

Economics 101
Fall 1998
Section 3 - Hallam
Exam 4

1. Marginal revenue measures
 - a. the change in cost required to produce one more unit of output.
 - b. the change in output that can be obtained from one more dollar of expenditure.
 - c. the change in output that results from one more unit of an input.
 - d. the change in revenue from the production of one more unit of output.
 - e. the level of output divided by the level of input.

2. We say that a firm experiences *diseconomies of scale* or decreasing returns to size when
 - a. AC is decreasing.
 - b. $AC > MC$.
 - c. $MC > AC$.
 - d. ϵ_s (elasticity of scale) > 1 .
 - e. the firm imposes costs on outside firms.

3. Limit pricing is designed to
 - a. eliminate excessive profits in a monopoly market.
 - b. lower price below the average total cost of a competitor.
 - c. limit the access of a competitor to key inputs.
 - d. prevent the resale of low priced goods to high demand consumers.
 - e. prevent sales of products at below cost.

4. If a single price monopolist lowers the price of a product in order to sell one more unit, then
 - a. total revenue will rise by the amount of the price.
 - b. marginal revenue will be higher than the price.
 - c. the net effect on total revenue is usually negative because price is falling.
 - d. some revenue is lost due to the lower price for all previous units, but the unit brings in some new revenue.
 - e. revenue stays the same.

5. What is the shutdown rule for a firm in the short-run?
 - a. In the short-run, the firm should continue to produce if total revenue (TR) exceeds total variable costs (TVC) and total fixed costs (TFC) are all sunk; otherwise, it should shut down.
 - b. In the short-run, the firm should continue to produce if total revenue (TR) exceeds total costs (TC); otherwise, it should shut down.
 - c. In the short-run, if some fixed costs are not sunk, the firm should continue to produce if $(TR - TVC) > (TFC - \text{sunk fixed costs}) > 0$; otherwise, it should shut down.
 - d. In the short-run, the firm should continue to produce if total revenue (TR) is less than total variable costs.
 - e. Both a and c are reasonable rules.

For questions 6 and 7, consider the following data on oil and rice production in Indonesia and Thailand where the data is production per time period. Assume that the production possibility frontier is linear. With no rice production, Indonesia can produce 10,000 barrels of oil. With 500 tons of rice, Indonesia has no oil production, etc.

	Oil	Rice
Indonesia	10,000	0
Indonesia	0	500
Thailand	6,000	0
Thailand	0	400

6. Which of the following statements is true?
- Thailand has an absolute advantage in oil production.
 - Thailand has a comparative advantage in oil production.
 - Indonesia has a comparative advantage in oil production.
 - Cannot say which country has an absolute advantage in either product.
 - Both c and d are correct.
7. If Indonesia produced 4,000 barrels of oil and Thailand produced 3,000 barrels of oil and each used their remaining resources for rice production, what would total rice production be?
- 200 tons
 - 350 tons
 - 600 tons
 - 500 tons
 - 400 tons
8. The marginal rate of substitution measures
- the slope of the production possibility frontier.
 - the slope of the isocost line.
 - the slope of an isoquant.
 - the decrease in the quantity of input 1 (x_1) that is needed to accompany a one unit increase in the quantity of input two (x_2), in order to keep production the same.
 - both c and d.
9. For a firm to minimize cost which of the following must hold?
- the slope of the isocost line $\left(\frac{-w_2}{w_1} \right)$ and the slope of the isoquant curve must be equal
 - $\frac{MPP_{x_2}}{w_2} = \frac{MPP_{x_1}}{w_1}$
 - $\frac{-w_1}{w_2} = MRS_{x_1, x_2} = \frac{\Delta x_1}{\Delta x_2}$
 - both a and b
 - a, b, and c

10. Firm A operates in a perfectly competitive market. Firm B operates in an imperfectly competitive market. Which of the following statements is correct?
- the total revenue curve for both firms is linear
 - the total revenue curve first rises and then falls for the imperfectly competitive firm but is linear for the perfectly competitive firm
 - the total revenue curve first rises and then falls for both firms
 - the total revenue curve first rises and then falls for the perfectly competitive firm but is linear for the imperfectly competitive firm
 - the total revenue curve is horizontal for the perfectly competitive firm but linear for the imperfectly competitive firm
11. Marginal (physical) product measures
- the change in cost from the production of one more unit of output.
 - the change in an input required to produce one more unit of output.
 - the change in output that can be obtained from one more dollar of expenditure.
 - the change in output that results from one more unit of an input.
 - the level of output divided by the level of input.
12. Price discrimination refers to
- selling the same product at the same uniform price.
 - selling the same product to different customers at different prices as a result of different production costs.
 - charging a price just above average total cost in order to drive competitors out of the market.
 - charging a higher price to people who are ugly.
 - selling the same product to different customers at different prices for reasons unrelated to production costs
13. Which is the following products/services is a good candidate for price arbitrage?
- knee replacement
 - tailored suit
 - silver
 - corn silage
 - repair of plumbing leak
14. Marginal cost measures
- the change in cost from the production of one more unit of output
 - the change in an input required to produce one more unit of output
 - the change in output that can be obtained from one more dollar of expenditure
 - the change in output that results from one more unit of an input
 - the level of output divided by the level of input

For questions 15-17, consider the following data on output (Q), fixed cost (FC), variable cost (VC), total cost (C), average fixed (AFC), variable (AVC), and total cost (ATC), marginal cost (MC), marginal revenue (MR), etc. The column labeled MC Δ is the change in cost computed as a difference, similarly for MR Δ . MC and MR are exact marginal cost and marginal revenue respectively.

