

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

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**Principles of Microeconomics**

**Second Midterm Exam (Version 1.3)**

You have 60 minutes to complete this 100-point exam. Please write clearly and legibly. Graphs must be completely labeled to receive full credit. Show your calculations for partial credit. Good luck!

1. (20 Points). Match each economic term below with its correct definition.

- |   |                                |
|---|--------------------------------|
| ___ Marginal Revenue                    | ___ Profit-Maximizing Rule     |
| ___ Utility-Maximizing Rule             | ___ Marginal Product           |
| ___ Variable Costs                      | ___ Law of Diminishing Returns |
| ___ Law of Diminishing Marginal Utility | ___ Shut Down Point            |
| ___ Marginal Cost                       | ___ Short Run                  |

- A. The additional output that can be obtained by employing one more unit of a resource.
- B. A period of time in which all of a firm's resources are variable.
- C.  $MU_x / P_x = MU_y / P_y$  .
- D. Costs which increase as a product's price increases.
- E. As a person consumes additional units of a good, the marginal utility she derives from the good decreases.
- F. In order to maximize total profits a firm should produce a quantity of output at which price exceeds ATC by the greatest amount.
- G. The increase in total cost when 1 additional unit of output is produced.
- H. As more units of a resource are used, a firm's marginal cost will eventually fall.
- I. The additional cost of employing 1 more unit of a resource.
- J. When consumers haggle with sellers in order to get the best price.
- K.  $MU_x / P_y = MU_y / P_x$  .
- L. As additional units of a resource are employed, eventually the marginal product of the resource will decline.
- M. A period of time in which at least 1 of a firm's resources is not variable.
- N. A firm in the short run will definitely shut down when profits are negative.
- O. The increase in total revenue when 1 additional unit of a product is sold.
- P. Any firm (which is not shut down) will maximize profits (or minimize losses) where marginal revenue equals marginal cost.
- Q. As a person consumes additional units of a good, the total utility she derives from the good decreases.
- R. Costs which increase as a firm's production increases.
- S. A firm will shut down in the short run when price is below average variable cost.

(28 Points) Illustrate the following firms on graphs. Illustrate each firm's profit or loss (if any).

a) A monopolistically competitive firm operating but losing money.

b) A natural monopoly regulated to break even.

c) A perfectly competitive firm in the long run, attempting to maximize profits.

d) A loss-minimizing monopoly in the short run that is shut down.

(10 points) Indicate (no explanations required) whether each market below is characterized by:

- |                            |             |
|----------------------------|-------------|
| --perfect competition      | --monopoly  |
| --monopolistic competition | --oligopoly |

- a) A market in which each firm's marginal revenue equals its price.
- b) A firm with many competitors producing different products.
- c) A market in which a few firms produce most of the output.
- d) A market in which many firms produce identical products.
- e) A one-firm market.

(10 points) Jane has \$200; she must decide how much of it to spend this year. Any money that she doesn't spend will be deposited in a savings account, where it will earn 5% interest. She will spend her savings plus her earned interest next year. Jane has no other source of income.

Jane maximizes her utility by saving \$40 out of her \$200 this year.

- a) Graph Jane's intertemporal budget constraint. Include at least 4 numbers on your graph.
- b) Calculate how much Jane will spend next year.

(10 points) Complete the following table (show work for partial credit):

Q	TFC	TVC	TC	MC
0	_____	_____	_____	--
1	7	_____	16	_____

(15 Points) Biff has \$6 to spend on Beans and Franks. Beans is \$2 each; franks are 50 cents each. Here is Biff's Marginal Utility info:

<u>Units Consumed</u>	<u>MU beans</u>	<u>MU franks</u>
1	1000	350
2	800	300
3	700	250
4	600	200
5	500	150

a) How many units of each good should the utility-maximizing Biff buy?

b) Calculate Biff's total utility after consuming the products in (a) above.

c) Illustrate Biff's utility-maximizing position on a budget constraint/indifference curve graph. (Numbers are not required.)

(7 Points) Buffy has purchased pretzels and pizza so that after her income has been spent, her marginal utility from pretzels is 100 utils, and her marginal utility from pizza is 400 utils. Pretzels are \$10 each; pizza is \$5 each.

--Is Buffy maximizing her utility? Explain why or why not. If she is not, indicate whether she should buy MORE or FEWER pretzels and MORE or FEWER pizzas. Also, be sure to precisely use the utility-maximizing rule in your response.