

OLLSCOIL NA hÉIREANN, GAILLIMH
NATIONAL UNIVERSITY OF IRELAND, GALWAY

Semester 1 Examinations, 2000/2001

Microeconomics (EC215)

2nd B.A. (Economic and Social Studies) – St. Angela's College, Sligo

Prof. Michael Cuddy
Prof. H. Dixon
Ms. Breda Lally

Time Allowed: **THREE HOURS**
Marks: **300**

Instructions: The exam consists of three sections A, B and C.

- **SECTION A** is worth 160 marks. Each question is worth 16 marks.
 - Answer any **TEN** of the fifteen questions provided.
- **SECTION B** is worth 80 marks. Each question is worth 40 marks.
 - Answer any **TWO** of the four questions provided.
- **SECTION C** is worth 60 marks. Each question is worth 3 marks.
 - Answer **ALL** the multiple choice questions provided.

Section A

1. Suppose the demand for crossing the Golden Gate Bridge is given by $Q = 10,000 - 1,000P$.
 - a. If the toll (P) is £2, how much revenue is collected?
 - b. What is the price elasticity of demand at this point? (Use the point-slope method to calculate the elasticity).
 - c. Could the bridge authorities increase their revenues by changing their price?
 - d. The Red and White Lines, a ferry service that competes with the Golden Gate Bridge, began operating hovercrafts that made commuting by ferry much more convenient. How would this affect the elasticity of demand for trips across the Golden Gate Bridge?
2. a. Al and Jane have rented a banquet hall to host a party in celebration of their wedding anniversary. Fifty people have already accepted their invitation. Given that number, the caterers will charge £400 for food and £100 for drinks. The band will cost £300 for the evening, and the hall costs £200. Now Al and Jane are considering inviting 10 more people. By how much will these extra guests increase the cost of their party?

- b. You are planning a 200 mile trip to Dublin. Except for the matter of cost, you are completely indifferent between driving and taking the train. The train fare is £25. The costs of operating your car during a typical 15,000 mile driving year are as follows:

Insurance	600
Fuel	1200
Motor Tax	200
Maintenance	<u>600</u>
Total	2600

- (i) Should you drive or take the train?
- (ii) If you have to pay parking fees of £10 for the day, should you drive or take the train?
3. The diagram required to answer this question is outlined on a separate sheet attached to your exam paper. It is drawn to scale to allow you answer the question outlined below. Work on the diagram provided and make sure to return it to the examiner with your answer book.

DO NOT REPRODUCE THE DIAGRAM IN YOUR ANSWER BOOK

The demand and supply schedules for Titanium are shown in the diagram.

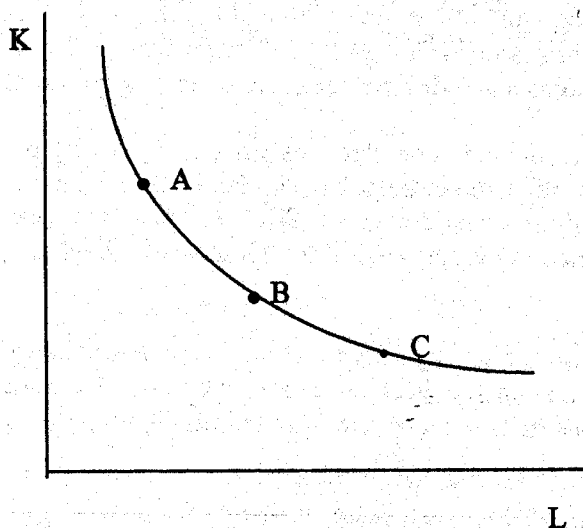
- a. What is the equilibrium price and quantity?

The government, fearful that a titanium shortage could jeopardize national security imposes a tax of \$2/oz on the retail price of this rare metal. It collects the tax from the titanium sellers.

- b. Show in the diagram, how the short-run equilibrium price and quantity of titanium will be affected by the tax. Label all important points clearly.
- c. What quantity of titanium will now be sold in equilibrium?
- d. What price do buyers now pay?
- e. How much do buyers now spend in total?
- f. How much does the government collect in taxes?
- g. What fraction of the tax is borne by the buyer?
- h. What fraction of the tax is borne by the seller?
4. The Acme Seed Company charges £2/lb for the first 10 pounds you buy of marigold seeds each week and £1/lb for every pound you buy thereafter. If your income is £100/week draw your budget constraint for the composite good and marigold seeds.
5. The only video rental club available to you charges £2 per movie per day. If your demand curve for movie rentals is given by $P = 16 - 2Q$, where P is the rental price (£/day) and Q is the quantity demanded (movies per year), what is the annual maximum membership fee you would be willing to pay to join this club?
6. a. Karen earns £35,000 in the current period and will earn £35,000 in the future. Assuming that these are the only two periods, and that banks in her country do not lend money or give interest, draw her intertemporal budget constraint.
- b. Now suppose banks offer 20% interest on funds deposited during the current period, but still do not offer loans. Draw her new intertemporal budget constraint.

