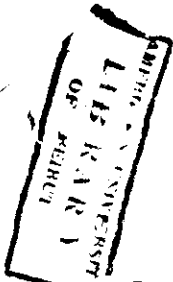


AMERICAN UNIVERSITY of BEIRUT  
SCHOOL of BUSINESS  
BUSS. 230  
FINAL EXAM  
Thursday, February 7, 2002



NAME: \_\_\_\_\_

ID: \_\_\_\_\_

SECTION: \_\_\_\_\_

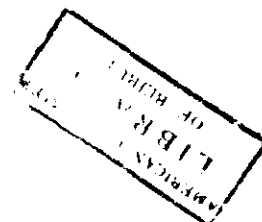
INSTRUCTOR: \_\_\_\_\_

ANSWER ALL QUESTIONS.

TOTAL TIME ALLOWED: 2 hours

I. Multiple choice (20 points total). Circle the correct answer in each of the following 20 questions – (1 point for each correct answer)

1. What would tend to decrease the elasticity of demand for good X:
  - a. The cost of producing X increases.
  - b. The cost of producing X decreases.
  - c. Several new firms begin producing X.
  - d. Several new firms begin producing substitutes for X.
  - e. Several firms producing substitutes of X go out of business.
  
2. The function a decision maker seeks to maximize or minimize is the \_\_\_\_\_ function:
  - a. Optimal
  - b. Decision-making.
  - c. Objective.
  - d. Marginal.
  - e. None of the above.
  
3. In a generalized demand function for good X with the form:  
 $Q_D = 680 - 9P + 0.0006M - 4P_R$ . Where M is income and  $P_R$  is the price of a related good R. From this, it is apparent that good X is:
  - a. An inferior good.
  - b. A substitute for good R.
  - c. A normal good.
  - d. A complement for good R.
  - e. Both c and d
  
4. Suppose Faysal, the owner of Faysal Fast Foods, earned 72,000 in revenue last year. Faysal's explicit costs of operation totaled 36,000. Faysal has a Bachelor's degree in business administration and could be earning 30,000 annually as an accountant.
  - a. Faysal's normal profit is 36,000.
  - b. Faysal's economic profit is 36,000.
  - c. Faysal's normal profit is 30,000.
  - d. Faysal's economic profit is 6,000.
  - e. Both c and d.



5. Problems in forecasting include:
- Estimates becoming more reliable the further the forecast extends into the future.
  - Specification error.
  - Cyclical variation.
  - Random variation.
  - Unbiased estimation of sample size.
6. For a short-run cost function, which of the following is (are) **not true**?
- The average fixed cost function is monotonically decreasing.
  - The marginal cost function intersects the average fixed cost function (AFC) at minimum AFC.
  - The marginal cost function intersects the average variable cost function (AVC) at minimum AVC.
  - The marginal cost function intersects the average total cost function (ATC) at minimum ATC.
  - The marginal cost is the inverse of the marginal product.
7. The sample regression line:
- Shows the actual or true relation between the dependent and independent variables.
  - Is used to estimate the population regression line.
  - Connects the data points in a sample.
  - Is estimated by the population regression line.
  - Maximizes the sum of the squared differences between the data points in a sample and the sample regression line.
8. In the demand function,  $Q_D = a + bP + cM + dP_R$ , income elasticity is:
- c.
  - $c \times (M/Q)$
  - $c \times (Q/M)$ .
  - c.
  - $- c \times (Q/P_R)$ .
9. Dummy variables are used in a time series forecasting model:
- To ease the calculation of coefficients for some variables.
  - To account for random variation in the data.
  - To account for seasonal variation in the data.
  - All of the above.
  - Neither a, b, or c.
10. For a short-run production function in which output is determined by the number of workers utilized (capital stock is held constant), which of the following is **false**:
- When few workers are utilized, the marginal product of labor will be increasing.
  - When the marginal product of labor is negative, total product is falling.
  - To determine the marginal product of labor, the capital stock must be held constant.

- d. When diminishing returns set in, adding more workers will diminish output.
- e. None of the above.
11. When estimating a short-run production function of the form  $Q = AL^3 + BL^2$ , it is necessary to specify in the computer estimation routine that:
- $A < 0$ .
  - $B > 0$ .
  - The intercept term is forced to equal zero.
  - All coefficients should be  $> 0$ .
  - All coefficients should be significant.
12. In a perfectly competitive industry, the market price of good X is 25. A firm is currently producing 10,000 units of X at an ATC of 28, MC of 20, and AVC of 20. The firm should:
- Raise price because it is not recovering all costs.
  - Keep output unchanged because it is producing at minimum AVC.
  - Produce more because the next unit of output increases profits by 5.
  - Produce less because the next unit of output decreases profits by 3.
  - Shut down because it is losing money.
13. Suppose that when a firm increases all inputs by 100%, output increases by less than 100%. The firm's production function **exhibits**:
- Decreasing returns to scale.
  - Diminishing marginal returns.
  - Diminishing total product.
  - The law of variable proportions.
  - None of the above.
14. If the price of labor rises relative to the price of capital, the cost-minimizing ratio of capital usage to labor usage ( $K/L$ ) will.
- Increase.
  - Be unchanged.
  - Decrease.
  - Increase for a while and then decrease.
  - Decrease for a while and then increase.
15. In the short-run production function:  $Q = -0.002L^3 + 0.16L^2$ , at what level of labor usage does the maximum average product occur:
- 20.
  - 30.
  - 40.
  - 50.
  - 60.

