

Semester II Examinations, 2004/05

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| Exam Code(s) | 1BA5 |
| Exam(s) | 1 st BA (Economic and Social Studies) |
| Module Code(s) | EC100 |
| Module(s) | Economics |
| Paper No. | 1 |
| Repeat Paper | Special Paper |
| External Examiner(s) | Professor Vincent Munley |
| Internal Examiner(s) | Mr. Brendan Kennelly |
| | Ms. Breda Lally |

Instructions:

Students are required to answer any 4 questions in Section A (60%), and all multiple choice questions in Section B (40%). All questions in Section A carry equal marks.

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| Duration | 3hrs |
| No. of Answer books | 4 |

Requirements:

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| Handout | |
| MCQ | |
| Statistical Tables | |
| Graph Paper | |
| Log Graph Paper | |
| Other Material | |

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|---------------|--------------------------|
| No. of Pages | 9 (Including cover page) |
| Department(s) | Economics |

SECTION A

1. (a) (15 marks)

The supply and demand curves for pocket calculators are given by the following equations

$$Q_d = 50 - 5P$$

$$Q_s = 2 + 3P$$

- (i) Find the equilibrium price and quantity in the market using the equations above.
- (ii) On a diagram, sketch the demand curve and the supply curve.
- (iii) Now imagine $P = 4$, calculate the shortage or surplus.

(b) (35 marks)

Suppose the data below represent the market demand and supply schedules for bicycles over a range of prices.

| Price (€) | Quantity Demanded | Quantity Supplied |
|-----------|-------------------|-------------------|
| 100 | 90 | 30 |
| 150 | 80 | 40 |
| 200 | 70 | 50 |
| 250 | 60 | 60 |
| 300 | 50 | 70 |
| 350 | 40 | 80 |

- (i) Plot the demand and supply curve for bicycles.
- (ii) What is the equilibrium price and quantity of bicycles?
- (iii) Each of the events listed below has an impact on the market of bicycles. For each event, which curve is affected (supply or demand for bicycles), what direction is it shifted, and what is the resulting impact on the equilibrium price and quantity of bicycles? Illustrate and explain your answers.
 - (a) the price of steel used to produce bicycle frames decreases
 - (b) an environmental movement shifts tastes toward cycling
 - (c) the price of bicycle helmets and shoes increases
 - (d) bicycle manufacturers expect the price of bicycles to increase in August
- (iv) What would happen to the equilibrium price and quantity in the bicycle market if there is a simultaneous increase in the demand for bicycles and a reduction in the supply of bicycles? Use an appropriate diagram to illustrate your answer.

2. (50 marks)

- (i) Explain the concept 'price elasticity of supply'. What are the main determinants of price elasticity of supply?
- (ii) Explain the concept 'price elasticity of demand'.
- (iii) Suppose that the demand schedule for hotel rooms is as follows:

| Price (€) | Quantity Demanded when income is €40,000 | Quantity Demanded when income is €50,000 |
|-----------|---|---|
| 40 | 24 | 34 |
| 60 | 20 | 30 |
| 80 | 16 | 26 |
| 100 | 12 | 22 |
| 120 | 8 | 18 |
| 140 | 4 | 14 |

- (a) Use the midpoint method to calculate the price elasticity of demand as the price of hotel rooms increases from €60 to €80 if income is €50,000. Is demand elastic or inelastic?
- (b) Calculate the income elasticity of demand if income increases from €40,000 to €50,000 if the price is €100.
- (c) Are hotel rooms normal or inferior? Why?
- (d) Are hotel rooms likely to be necessities or luxuries? Why?
- (iv) Suppose that when the price of butter rises by 10%, the quantity demanded of margarine rises by 2%. What is the cross-price elasticity of demand between butter and margarine? Are these two goods substitutes or complements?
- (v) If demand is elastic, will an increase in price raise or lower total revenue? Why?

3. (a) 15 marks

Define the equilibrium of a market. Describe and illustrate the factors that move a market towards its equilibrium.

(b) 10 marks

Draw a diagram, which shows consumer surplus and producer surplus at the market equilibrium. Briefly explain what is meant by consumer and producer surplus.

(c) 15 marks

Suppose a technological advance reduces the cost of making DVD players.