7. You have £500/yr to spend on books and the composite good. Books cost £10 each and you buy 20/yr. Then two things happen (i) you win £400 on the lotto and (ii) the price of books increases to £30. If no other changes in prices or income occur, do these changes leave you better off than before. (Use budget constraints and indifference curves to answer question).
8. Suppose skis and bindings are perfect two-for-one complements (that is, for every pair of bindings Paula buys she buys two pairs of skis) and Paula spends all her equipment budget of £2,400 on these two goods. Skis and bindings cost £200 each. What will be the income and substitution effect of an increase in the price of bindings to £400. (Graphically illustrate your answer).
9. If you have ever gone grocery shopping on a weekday afternoon, you have probably noticed some elderly shoppers going slowly down the aisles checking their coupon book for a coupon that matches their purchases. How is this behavior explained by the hurdle model of price discrimination?
10. A firm in a competitive industry has a short-run marginal cost curve $SMC = 5 + 2Q$ and a short-run average variable cost curve $AVC = 5 + Q$. If the firm faces a price of £25
 - a. What quantity should it sell?
 - b. At what level of fixed cost will this firm earn zero economic profit (i.e. normal profit)?
11. While grading a final exam a professor discovers that two students have virtually identical answers. He talks to each student separately and tells him that he is sure that they shared answers, but he cannot be sure who copied from whom. He offers each student a deal – if they both sign a statement admitting to the cheating, each will be given a D grade for the course. If only one signs the statement, he will be given an E for the course and the other non-signing student will be expelled from the university. Finally, if neither signs the statement they will both get a C for the course because the professor does not have enough evidence to prove that cheating has occurred. Assuming students are not allowed to communicate with one another set up the relevant payoff matrix. Does each student have a dominant strategy?
12. A monopolist has a demand curve given by $P = 100 - Q$ and the total cost curve is $TC = 16 + 4Q^2$. The corresponding marginal cost curve is $MC = 8Q$. Find the monopolist's profit-maximizing quantity and price. How much economic profit (supernormal profit) does the monopolist earn?
13. Suppose a monopolist sells in two separate markets, with demand curves given by $P_1 = 10 - Q_1$ and $P_2 = 20 - 2Q_2$, respectively. If her total cost curve is given by $TC = 5 + 2Q$ and marginal cost MC is given by $MC = 2$, what quantities should she sell and what prices should she charge in the two markets?
14. Cournot duopolists face a market demand curve given by $P = 44 - Q$, where Q is total market demand. Each can produce output at a constant marginal cost of £20/unit. Graph their reaction functions and find the equilibrium price and quantity.

15.



The diagram above highlights three means of producing output level Q . The following are figures on the marginal productivity of labour (MP_L) and the marginal productivity of capital (MP_K) at points A, B and C.

	A	B	C
MP_L	16	10	6
MP_K	8	10	9

- What is the slope of the isoquant at points A, B and C. Explain your answer.
- If the cost of a unit of capital (r) is £4 and the cost of a unit of labour (w) is £8, what is the cost minimizing way of producing output level Q and why?

Section B

- Explain why indifference curves cannot intersect
 - What determines the slope of an indifference curve?
 - What determines the slope of the budget constraint?
 - Illustrate and explain why (in consumer theory) the optimal consumption bundle occurs at the point of tangency between the budget constraint and the highest attainable indifference curve.
- Analyze fully the income and substitution effects of an increase in the price of an inferior good.
 - Give an example of any cost of living index. Are there any limitations associated with using this index as a measure of inflation?
 - The government in order to raise revenue imposes taxes on the sale of different goods. If its objective were tax revenue maximization, what advice would you give it in order to achieve this objective?

3. a. What determines the slope of an isoquant?
b. What determines the slope of an isocost line?
c. A firm uses two inputs K and L to produce its output. What condition must be satisfied if the firm is minimizing its costs?
d. Rank these four market structures in terms of society's welfare from best to worst:
(i) Monopoly
(ii) Duopoly
(iii) Perfect Competition
(iv) 1st Degree Price Discriminating Monopolist

Explain your answer.

4. a. In the short run, a perfectly competitive firm will stay in operation if two conditions are satisfied. What are they? Explain.
b. If a firm enjoys increasing returns to scale, what would its map of isoquants look like and why?
c. Explain the concept of economic rent (or supernormal profits). Why do we not expect firms to earn economic rent if the market structure is perfectly competitive?