impose a cost on society because the selling price is above marginal cost
 - 4 does not impose a cost on society because price is equal to marginal cost
- 24 Which of the following statements about natural monopolies are TRUE?
- 1 Natural monopolies have natural barriers to entry
 - 2 For natural monopolies, marginal cost is always below average cost
 - 3 For natural monopolies, average cost is always increasing
 - 4 Natural monopolies cannot be regulated

Use the following information to answer the next two questions

Mau Macadamia Inc has a monopoly in the macadamia nut industry. The demand curve, marginal revenue and marginal cost curve for macadamia nuts are given as follows

$$P = 360 - 4Q \quad MR = 360 - 8Q \quad MC = 4Q$$

- 25 What is the profit-maximising level of output?
- 1 0
 - 2 30
 - 3 45
 - 4 60
- 26 At the profit-maximising level of output, what is the level of consumer surplus?
- 1 0
 - 2 1 800
 - 3 2 700
 - 4 3 600

[TURN OVER]

- 27 When a monopolist engages in perfect price discrimination
- 1 the marginal revenue curve lies below the demand curve
 - 2 the demand curve and the marginal revenue curve are identical
 - 3 marginal cost becomes zero
 - 4 the marginal revenue curve becomes horizontal

Use the following game to answer question 28

	Player 2 picks A	Player 2 picks B
Player 1 picks A	3,5	1,4
Player 1 picks B	4,1	2,2

- 28 What is the Nash equilibrium in the following game?
- 1 Both players play A
 - 2 Both players play B
 - 3 Player 1 plays B and player 2 plays A
 - 4 Player 1 plays A and player 2 plays B
- 29 One who follows the Cournot duopoly strategy assumes that competing firms
- 1 treat each other's price as fixed when making an output decision
 - 2 treat each other's quantity as fixed when making an output decision
 - 3 will pick the strategy most damaging to each other
 - 4 will collude informally rather than cut price
- 30 The kinked-demand curve model of oligopoly assumes that the elasticity of demand
- 1 in response to a price increase is less elastic than the elasticity of demand in response to a price decrease
 - 2 in response to a price increase is more elastic than the elasticity of demand in response to a price decrease
 - 3 is constant regardless of whether price increases or decreases
 - 4 is perfectly elastic if price increases and perfectly inelastic if price decreases

[TURN OVER]

You must write down your answers for section A in the space provided below.

1	11	21
2	12	22
3	13	23
4	14	24
5	15	25
6	16	26
7	17	27
8	18	28
9.	19	29
10	20	30

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT (E.G. PSY100 X)
STUDIE-EENHEID (B.V. PSY100-X)

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INITIALS AND SURNAME
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EXAMINATION CENTRE (E.G. PRETORIA)
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UNIQUE PAPER NO.
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For use by examination invigilator
Vir gebruik deur eksamenopsiener

IMPORTANT

1. USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4. ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
6. CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7. CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8. DO NOT FOLD

BELANGRIK

1. GEBUIK SLEGS 'N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
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PART 2 (ANSWERS/ANTWOORDE) DEEL 2

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