- (i) Use a supply and demand diagram to show what happens to price, quantity, consumer surplus and producer surplus in the market for DVD players.
- (ii) DVD players and DVDs are complements. Use a supply and demand diagram to show what happens to price, quantity, consumer surplus and producer surplus in the market for DVDs.
- (iii) DVD players and video players are substitutes. Use a supply and demand diagram to show what happens to price, quantity, consumer surplus and producer surplus in the market for video players.

(d) 10 marks

Consider the market for rubber bands. If this market has very elastic supply and very inelastic demand, how would the burden of a tax on rubber bands be shared between consumers and producers? Use the tools of consumer surplus and producer surplus in your answer.

4. (a) (15 marks)

- (i) Explain what is meant by the law of supply.
- (ii) With the aid of a diagram explain the difference between a change in quantity supplied and a change in supply.
- (iii) List and explain two factors that may cause a change in supply.

(b) (15 marks)

Suppose the current market price for cheese is €10 per kilogram. The government has decided that this free-market price of cheese is too low. It sets a new minimum price for cheese of €13 per kilogram.

- (i) Illustrate the equilibrium situation before the introduction of the minimum price.
- (ii) Explain and illustrate clearly the effects of the minimum price on the market for cheese.
- (iii) Is the minimum price for cheese introduced by the government an example of a price ceiling or a price floor?

(c) (20 marks)

Draw a demand and supply diagram with a tax on the sale of the good. Show the quantity sold with and without the tax. Also illustrate the price buyers pay and the price sellers receive with and without the tax. Show consumer surplus, producer surplus, the deadweight loss and government revenue. Explain the occurrence of the deadweight loss.

5. (a) (30 marks)

- (i) What are the three conditions that characterize a competitive market?
- (ii) If a firm is in a competitive market, what happens to its total revenue if it doubles its output? Why?
- (iii) The following table contains information about the costs of tennis ball manufacturing at a factory in Germany. All data are per hour. Copy this table into your answer book.

| Output | Total Revenue | Total Cost | Profit | Marginal Revenue | Marginal Cost |
|--------|---------------|------------|--------|------------------|---------------|
| 0 | | 1,000 | | | |
| 1,000 | | 2,000 | | | |
| 2,000 | | 4,000 | | | |
| 3,000 | | 7,000 | | | |
| 4,000 | | 11,000 | | | |
| 5,000 | | 16,000 | | | |

- (a) Assuming tennis balls are sold for €3 each, complete the table.
- (b) What is the optimal level of output at this factory? What criteria did you use to determine the optimal level of output?
- (c) Is €3 per tennis ball, a long-run equilibrium price in the market for tennis balls? Explain. What adjustment will take place in the market for tennis balls and what will happen to the price in the long run?

(b) (20 marks)

- (i) What are the main characteristics of a monopoly?
- (ii) What are the three sources of barriers to entry that allow a monopoly to remain the sole seller of a product?
- (iii) Draw the demand, marginal revenue and marginal cost curves for a monopolist. Show the profit-maximizing level of output. Show the profit-maximizing price.

6. (a) (20 marks)

Define the following terms:

- (a) Opportunity cost
- (b) Economic profit
- (c) Production function
- (d) Average variable cost
- (e) Constant returns to scale

(b) (30 marks)

The following table describes the production of aran jumpers at a small factory on the Aran Islands. The firm is currently renting one machine for €100 per day. Each worker is also paid €60 per day. Copy this table into your answer book.

| No. of workers | Output per day | Fixed Cost | Variable Cost | Total Cost | Marginal Product | Marginal Cost | Average Total Cost |
|----------------|----------------|------------|---------------|------------|------------------|---------------|--------------------|
| 0 | 0 | | | | | | |
| 1 | 4 | | | | | | |
| 2 | 10 | | | | | | |
| 3 | 13 | | | | | | |
| 4 | 15 | | | | | | |
| 5 | 16 | | | | | | |

- (a) Fill in each column of the table.
- (b) What pattern do you see in marginal product? How might you explain it?
- (c) What pattern do you see in average cost? Draw the average cost curve.
- (d) What pattern do you see in marginal cost? How does it compare with the pattern in marginal product? Explain.
- (e) Compare the column for average total cost and the column for marginal cost. Explain the relationship.