

Ollscoil na hÉireann, Gaillimh
National University of Ireland, Galway
Semester I Examinations 2005 / 2006

GX 0096

Exam Code(s)	2BC1, 1OA1, 1EM1, 3CL1, 4CL2
Exam(s)	Second Commerce, Third Corporate Law, Fourth Corporate Law, Occasional Students, Erasmus Students, Third Commerce students who were given permission to repeat the module
Module Code(s)	EC 209
Module(s)	Managerial Economics
Paper No.	1
Repeat Paper	Same paper.
External Examiner(s)	Professor Vincent Munley
Internal Examiner(s)	Mr. Eoghan Garvey Mr. Brendan Kennelly

Instructions: Answer **both** sections of the paper.

Duration	3 hours
No. of Pages	8
Department(s)	Economics
Course Co-ordinator(s)	Eoghan Garvey, Brendan Kennelly

Requirements:

MCQ	MCQ answer sheet NOT required
Handout	
Statistical Tables	
Graph Paper	
Log Graph Paper	
Other Material	

Section A

For each of the following questions write down in your answer book which option you have chosen. Negative marking will be used for these questions. You will get 5 marks for a correct answer, -1.25 marks for an incorrect answer and 0 for leaving the question unanswered. Please remember to write your answers in the answer book.

1. In the consumer choice model the **difference** between a change in price and a change in income is that
 - a. A change in price does not affect the consumption of other goods while a change in income does
 - b. A change in income does not affect the slope of the budget line while a change in price does change the slope
 - c. A change in price will affect real income while a change in income will not affect real income
 - d. All of the above

2. Which of the following is a **correct** statement about the price elasticity of demand?
 - a. Demand tends to be more elastic in the short-term than in the long-term
 - b. Demand tends to be more inelastic for goods that comprise a smaller share of a consumer's budget
 - c. Demand tends to be more inelastic as more substitutes are available
 - d. All of the above

3. A monopolist produces widgets at a marginal cost of €8 per unit and has fixed costs of €100. It faces an inverse demand function given by $P = 38 - Q$. Suppose fixed costs rise by €100. What happens in the market?
 - a. The firm will decrease its output and lower its price
 - b. The firm will increase the price
 - c. The firm will shut down immediately
 - d. The firm continues to produce the same output and charge the same price

4. Which of the following statements is **incorrect** regarding perfectly competitive markets and monopolistically competitive markets?
 - a. Perfectly competitive firms produce homogenous goods, while monopolistically competitive firms produce differentiated products
 - b. Monopolistically competitive firms charge prices above marginal costs in the long run, while perfectly competitive firms charge prices equal to marginal costs in the long run
 - c. Competition in both types of markets leaves firms with zero economic profits in the long run
 - d. The long-run equilibrium in both types of markets has firms producing the level of output that equates prices to the minimum of average costs

5. Suppose that initially the price is €24 in a perfectly competitive market. Firms are making zero economic profits. Then the market demand expands permanently, some firms enter the industry and the industry returns to a long-run equilibrium. The new long-run equilibrium price, assuming cost conditions in the industry remain constant, will be
 - a. Exactly equal to €24
 - b. Lower than €24
 - c. Higher than €24
 - d. Either higher or lower than €24, depending on the number of firms that have entered the industry

6. Which of the following is a transaction cost associated with using inputs?
 - a. The property taxes (or commercial rates) paid on a building owned by the firm
 - b. The wages paid to labour
 - c. The time spent negotiating labour contracts with union workers
 - d. The rental costs on a machine

7. For the cost function $C(Q) = 100 + 10Q + 5Q^2$, the marginal cost of producing 7 units of output is
 - a. 140
 - b. 70
 - c. 185
 - d. 80

8. If the production function is $Q = K^{1/2}L^{1/2}$ and the level of capital is fixed at 9 units, then the average product of labour when $L = 25$ is
 - a. 0.6
 - b. 1.7
 - c. 0.5
 - d. None of the above

9. Students have an elasticity of demand for going to see a film in the cinema of -3. Assume the general public has an elasticity of -2, and cinemas charge the general public €10 per ticket. The cinema should charge students
- €7.50
 - €3.00
 - €5.50
 - €15.00
10. You are a hotel manager, and are considering four projects that yield different payoffs, depending upon whether there is an economic boom or recession. The potential payoffs and corresponding probabilities are summarized in the following table.

