

Please Do Not Turn This Page Until Instructed to Do So!

ECON 217

(Prof. Nader Kabbani)

Final Exam – Fall 2006-2007

Student's Name: _____

I.D. Number: _____

Instructions – Please Read Carefully!

1. Please check that your exam has 9 pages (including this cover page).
2. Please write legibly (if I can't read it, I can't grade it.)
3. Please do not use scrap paper. You may use the margins and backs of pages; but make sure that I can follow your work.
4. Use of cell phones is strictly forbidden.
5. There are 20 multiple choice questions (40 points) and 2 questions (30 points each).
6. Read exam questions carefully. Don't spend too much time on any one question.
7. Partial credit can be given, so be sure to show all your work.
8. Helpful hint: drawing figures can help you understand how to answer a question.
9. If you think that you found a mistake, comment on it. You may receive extra credit.
10. Check the blackboard periodically. I will post corrections and clarifications there.
11. Keep your eyes on your exam: If I see a student looking at another's exam, I will assume s/he is copying. I will immediately take away their exam and give them a failing grade.

You have 90 minutes to complete the exam.

Good luck!

Multiple Choice Questions: (2 Points Each): No Penalty for Wrong Answers

Please Select the BEST Answer for Each the Following Questions or Statements.

If more and more labor is employed while keeping all other inputs constant, the marginal productivity of labor will eventually

- a. increase.
- b. decrease.
- c. remain constant.
- d. cannot tell from the information provided.

For any given output level, a firm's long-run costs

- a. are always greater than or equal to its short run costs.
- b. are usually greater than or equal to its short run costs except in the case of diminishing returns to scale.
- c. are always less than or equal to its short-run costs.
- d. are usually less than or equal to its short run costs except in the case of diminishing returns to scale.

If demand is inelastic, marginal revenue will be

- a. positive.
- b. zero.
- c. negative.
- d. constant.

If a firm's marginal revenue curve is below its marginal cost, an increase in production will usually

- a. increase profits.
- b. leave profits unchanged.
- c. decrease profits.
- d. increase marginal revenue.

In the very short run:

- a. new firms may enter an industry.
- b. existing forms may change the quantity they are supplying.
- c. price and quantity supplied are absolutely fixed.
- d. quantity supplied is absolutely fixed.

A demand curve will shift out for any of the following reasons except

- a. preference for a good increases.
- b. price of a substitute falls.
- c. income rises.
- d. price of a complement falls.

Suppose that the price elasticity of demand for a product is -1 and that the price elasticity of supply is +1. Assume also that the income elasticity of demand is +2. Then an increase in income of 10% will raise equilibrium price by

- 10%.
- 5%.
- 20%
- an amount that cannot be determined.

A firm has the production function $f(x, y) = x^{0.90}y^{0.80}$. This firm has

- constant returns to scale.
- decreasing returns to scale and increasing marginal product for factor x.
- decreasing returns to scale and diminishing marginal products for factor x.
- increasing returns to scale and increasing marginal product of factor x.
- None of the above.

Rami's Bakery has yearly revenues of \$600,000. Rami runs the business himself. His alternative employment options are to be a teacher for \$50,000 per year or a construction worker for \$40,000 per year. Rami spends \$230,000 purchasing goods for sale to his customers. He also has four employees, who each earn \$25,000 per year. Rami owns the building that his Bakery is housed in, that he could have rented out for \$20,000 per year instead. Rami's economic profit is equal to

- \$270,000 per year.
- \$250,000 per year.
- \$200,000 per year.
- \$160,000 per year.
- None of the above.

Eastern Motors is deciding whether to locate its new car plant in country A or in country B. The production function is given by $f(S, L) = S^{0.5}L^{0.5}$, where S is tons of steel and L is units of labor. In country A, steel costs \$7 a ton and labor costs \$7 per unit. In country B, steel costs \$8 per ton and labor costs \$6 per unit. In which country should the company locate its new plant so as to minimize costs per unit of output?

- Country A.
- Country B.
- It doesn't matter, because the two locations are equally costly.
- Country A if output is greater than 14, and country B otherwise.
- There is not enough information to enable us to tell.

An orange grower has discovered a process for producing oranges that requires two inputs. The production function is $Q = \min\{2x_1, x_2\}$, where x_1 and x_2 are the amounts of inputs 1 and 2 that he uses. The prices of these two inputs are $w_1 = \$5$ and $w_2 = \$2$, respectively. The minimum cost of producing 140 units is therefore

- \$980.
- \$630.
- \$1,400.
- \$280.
- \$700.

A law firm specializes in injury claims. The firm charges its clients 25% of any award given. The only cost to the firm is the time spent by an associate working on the case. Associates are paid \$100 per hour. If the firm is suing for damages of \$640,000 and if its chances of winning a case are $1 - 1/(25h)$, where h is the number of hours spent working on the case, then to maximize its profits, how many hours should it have the associate work on the case?

- a. 24
- b. 40
- c. 8
- d. 12
- e. None of the above.

Sara produces plastic flowers using only labor and plastic as inputs and has constant returns to scale. A worker can produce 30 plastic flowers an hour at a wage rate of \$9 per hour. The plastic costs \$.10 per unit. Sara faces a perfectly competitive market and she maximizes profits when she makes 300 plastic flowers an hour. What is the market price of plastic flowers?