16. A firm with market power
- Can charge any price it wants.
  - Is the only seller in that market.
  - Faces a downward sloping demand curve.
  - Must be regulated so as not to abuse its market power.
  - All of the above.
17. Consider an oligopoly market with only two firms: Firm A and Firm B. The firms compete on the basis of changes in product quality and effect these changes either annually or semi-annually. The matrix below shows the possible profit combinations:

**Firm B (semi-Annual)    Firm B (Annual)**

<b>Firm A</b> <b>Semi-Annual</b>	I: Profits A = 300 Profits B = 300	II: Profits A = 800 Profits B = 100
<b>Firm A</b> <b>Annual</b>	III: Profits A = 100 Profits B = 800	IV: Profits A = 500 Profits B = 500

How much profit will firm A earn in a noncooperative oligopoly market?

- 100.
  - 300.
  - 500.
  - 800.
  - Average of 300 and 800.
18. A monopolist is producing a level of output at which Price is 80, Marginal Revenue is 40, Average Total Cost is 100, Marginal Cost is 40, and Average Fixed Cost is 10. To maximize profit, the firm should:
- Produce more.
  - Keep output the same.
  - Produce less.
  - Raise price.
  - Shut down.
19. A perfectly competitive industry is in long-run equilibrium. Then the price of a complementary good decreases. What will happen?
- Next period a typical firm will increase output
  - Next period a typical firm will earn more than normal return.
  - a and b.
  - Some firms will exit the industry.
  - Nothing. Industry already is in long-run equilibrium.
20. The most important characteristic of an oligopoly is that:
- Firms have market power.
  - Firms produce differentiated products.
  - Firms are mutually interdependent.
  - Firms are few.
  - There are barriers to entering the market.

ii. **TRUE or FALSE (20 points total).** Label your answers to the following 10 statements with either a T or an F and briefly justify your answer. (Each answer is worth a maximum of 2 points: 1 point for accuracy of answer and 1 point for the justification provided).

1. If the price elasticity for electricity consumption in Lebanon is  $-0.8$ , then the government seeking to **increase electricity revenues** should reduce the price per kilowatt-hour (assuming that bills are collected).
2. The imposition of the value added tax (VAT) on certain goods and services will increase the prices of these goods and services and would be borne totally by consumers.
3. A change in input prices shifts the **product isoquants**.
4. A firm in a monopolistically competitive market is in a long-run equilibrium when it charges a **price equal to its marginal cost**, provided the price exceeds its average variable cost.
5. To characterize a market as oligopolistic, the number of firms should not exceed five.
6. In deciding the **optimal combination of inputs**, a manager uses the combination that results in equal marginal products of inputs.
7. If both the demand and supply of good X increase, then **both** the quantity demanded of X and the price of X must increase.
8. If the demand for good X is given by  $Q = 500/P$ , then the **own price elasticity** of demand for X would be constant.
9. Regardless of market structure (perfect competition, monopolistic competition, monopoly, oligopoly), **economic profits** can occur only in the short-run and would be eliminated in the long-run.
10. In the case of a **regulated monopoly** characterized by declining costs, the regulatory authority would set the output price charged by the monopolist equal to the marginal cost so as to maximize social benefit

**PROBLEMS – 60 points total for problems III, IV, V, and VI**

iii. **15 points for correctly answering parts a and b.** A manager estimated his firm's production function as:

$$Q = 3 L^{0.4} K^{0.6} \text{ (3 multiplied by L raised to the power 0.4 multiplied by K raised to the power 0.6).}$$

The unit costs of inputs are  $K = 15$  and  $L = 5$ .

The firm's budget for input use is 6 million.

- a. **For 10 points.** Calculate the optimal levels of L and K.
- b. **For 5 points.** What would be the level of output corresponding to the optimal L and K.

- IV. **15 points for correctly answering parts a, b, and c.** Basic Metals, Inc., manufactures copper wires used in electronic products. It has estimated the demand and cost schedules it faces as follows:

Price (\$/Kg.)	Quantity (Kg./period)	Variable cost (\$/Kg.)
25	0	0
18	1,000	10.00
16	2,000	8.50
14	3,000	7.33
12	4,000	6.25
10	5,000	5.40
8	6,000	5.00
6	7,000	5.14
4	8,000	5.88
2	9,000	7.00

Fixed costs are estimated at \$14,000 per period.

- For 5 points.** Determine the Marginal revenue and marginal cost schedules of Basic Metals, Inc.
  - For 5 points.** Determine the profit-maximizing output and Price. Calculate the resulting total profits.
  - For 5 points.** Suppose the government decides to sell copper (from its extensive stockpile) to anyone who desires it at \$6/Kg. How does this affect Basic Metals' profit-maximizing output, price and profits?
- V. **15 points for correctly answering parts a, b, and c.** Best Product, Inc., is a monopolist. It estimates the demand function for its product as:

$$Q = 60 - 0.4P + 6M + 2A$$

Where Q = quantity of units sold; P = price per unit; M = per capita disposable income (in thousands); and A = advertising expenditures (in hundreds).

Best Product's average variable cost function is:

$$AVC = Q^2 - 10Q + 60$$