Project	Boom (50%)	Recession (50%)
A	€50	-€10
B	-€20	€40
C	€60	€60
D	€50	-€50

- Which of the following statements is true?
- A risk-neutral manager will prefer project D
 - A risk-averse manager will prefer project B
 - A risk-loving manager will prefer project A
 - None of the above
11. Holding the mean value of a gamble constant, the smaller the standard deviation, the
- Lower the utility will be from the gamble
 - Less risky the gamble will be
 - More risky the gamble will be
 - None of the above
12. If firms in the pizza industry are earning positive economic profits, which of the following will most likely occur in the future?
- Additional firms will enter the market
 - The economic profits of the firms in the industry will decline
 - The market price for pizza will fall
 - All of the above

Answer 4 of the following 6 questions. Each question is worth 60 marks.

1. Answer all parts of this question.

- a. Suppose Boeing and Airbus are both considering building a new large airplane that will serve long haul flights between Asia and the rest of the world. The development costs of such an airplane are very large and if both firms commit to developing the airplane both will lose €10 billion on the project. If one builds while the other doesn't, the firm that builds will earn €100 billion while the other firm earns zero. If neither firm builds they both earn zero (we are ignoring what the firms earn from selling other airplanes).
 - i. Suppose both firms make their decisions about developing the plane simultaneously. Write down the normal form of this game. Find the Nash equilibrium (or equilibria) for this game.
 - ii. Suppose that Boeing can begin developing the plane before Airbus can. Write down the extensive form of this game. What is the (sub game perfect) equilibrium of this game?
 - iii. Airbus is owned by various European governments. Suppose these governments give a subsidy of €20 billion to Airbus before Boeing make a decision to develop the plane. The governments commit themselves to this subsidy regardless of whether Boeing decides to produce the plane or not. What is the equilibrium outcome of the game under these circumstances?
- b. Use the following normal-form game to answer the questions below.

		Player 2	
		Left	Right
Player 1	Up	10, 10	60, -5
	Down	-5, 60	50, 50

- i. Identify the one-shot Nash equilibrium
- ii. Is this game a Prisoners' Dilemma game? Explain clearly your answer.
- iii. Suppose this game is infinitely repeatedly and the interest rate is 5 percent. Outline a strategy which (a) enables the players to achieve payoffs that are better than achieved in the one-shot Nash equilibrium and (b) makes sense for the players to follow. Note the formula for the present value of profits that will be earned indefinitely is $PV = \pi (1 + i)/i$ where i is the discount rate and π is profit in each year.

2. Answer all parts of this question.

A monopolist can produce a good at a constant average (and marginal) cost of $AC = MC = 20$. It faces an inverse market demand curve given by $P = 56 - 2Q$.

- a. Calculate the profit-maximizing price and quantity for this monopolist. Also calculate its profits.
- b. Suppose a second firm enters the market. Let Q_1 be the output of the first firm and Q_2 be the output of the second. The inverse demand curve is now equal to $P = 56 - 2(Q_1 + Q_2)$. Suppose (as in the Cournot model) that each firm chooses its profit-maximizing level of output on the assumption that its competitor's output is fixed. Calculate the values of Q_1 and Q_2 in the Cournot equilibrium. What are the resulting market price and profits of each firm?
- c. Suppose instead that Firm 1 is the market leader (in the Stackelberg sense) and makes its output decisions before Firm 2. How much will each firm produce and what will the market price be?
- d. Suppose that both firms behave as assumed in the Bertrand model. Calculate the market output, the price and the profits earned by each firm.

3. Answer all parts of this question.

- a. Isoquants can be convex, linear or L-shaped. What does each of these shapes tell you about the nature of the production function? What does each shape tell you about the marginal rate of technical substitution?
- b. A firm purchases capital for €6 per unit and hires labour for €8 per unit. With the firm's current input mix, the marginal product of capital is 10 and the marginal product of labour is 16. Is this firm minimizing its costs? If so, explain how you know. If the firm is not minimizing costs, explain what it ought to do.
- c. Identify three methods of procuring an input and identify an advantage and a disadvantage for each method.
- d. Why do car manufacturers typically produce their own engines but purchase mirrors from independent suppliers?
- e. Why do many large firms use share option schemes to reward their senior management? What problems can arise with such schemes?