- a. \$.21
- b. \$.32
- c. \$.40
- d. \$.27
- e. \$.28

In West Zahle, at the very edge of Mount Lebanon, the soil is poor. In East Zahle the land is fertile and flat. For any given expenditure per hectare, tomato yields are far greater in East Zahle than in West Zahle. Tomato farmers in both places are profit maximizers facing a perfectly competitive market. We deduce that:

- a. marginal costs are higher in West Zahle than in East Zahle.
- b. more fertilizer is used per acre in West Zahle than in East Zahle.
- c. marginal costs are the same in both places.
- d. more fertilizer is used per acre in East Zahle than in West Zahle.
- e. none of the above.

In Lebanon, there are 100 potential boat builders, numbered 1 through 100. Each can build up to 8 boats a year, but anyone who goes into the boat-building business has to pay a fixed cost of \$7. Marginal costs differ from person to person. Where y denotes the number of boats built per year, boat builder 1 has a total cost function $cc(y) = 7 + y$. Boat builder 2 has a total cost function $c(y) = 7 + 2y$, and more generally, for each i , from 1 to 100, boat builder i has a cost function $c(y) = 7 + iy$. If the price of boats is 15, how many boats will be built per year?

- a. 112
- b. 64
- c. 32
- d. 168
- e. Any number between 120 and 128 is possible.

A firm faces the demand curve $q = 110 - p/2$. It has quasi-fixed costs, C , and constant marginal costs of \$20 per unit of output. Therefore its total costs are $C + 20q$ if $q > 0$ and 0 if $q = 0$. What is the largest value of C for which he would be willing to produce positive output?

- a. \$20
- b. \$4,000
- c. \$5,000
- d. \$7,500
- e. \$6,000

A competitive firm has the short-run cost function $c(y) = 2y^3 - 16y^2 + 64y + 50$. The firm will produce a positive amount in the short run if and only if the price is greater than

- a. 16
- b. 64
- c. 32
- d. 35
- e. 31

There is a constant marginal cost of \$6 per ounce for growing marijuana and delivering it to buyers. Suppose that government authorities seize shipments whenever they find them and resell the marijuana that they seize on the open market. The probability that any shipment of marijuana is seized is 0.50. If a shipment is seized, there is no other punishment besides loss of the marijuana that is seized. The effect of the government action is to

- a. leave prices unchanged.
- b. raise the equilibrium price by \$6.
- c. lower the equilibrium price by \$3.
- d. raise the equilibrium price by \$12.
- e. raise the equilibrium price by \$3.

Xaquane and Yullare are eighteenth century painters. The world's stock of Xaquanes is 100 and the world's stock of Yullares is 70. The demand for each painter's work depends on its own price and the price of the other painter's work. If P_x is the price of Xaquanes and P_y is the price of Yullares, the demand function for Xaquanes is $101 - 3P_x + 2P_y$ and the demand function for Yullares is $72 + P_x - P_y$. What is the equilibrium price for Yullare's paintings?

- a. \$5
- b. \$11
- c. \$12
- d. \$7
- e. None of the above.

A firm faces the inverse demand curve $p = 64 - 2q$. At what level of output is his total revenue maximized?

- a. 24
- b. 26
- c. 8
- d. 32
- e. 16

d. ZMobils face a demand curve given by: $q = 16 - 2p$. What is the price and quantity per hour that would maximize profits? What are hourly profits on ZMobils?

e. After operating for a year (as given in part d), the government decides to impose an annual “business licensing fee” of \$4 per hour on the production of ZMobils. Will the firm continue to produce ZMobils in the short run (while K is fixed)? How about the long run? *Explain your answer..*

Problem 2 (30 Points): The market for haircuts for men¹ near AUB is a perfectly competitive industry and demand is given by: $D(p) = 200 - 10P$.

Firms have identical production functions given by $q = \min(B, S)$: where B is the number of barbers and S is workspace (and supplies). The wages of barbers (w) is \$8 and the rental cost of the workspace (v) is \$4 an hour.

a. What is the long run total cost function for a firm in this industry (as a function of q)?

b. Suppose that firms also have to advertise so that the total cost curve is actually given by: $c(q) = 2 + 12q + 0.5q^2$. What is the long run quantity produced by each firm?

c. What is the long run equilibrium number of firms in the market?

¹ Note: The demand for female hairdressing is given by: $32c^4 + 12p^2 - \log(w) + 3\cos(x) + \sigma$, where c is the number of references to hairstyles in the last month's Cosmo, w is inches of rain, x is the expected number of wedding invitations, and σ is a quasi-random error term. We will therefore only focus on haircuts for men.

- d. Suppose that the advertising expenses of barber shops depend on their rank in terms of distance from AUB (m): where $m = 1$ is the closest shop. The total cost curve is now given by: $c(q) = 0.02 m^2 + 12 q + 0.5 q^2$. In this case, what is the equilibrium number of firms in the market?
- e. What are the profit of the farthest firm and the profit of the closest firm to AUB? Explain why the profit maximizing quantities of output differ from one to the other.

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FINAL EXAM (FALL 2006)

ANSWER KEY TO MULTIPLE CHOICE QUESTIONS

1. b
2. c
3. c
4. c
5. d
6. b
7. a
8. e
9. c
10. b
11. b
12. c
13. c
14. c
15. a
16. c
17. c
18. b
19. d
20. e