

UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For The Following Qualification:–

B.Sc.

ES1120: Economics

COURSE CODE : ENVS1120

UNIT VALUE : 0.50

DATE : 11-MAY-06

TIME : 10.00

TIME ALLOWED : 3 Hours

ENVS 1120 Economics 1

Answer Four Questions. All Questions Carry Equal Marks.

Question 1

Demand and supply for cigarettes in Kleenair can be expressed as:

$$Q_D = 20 - 2P$$

$$Q_S = 2P - 4$$

where price (P) is sterling pounds per carton and quantity (Q) is the number of cartons sold.

(1) Find the equilibrium price and quantity.

(5 marks)

(2) The government of Kleenair imposes a price floor of £8 per carton of cigarettes. Assume that the government will not purchase any surplus or supply any shortage of cigarettes. What is the new quantity transacted?

(5 marks)

(3) Now suppose that the true demand curve is more inelastic but still crosses the supply curve at the equilibrium you found in part (1) above. Would producers be willing to spend more or less money than they would have spent with the previous demand curve to lobby the government for the imposition of the £8 price floor? Explain with the aid of a well-labeled graph.

(5 marks)

(4) Now assume that the demand curve is the one specified in part (1),
i.e. $Q_D = 20 - 2P$.

Suppose instead, that the government decided to impose a tax instead of a price floor. If it wanted cartons transacted to be the same amount as your answer in part (2) (i.e. under the price floor), how large would the per carton tax have to be (in sterling pounds)? How much revenue would the government be able to raise with the tax?

(5 marks)

(5) Given the three interested groups in Kleenair – i.e. the consumers of cigarettes, the producers of cigarettes, and the government – which groups prefer the price floor rather than the tax? Which groups prefer the tax rather than the price floor? Is any group indifferent between the two policies? Explain. (Note: Assume that the government is only concerned with its own revenues.)

(5 marks)

Question 2

Ted consumes wine and roses. On Monday, the price of wine is £4 per bottle and the price of roses is £10 per dozen. Ted earns £40 per day. Assume Ted never saves or borrows and both wine and roses have decreasing marginal utility. Under these conditions, Ted consumes his optimal bundle of 2 dozen roses and 5 bottles of wine.

- (1) On a well-labeled diagram, plot on a graph Ted's optimal consumption of bottles of wine and dozens of roses. (Note: Put roses on the horizontal axis.)
(5 marks)
- (2) What is Ted's marginal rate of substitution of wine for roses on Monday?
(5 marks)

On Tuesday, suppose that the price of a bottle of wine rises and at the same time Ted's income rises by just enough that he is exactly as happy on Tuesday as he was on Monday.

- (3) Does Ted consume more or fewer than 5 bottles of wine on Tuesday? Explain with the aid of a well-labeled diagram.
(5 marks)

On Wednesday, prices remain the same as on Tuesday, but Ted's income returns to £40.

- (4) Is Ted happier on Tuesday or Wednesday? Explain.
(5 marks)
- (5) Does Ted buy more or fewer bottles of wine on Wednesday than he did on Monday? Explain. (Note: State any assumptions that you make).
(5 marks)

Question 3

Dr. Evil consumes only sharks (which cost £20) and lasers (which cost £50). At his optimum, he consumes 5 sharks and 5 lasers and his marginal utility of lasers is 100.

(1) What is Dr. Evil's marginal utility of sharks when he is consuming 5 sharks and 5 lasers?

(9 marks)

(2) Austin offers to give Dr. Evil 1 laser in exchange for 3 sharks. Should Dr. Evil accept this trade or not?

(9 marks)

Assume now that Dr. Evil realizes he can also consume coffee. Coffee costs £5 per cup.

At his new optimum, Dr. Evil consumes 4 sharks, 4 lasers, and 14 cups of coffee. At this new optimum, the marginal utility of sharks is 80.

(3) What is Dr. Evil's marginal utility of lasers at his new optimum? What is Dr. Evil's marginal utility of coffee at his new optimum?