4. Answer all parts of this question.

- a. Suppose a consumer consumes two goods, X and Y. What is the meaning of the marginal rate of substitution between X and Y?
- b. Suppose a consumer consumes two goods, X and Y, and is consuming a bundle where her marginal rate of substitution between X and Y is equal to 2. Suppose that the price of X is equal to the price of Y. Is this consumer at an optimum point? If yes, state why. If not, explain whether the consumer should buy more X or more Y to reach her optimum point.
- c. Dónal goes to the cinema ten times each year. His preferences satisfy the usual assumptions in consumer choice theory. *True or false (explain your answer)*: If the price of cinema tickets goes up by €1, and if John's tastes and incomes remain unchanged, then he will have €10 a year less to spend on other goods.
- d. Mary consumes two goods, X and Y. Her indifference curves have the usual shape. Consider the baskets (1, 3), (2, 2) and (3, 1) (notice that these all lie along a straight line.) Mary is indifferent between (1, 3) and (3, 1). Which does she prefer between (1, 3) and (2, 2)? Justify and illustrate your answer with a diagram.
- e. Brian consumes nothing but coffee and pizza. In 2003, Brian's income is €10 per week, coffee costs €1 per cup, pizza costs €1 per slice, and Brian buys 6 cups of beer and 4 slices of pizza per week. In 2004, Brian's income rises to €20 per week, the price of coffee rises to €2.50 per cup, and the price of pizza rises to €1.25 per slice.

In which year is Brian better off?

In which year does Brian eat more pizza?

Justify and illustrate your answer with indifference curves.

5. Answer all parts of this question.

- a. You manage a monopoly. A typical consumer's inverse demand function for your product is: $P = 100 - 20Q$, while the firm's cost function is: $C = 20Q$. Determine (i) the optimal 2 part pricing strategy and (ii) how much additional profit is made using a 2 part strategy compared to a per-unit price being charged to this consumer. Outline another pricing strategy (other than price discrimination) that firms with market power can use to increase profits.

- b. You are one of five risk-neutral bidders participating in an independent private values auction. Each bidder perceives that all other bidders' valuations for the item are evenly distributed between €50,000 and €80,000. For each of the following auction types, determine your optimal bidding strategy if you value the item at €75,000: (i) first price, sealed bid auction, (ii) Dutch auction, (iii) second price, sealed bid auction and d) English auction.
- c. Explain clearly the concepts of asymmetric information, adverse selection and moral hazard. Give an example of each concept.
- d. Evaluate this statement: 'Business is war. Never consort with the enemy'.

6. Answer parts a, b, c and **either d or e** of this question.

- a. Suppose your happiness (or utility) is given by a Kahneman-Tversky value function. With the aid of 4 diagrams, mark in and explain how you would view the following events: (i) a gain of €500 and a loss of €50; (ii) a gain of €50 and a loss of €500; (iii) a gain of €500 and a gain of €600; (iv) a loss of €500 and a loss of €600.
 - b. Why might someone who is trying to decide whether to see a film be more likely to focus on the €9 ticket price than the €20 s/he would fail to earn by not babysitting?
 - c. Use some of the features of the Kahneman-Tversky value function or other insights from the behavioural economics literature to give 3 pieces of advice to sales departments as to how best they might package good and bad features of the products they are selling.
 - d. Suppose you are a gourmet and you make a point of visiting a restaurant a second time if you have got a really great meal on your first visit. You are puzzled that the meal is rarely as good on the second visit as it was on the first. Can you explain this puzzle?
- or**
- e. In autumn, Crusoe puts 50 coconuts from his harvest into a cave just before a family of bears goes in to hibernate. The bears do not eat coconuts but would attack Crusoe if he approached them. As a result he is unable to get the coconuts out before the bears emerge the following spring. Coconuts spoil at the same rate no matter where he stores them. What analytical concept might explain such behaviour?

Please remember to write your answers to the multiple choice questions in the answer book.