

Write your name on the cover of the test booklet and nowhere else. Enclose this sheet with the booklet. Failure to follow these directions will cost you 1 point. The test has 240 points (to be scaled down to 200 points) and is scheduled to take 120 minutes. Therefore, expect to spend 1 minute for every 2 points. For example, a 14-point question should take 7 minutes. I cannot give extra time because some students have an exam after this exam.

1) (8 points each) Answer THREE of the following questions using the regression results on the last page. They are predicting the sales of cats using the price of cats and income as the explanatory variables.

- A) Are the overall regression results good? Explain your logic.
- B) Which variables are significant? Explain your logic.
- C) If your customers have an income of \$20,000 and the price a cat is \$8/cat. Then write the equation which will predict the sales of cats. Briefly explain how you found it.
- D) Given these results, are cats inferior, likely inferior, likely indeterminate, likely necessity/luxury, or necessity/luxury. Explain your logic.

2) (10 points) For EITHER the industry in Part A OR the industry in Part B, determine if it is a monopoly, oligopoly, monopolistic competition, or perfect (a.k.a. pure) competition. Explain your logic.

- A) Computers
- B) Cell phone telephone services (the service – not the phone itself)

3) (16 points) Illustrate EITHER the event in Part A OR the event in Part B on the supply and demand diagram (from Chapter 1) for wheat. Explain why the curve(s) moved as drawn. What happened to the price charged and the quantity produced?

- A) The demand for ethanol from corn increases.
- B) The fuel to run the tractor costs more.

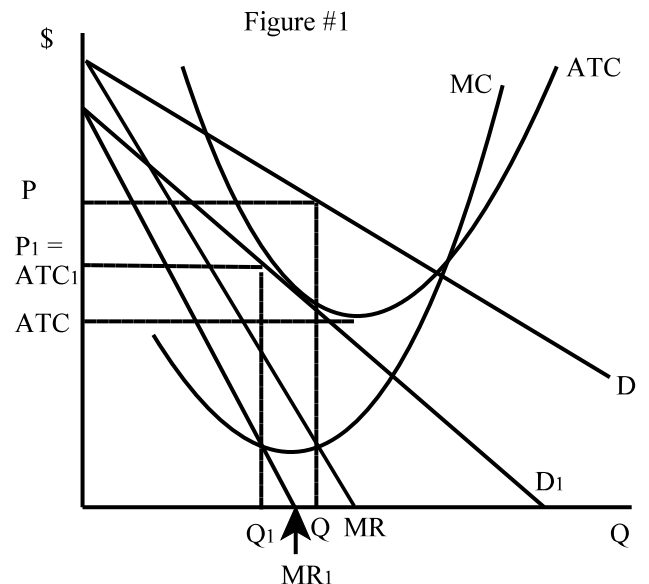
4) (16 points) Answer EITHER Part A OR Part B.

- A) What is meant by *TQM*? Explain how it works. Why must the CEO be firmly and visibly behind it?
- B) What is a *learning organization*? Explain how it works. Why must the CEO be firmly and visibly behind it?

5) (16 points) Answer EITHER Part A OR Part B.

- A) Suppose you were working on the Cournot model and got Firm #1's best response function is $Q_1 = 30 - \frac{1}{2}Q_2$. Plot the best response function. Tell me the economic interpretation of the horizontal and vertical intercepts.
- B) Draw the D/MC diagram for a monopoly. Use the diagram to find the quantity produced and the price sold. Find the dead-weight loss. Explain how you found the price, quantity, and the dead-weight loss.

6) (18 points) Figure #1 has at least five errors. Find THREE of them. Explain how you know they are wrong. The diagram is supposed to be illustrating a monopolistically competitive firm making profits of the area between P and ATC from the axis to the quantity Q. Firms then



enter, moving the demand to D_1 , quantity to Q_1 , the price to P_1 , and the average total costs to ATC_1 .

7) (20 points) Answer EITHER Part A OR Part B.

A) Suppose an industry has five firms. The largest firm has sales of \$200. The next two have sales of \$100 each, and the smallest two have sales of \$50 each. Find CR4, CR8, and HHI. Show all work. Should the smallest two be allowed to merge? Show all work and explain your logic.

B) Draw the ATC/AVC/MC/D diagram for a monopolistically competitive firm in the long-run equilibrium. Find the quantity produced and the price paid. Explain how you found the quantity produced, price paid, and how you know the company is in the long-run equilibrium.