(7 marks)

Question 4

Hermione Granger is the *only* student at Hogwarts who knows how to produce Polyjuice Potion. Furthermore, magical enchantments keep any potion from entering the castle from an outside source. Hermione decides to produce the potion and sell it to her fellow students for extra spending money.

(1) Markets can become monopolized for several reasons. Explain at least two reasons, including the one that gave Hermione her monopoly of Polyjuice Potion.

(6 marks)

(2) Hermione, smart girl that she is, wants to maximize her profits. What quantity of potion should she produce to do so? Use a *large* well-labeled graph to illustrate your answer.

(6 marks)

(3) Is social surplus maximized at the monopoly level of output? Why or why not? Using your graph in part (2) above, or a new graph, identify any deadweight loss or transfers of welfare.

(6 marks)

- (4) Assuming that some fixed costs are involved in the production of the potion, is it possible for Hermione to lose money on her venture? Explain using another well-labeled graph to illustrate your answer.

(7 marks)

Question 5

The market for pizzas in London Square is perfectly competitive. Tommy's is one firm in this industry. The lowest average total cost of production is £10 per pizza, while the lowest average variable cost is £6 per pizza. Explain what Tommy's would do in the short run and would it be in the market in the long run under the following circumstances.

- (1) A. The market price is £12?

(6 marks)

- (2) B. The market price is £10?

(6 marks)

- (3) C. The market price is £8?

(6 marks)

- (4) D. The market price is £4?

(7 marks)

Illustrate each answer with a well-labeled graph or graphs.

Question 6

Last year Gund, Inc. made 5,000 teddy bears. As it does every year, it spent £5,000 on patent fees and £15,000 on the equipment used to produce its bears. In addition, it spent £30,000 on teddy bear materials and £50,000 on labour. At the margin, each additional bear, above 5000, costs £20 to make.

- (1) Identify the total fixed cost and total variable cost of producing 5,000 teddy bears. Calculate the average fixed cost, average variable cost and average total cost.

(5 marks)

- (2) Identify the marginal cost of producing 5,000 teddy bears. What does this tell us about the nature of the teddy bear market?

(5 marks)

- (3) On a well-labeled graph, show the average total cost, average variable cost, average fixed cost and marginal cost curves for Gund last year.

(5 marks)

- (4) This year, Gund doubles all of its teddy bear inputs. Identify the returns in scale in the following scenarios:
- (A) Gund produces 8,000 bears. (3 marks)
 - (B) Gund produces 10,000 bears. (3 marks)
 - (C) Gund produces 12,000 bears. (4 marks)

Question 7

You work for an airline. Your boss asks you to analyze the market for plane tickets from London to Edinburgh. Prices for plane tickets on this route have fallen over the last year. Your three advisors each give you a different opinion as to why this happened:

Paul: Higher oil prices have increased the cost of aircraft fuel.

Jane: The price of the London-Edinburgh train journey has fallen.

Matt: Deunionization has caused the wages paid to airline pilots to decrease.

- (1) Which of your three advisors provides the explanation **LEAST** likely to be correct? Use three separate supply and demand diagrams to illustrate your answer.
- (6 marks)

- (2) Your boss tells you that the number of plane tickets sold for the London-Edinburgh route has risen over the last year. Which of your three advisors provides the explanation **MOST** likely to be correct? Explain, using your graphs from part (1) above.
- (6 marks)

The number of tickets sold on the London-Edinburgh *train* route has increased by 25% following a reduction in the price of a train ticket from £110 to £90. By contrast, your airline's 30% price cut last year resulted in a 10% increase in ticket sales.

- (3) Calculate the price elasticity of demand for each mode of transport, using the midpoint method.
- (6 marks)

- (4) Matt suggests that the price elasticity of demand for plane tickets that you calculated in part (3) above reflects the fact that airline travel is a luxury. Explain whether or not he is likely to be correct.
- (7 marks)

Question 8

Since 2002, Economists have made several predictions that the British property market is substantially overpriced and likely to crash.

(1) Please discuss at least three strong reasons to argue against this view.

(9 marks)

(2) Please discuss at least three strong reasons to support this view.

(9 marks)

(3) In relation to your observations in (1) and (2) above, explain how these predictions performed.

(7 marks)

End of Paper