Q	FC	VC	C	AFC	AVC	ATC	MC Δ	MC	Price	TR	MR Δ	MR
0.00	100	0.00	100.00					100.00	340	0		340
							82.00				318.00	
1.00	100	82.00	182.00	100.00	82.00	182.00		66.00	318	318		296
							54.00				274.00	
2.00	100	136.00	236.00	50.00	68.00	118.00		44.00	296	592		252
							38.00				230.00	
3.00	100	174.00	274.00	33.33	58.00	91.33		34.00	274	822		208
							34.00				186.00	
4.00	100	208.00	308.00	25.00	52.00	77.00		36.00	252	1008		164
							42.00				142.00	
5.00	100	250.00	350.00	20.00	50.00	70.00		50.00	230	1150		120
							62.00				98.00	
6.00	100	312.00	412.00	16.67	52.00	68.67		76.00	208	1248		76
							94.00				54.00	
7.00	100	406.00	506.00	14.29	58.00	72.29		114.00	186	1302		32
							138.00				10.00	
8.00	100	544.00	644.00	12.50	68.00	80.50		164.00	164	1312		-12
							194.00				-34.00	
9.00	100	738.00	838.00	11.11	82.00	93.11		226.00	142	1278		-56
							262.00				-78.00	
10.00	100	1000.00	1100.00	10.00	100.00	110.00		300.00	120	1200		-100
							342.00				-122.00	
11.00	100	1342.00	1442.00	9.09	122.00	131.09		386.00	98	1078		-144
							434.00				-166.00	
12.00	100	1776.00	1876.00	8.33	148.00	156.33		484.00	76	912		-188
							596.00				-232.00	
14.00	100	2968.00	3068.00	7.14	212.00	219.14		716.00	32	448		-276
							852.00				-320.00	
16.00	100	4672.00	4772.00	6.25	292.00	298.25		996.00	-12	-192		-364

15. If this data represents a monopoly, what level output should they produce?

- 9
- 8
- 7
- 5
- 6

16. What price should a monopolist charge?

- 230
- 156
- 208
- 142
- 164

17. In a competitive industry, price will be equal to
- a. 230.
 - b. 156.
 - c. 208.
 - d. 142.
 - e. 164.

Consider the table on the next page for questions 18-20 where y is output, TR is total revenue, MR is marginal revenue, LRTC is long run total cost, LRATC is long run average total cost, LRMC is long run marginal cost, SRAC is short run average total cost, SRMC is short run marginal cost, and the number after SRAC denotes plant size.

18. If the price was permanently \$332, what size plant should the firm build?
- a. 6
 - b. 10
 - c. 14
 - d. 18
 - e. can't tell from the data
19. What will be the long run price and marginal cost in this industry if there is free entry and exit and all firms have the same cost structure?
- a. 140
 - b. 332
 - c. 220
 - d. 212
 - e. 410
20. If the price is \$246 and the current plant is size 14, how much output should the firm produce?
- a. 10
 - b. 12
 - c. 13
 - d. 14
 - e. 15