Q	TC	ATC	MC
0			
2	200		
4		75	
6			75
	700		250

8) (20 points) Answer EITHER Part A OR Part B.

A) Copy the table to the right into your bluebook. Fill it in showing all work and explaining any entry which requires no calculation. Assume there are no fixed costs.

B) Suppose the total cost function for a firm is given by $TC = 100 + 4Q + 3Q^2$. Find the TVC, TFC, ATC, AVC, AFC, and MC. Show all work. If there is no work, then briefly explain what you did.

9) (22 points) Answer EITHER Part A OR Part B.

A) Suppose the income elasticity of demand for hats is +0.4. What does that tell you about hats?

Suppose the cross-price elasticity of bats and gloves is +1.4. What does that tell you about bats and gloves? Suppose that the own-price elasticity of demand for computers is -3.2. What does that tell you about computers? Explain your logic for all parts.

B) Use the table to the right to calculate TWO of the following elasticities. State how you chose the rows you used. Show all work and briefly state what that tells us about dogs. B1) income elasticity (E_I) of dogs using the point formula, B2) cross-price elasticity of dogs and cats (E_{xy}) using the arc formula, B3) own-price elasticity using the point formula.

P_{dog}	P_{cat}	Inc.	Q_{dog}
20	25	400	25
30	25	400	10
30	25	600	12
30	15	600	8

10) (24 points) Copy the payoff matrix into your text booklet. Find the Nash equilibrium (equilibria) for the following payoff matrix. BRIEFLY explain how you found it (them). Does either person have a dominant strategy? BRIEFLY explain your logic. Find both people's secure, a.k.a., safe, a.k.a., maximin strategy. BRIEFLY explain how you found them.

Question #6		Dick		
		High Quality	Medium Quality	Low Quality
Jane	High Quality	10, 14	8, 6	7, 13
	Medium Quality	11, 4	5, 8	14, 15

11) (24 points) Answer EITHER Part A OR Part B.

A) Suppose that Pepsi has the choice of building a new factory and Coke has a choice of charging a high price or a low price. Pepsi makes its choice first. Draw the decision tree and find the equilibrium. Explain how you found the equilibrium. The following table gives the payoffs. Strategies Payoffs.

(Build, High Price)	(20, 10)
(Build, Low Price)	(25, 15)
(Don't Build, High Price)	(30, 8)
(Don't Build, Low Price)	(13, 6)

B) Draw the ATC/AVC/AFC/MC diagram for a firm producing cars. Illustrate the effects of giving the accountants a pay raise. Explain why the curve(s) moved as drawn.

12) (30 points) Answer EITHER Part A OR Part B.

A) Draw an indifference curve/budget constraint diagram where the price of apples is twice the price of bananas. Explain how you know your graph shows that $P_A = 2P_B$. Illustrate the effects of an increase in the price of bananas so that $P_A = P_B$. Draw a third budget constraint which will be able to be used to find the income and substitution effects. State how you drew it. Given your diagram, are apples and bananas complements or substitutes? Explain your logic. Which points show the income effect? State how you reached that conclusion. Which points show the substitution effect? State how you reached that conclusion. Given your diagram, are either good inferior? State how you reached that conclusion.

B) Draw an isoquant/isocost diagram which has the price of labor twice the price of capital on two isocost lines. State how you know that $w = 2r$. Given your diagram, is the firm facing increasing, constant, or decreasing returns to scale? Show all work and briefly explain your logic. Given your diagram, what are the LRATC for the two quantities you chose? Show all work and briefly state what you did.

Regression Statistics						
Multiple R		0.513098				
R Square		0.26327				
Adjusted R Square		0.24808				
Standard Error		104.1101				
Observations		100				
Analysis of Variance						
		<i>df</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>	<i>Significance F</i>
Regression		2	375707.8	187853.9	17.33144	3.67e-07
Residual		97	1051374	10838.91		
Total		99	1427082			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Statistic</i>	<i>P-value</i>	<i>Lower 95.00</i>	<i>Upper 95.00</i>
Intercept	-124.500	113.616	-1.096	0.276	-350.048	100.944
Price	-1.250	0.728	-1.718	0.086	-2.705	0.184
Income	0.013	0.002	5.874	5.72e-08	0.008	0.017