

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 10-point question should take 5 minutes. I cannot give some extra time but not a lot.

- 1) (10 points each) Use the table on the back to answer THREE parts of this question. The regression is to predict the sales of apples. Modify the numbers, variable names, and questions respectively.
- A) Are the overall regression results reliable enough for you to go by? Explain your answer.
 - B) Suppose you charged \$2/apple and sold 250 apples. What would the own-price elasticity be? Show all work and briefly explain your logic. Do not worry about whether the results are significant.
 - C) Are oranges and apples substitutes, likely substitutes, complements, likely complements, or not enough information? Explain your logic.
 - D) Assuming the price of advertising is correct, would you advertise? Explain your logic.
 - E) What is the equation you would use to predict the sales of apples? Briefly explain how you derived it.

Regression Statistics						
Multiple R	0.90348814					
R Square	0.81629081					
Adjusted R Square	0.79541477					
Standard Error	40.0138727					
Observations	50					
Analysis of Variance						
	<i>df</i>	<i>Sum of Squares</i>	<i>Mean Square</i>	<i>F</i>	<i>Significance F</i>	
Regression	5	313031.3808	62606.2762	39.1018	4.083e-15	
Residual	44	70448.8403	1601.1100			
Total	49	383480.2211				
	<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	-364.3845	316.6732	-1.1507	0.2555	-1002.5974	273.8285
P apples	-130.0081	81.5613	-1.5940	0.1174	-294.3841	34.3679
P oranges	154.7931	88.8019	1.7431	0.0876	-24.1754	333.7615
P melons	39.9214	83.6042	0.4775	0.6351	-128.5717	208.4145
Income	0.4191	0.1830	2.2897	0.0264	0.0502	0.7880
Advertising	159.9736	80.1105	1.9969	0.0514	-1.4784	321.4257

- 2) (10 points) Answer EITHER Part A OR Part B.
- A) Suppose that bananas have an income elasticity of 0.4 and a cross-price elasticity with pineapple of 0.5. What would that tell you? Briefly explain your logic.
 - B) What would you expect the own-price elasticity of demand for Pepsi Cola is? Explain your logic.

3) (10 points) Answer EITHER Part A OR Part B.

A) Is the LRATC curve the envelope of the SRATC curves? Explain your logic.

B) Write the equi-marginal principle for production. Explain why it should hold.

4) (14 points) Answer EITHER Part A OR Part B.

A) What is benchmarking? Explain how it works.

B) Is it true that the marginal anything curve (MAC) goes through the maximum and/or the minimum of the average anything curve (AAC)? Explain your logic.

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

A) Suppose the demand curve is given by $P = 100 - Q$, and the total cost function is given by $TC = 200 + 4Q + Q^2$. What are the total revenue, marginal revenue, and marginal cost functions? How much should this firm produce? Show all work.

B) Back in Chapter 3, we derived the industry supply curve from the firms' supply curves. Draw the supply curve for two firms that are not identical and use them to find the supply curve for the industry. Find at least four points on the industry supply curve.

6) (18 points) Illustrate EITHER the event in Part A OR the event in Part B on the supply and demand for lawn mowers. Explain why the curve(s) moved as drawn. What happens to the price and quantity?

A) The price of snow blowers increases.

B) The prices of steel and aluminum increase.

7) (18 points) Answer EITHER Part A OR Part B.

A) The Department of Justice (DOJ) generally does allow mergers if the post-merger HHI is < 1000 , or if the post-merger HHI is between 1000 and 1800 and the change in the HHI is < 100 , or if the post-merger HHI is > 1800 and the change is < 50 . Would the DOJ be likely to approve a merger between firms 3 and 4? Show all work and briefly explain what you did.

Firm	1	2	3	4	5	6	7
Sales	100	100	100	300	600	800	1000

B) Calculate the CR4, CR6, and CR8 for the industry above. Show all work.

8) (20 points) Use the payoff matrix below to find the following, if they exist: each players' dominant strategy, each players' secure strategy, the Nash equilibrium, and the cooperative equilibrium. Briefly explain how you got each one and show all work. You may write on the matrix itself.

		Mustard Plug	
		High Price	Low Price
MU330	High Price	1250 900	980 920
	Medium Price	1280 760	600 750

9) (20 points) Answer EITHER Part A OR Part B OR Part C. (Yes, do only ONE of three.)

A) Draw the D/MC diagram for a cartel and beside it the ATC/MC diagram for one of the firms in the cartel. Use it to explain why the cartels tend to fall apart.

B) Create a payoff matrix for a two-firm cartel where they have the option of producing a low quantity or a high quantity. Use it to show why cartels tend to fall apart.

C) Draw the diagram which has the industry demand, competitive fringe's supply curve, and the dominant firm's marginal cost curve. (This is called either price leadership or monopoly with competitive fringe.) Use it to derive the demand curve for the dominant firm. Explain how you found it. Then find the quantity the firm produces, the price it charges, and the quantity the fringe produces. Briefly explain how you found them.

10) (24 points) Copy the following table into your test booklet. Fill it in. Assume that the price is fixed at \$10/unit. Show all work and briefly explain any answer which does not require work. The last column gives you the choice of which you want to do.

L	Q	MPL	TR	MR or MRPL
0				
2	100			
4			1500	
	180	15		

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

A) Draw the ATC/AVC/MC/D diagram for a perfectly competitive firm making profits and the industry supply and demand diagram beside it. Illustrate what happens over time. Explain why the curve(s) moved as drawn.

B) Draw the ATC/AVC/MC/D diagram for a monopolistically competitive losing money. Illustrate what happens over time. Explain why the curve(s) moved as drawn. Find the profit maximizing price and quantity before and after the movement.

Explain how you found them.

12) (36 points) Answer EITHER Part A OR Part B.

A) Use Figure #1 to find both the LRATC curve AND the SRATC curve. Give me the precise points for three points on each curve and draw both curves. Briefly explain how you got the six points and show all work.

B) Draw an indifference curve/budget constraint diagram for basketballs and volleyballs. Illustrate an decrease in the price of volleyballs on the diagram. Explain why your curve(s) moved as drawn. Draw another line to determine the income and substitution effects. Explain how you know where the income and substitution effects are. Given your drawing, are either of the goods inferior? Explain your logic.