y	Price	TR	MR	LRTC	LRATC	Long Run		6	6	10	10	14	14	18	18
						LRMC	Profit	SRAC 6	SRMC 6	SRAC 10	SRMC 10	SRAC 14	SRMC 14	SRAC 18	SRMC 18
0	332	0	332	0.00			0.00								
1	332	332	332	454.00	454.00	410.00	-122.00	704.00	310.00	1264.00	230.00	2144.00		3344.00	
2	332	664	332	824.00	412.00	332.00	-160.00	492.00	252.00	732.00	172.00	1132.00		1692.00	
3	332	996	332	1122.00	374.00	266.00	-126.00	404.00	206.00	537.33	126.00	777.33		1124.00	
4	332	1328	332	1360.00	340.00	212.00	-32.00	350.00	172.00	430.00	92.00	590.00		830.00	
5	332	1660	332	1550.00	310.00	170.00	110.00	312.00	150.00	360.00	70.00	472.00		648.00	
6	332	1992	332	1704.00	284.00	140.00	288.00	284.00	140.00	310.67	60.00	390.67		524.00	
7	332	2324	332	1834.00	262.00	122.00	490.00	263.43	142.00	274.86	62.00	332.00		434.86	
8	332	2656	332	1952.00	244.00	116.00	704.00	249	156.00	249.00	76.00	289.00		369.00	
9	332	2988	332	2070.00	230.00	122.00	918.00	240.00	182.00	231.11	102.00	257.78	22.00	320.00	
10	332	3320	332	2200.00	220.00	140.00	1120.00	236.00	220.00	220.00	140.00	236.00	60.00	284.00	
11	332	3652	332	2354.00	214.00	170.00	1298.00	236.73	270.00	214.91	190.00	222.18	110.00	258.55	30.00
12	332	3984	332	2544.00	212.00	212.00	1440.00	242.00	332.00	215.33	252.00	215.33	172.00	242.00	92.00
13	332	4316	332	2782.00	214.00	266.00	1534.00	251.69	406.00	220.92	326.00	214.77	246.00	233.23	166.00
14	332	4648	332	3080.00	220.00	332.00	1568.00	265.71	492.00	231.43	412.00	220.00	332.00	231.43	252.00
15	332	4980	332	3450.00	230.00	410.00	1530.00	284.00	590.00	246.67	510.00	230.67	430.00	236.00	350.00
16	332	5312	332	3904.00	244.00	500.00	1408.00	306.50	700.00	266.50	620.00	246.50	540.00	246.50	460.00
17	332	5644	332	4454.00	262.00	602.00	1190.00	333.18	822.00	290.82	742.00	267.29	662.00	262.59	582.00
18	332	5976	332	5112.00	284.00	716.00	864.00	364.00	956.00	319.56	876.00	292.89	796.00	284.00	716.00
19	332	6308	332	5890.00	310.00	842.00	418.00	398.95	1102.00	352.63	1022.00	323.16	942.00	310.53	862.00
20	332	6640	332	6800.00	340.00	980.00	-160.00	438.00	1260.00	390.00	1180.00	358.00	1100.00	342.00	1020.00
22	332	7304	332	9064.00	412.00	1292.00	-1760.00	528.36	1612.00	477.45	1532.00	441.09	1452.00	419.27	1372.00
23	332	7636	332	10442.00	454.00	1466.00	-2806.00	579.65	1806.00	527.48	1726.00	489.22	1646.00	464.87	1566.00
25	332	8300	332	13750.00	550.00	1850.00	-5450.00	694.40	2230.00	640.00	2150.00	598.40	2070.00	569.60	1990.00
26	332	8632	332	15704.00	604.00	2060.00	-7072.00	757.85	2460.00	702.46	2380.00	659.38	2300.00	628.62	2220.00
28	332	9296	332	20272.00	724.00	2516.00	-10976.00	896.86	2956.00	839.71	2876.00	794.00	2796.00	759.71	2716.00
30	332	9960	332	25800.00	860.00	3020.00	-15840.00	1052.00	3500.00	993.33	3420.00	945.33	3340.00	908.00	3260.00

21. Consider two perfectly competitive firms with the following marginal cost functions

$$MC(y_1) = 12 + 4y_1$$

$$MC(y_2) = 12 + y_2$$

where y_i is the output of the i th firm? What is the supply equation for firm 1?

a. $y_1 = \frac{1}{4}p - 12$

b. $y_1 = \frac{1}{2}p - 6$

c. $y_1 = p - 12$

d. $y_1 = \frac{1}{4}p - 3$

e. $y_1 = 2p - 24$

22. For the industry made up of the two firms in question 21, what is the industry supply equation?

a. $Q = y_1 + y_2 = 2p - 24$

b. $Q = y_1 + y_2 = \frac{5}{4}p - 15$

c. $Q = y_1 + y_2 = p - 15$

d. $Q = y_1 + y_2 = \frac{3}{4}p - 9$

e. $Q = y_1 + y_2 = \frac{3}{2}p - 18$

For questions 23-25, consider a monopolist with the following demand, cost, and marginal cost functions:

$$q = D(p) = 80 - \frac{1}{2}p$$

$$C(q) = 500 + 10q + q^2$$

$$MC(q) = 10 + 2q$$

23. What is the inverse demand function?
- a. $q = -80 + \frac{1}{2}p$
 - b. $p = 160 - 2q$
 - c. $p = 80 - \frac{1}{2}q$
 - d. $q = 160 + 2p$
 - e. $p = 80 - q$
24. What is marginal revenue for this monopolist?
- a. $MR = 80 - p$
 - b. $MR = 160 - 2q$
 - c. $MR = 160 - 4q$
 - d. $MR = 160 - q$
 - e. $MR = 160 + 4q$
25. How much output should the monopolist produce?
- a. 20
 - b. 25
 - c. 37.5
 - d. 30
 - e. 50

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Question	Correct Answer	# Right	Question	Correct Answer	# Right
1	d		14	a	
2	c		15	e	
3	b		16	c	
4	d		17	e	
5	e		18	c	
6	c		19	d	
7	d		20	c	
8	e		21	d	
9	d		22	b	
10	b		23	b	
11	d		24	c	
12	e		25	b	
13	c				