

Homework 3 – KEY

Average: 69.66 + 6pts GI bonus

Due on 30/1/2024, by 23:00

This assignment is optional but STRONGLY RECOMMENDED. If you do not submit the answers till the deadline, the score of your final exam will substitute for the score for this assignment. Submit only the correct letter for each task on eLearn under 'Quizzes' within 'COR2100-Economics and Society G7-8-9-10'. Note that the actual text of questions and answers is not supposed to appear on the eLearn quiz. You have unlimited attempts. The system is programmed to credit your last attempt. Be informed that if you submit an attempt and afterwards you re-open the quiz, you must submit your answers AGAIN. Otherwise, the system will grade the unfinished attempt with 0 (because it is the last one) and there is NOTHING I can do to fix this after the fact. Late homework or homework submitted outside eLearn cannot be accepted as this would violate SMU official policy for fairness and transparency in grading. This assignment is protected by Grade Insurance™: If the assignment's average turns out to be below 75, an equal amount of bonus points will be given to every work, for the average to become 75. Direct any homework questions to your TA.

1. Which of the following is most accurate about AC, AVC and MC curves in the short-run period?
- 23%A. MC intersects with both AC and AVC at their minimums, respectively. *[As explained in the lecture]*
 - B. AVC and AC never intersect. *[True since at each level of output they differ by an amount equal to AFC]*
 - 71%C. **Both A and B.**
 - D. None of the above.
- 2.* Which of the following will affect the MC of a transportation company?
- 43%A. **The price of fuel.** *[Will affect the cost of each extra unit]*
 - B. The purchase of a new vehicle. *[It is a fixed cost]*
 - 48%C. Both A and B.
 - D. None of the above.
- 3.✓ Which of the following products is most likely to be homogeneous among different sellers?
- 89%A. **Watermelons.**
 - B. Ice-cream.
 - C. Air-condition.
 - D. Cars.
- [Ice-cream, air-condition and cars are more likely to be heterogeneous, since consumers can easier find differences between different brands]*
4. Which of the following is most accurate about Nakas' short-run production?
- A. Around \$40.
 - 64%B. **Around \$100.**
 - 26%C. Around \$140.
 - D. Around \$180.
- [Nakas' variable cost is equal to $VC = C - FC = 70,000 - 20,000 = 50,000$. Thus, the firm's $AVC = VC/q = 50,000/500 = 100$ and $p = AVC = \$100$ is the lowest price above which the firm operates in the S-R]*

5. Which of the following is the LEAST likely to represent a firm's cost function?
- A. $C = 12 + q^2$.
 - B. $C = 100 + 4q$.
 - 40% C. $C = 6\sqrt{1 + q}$.
 - 55% D. $C = 20 + 25/q$.
[The variable part of the cost function must increase with q]
6. Which of the following is a sunk cost?
- A. The purchase of a Rolex. [You can sell the watch and recover its current value]
 - 65% B. An SMU tuition payment. [It is non-refundable or possible to resell]
 - 24% C. A Netflix subscription. [You can interrupt it at any moment]
 - D. The purchase of an engagement ring. [You can still return the ring and get your money back. Of course, this assumes that you will break up, but still]
7. Which of the following is considered to be a characteristic of a PC market?
- A. All sellers are price makers. [No, they are price takers]
 - 89% B. All sellers sell an identical product. [The product in PC market is homogeneous]
 - C. Buyers can influence the market price, while sellers cannot. [No, neither buyers nor sellers can influence the market price]
 - D. Sellers can freely enter the market, but they cannot exit. [No, PC market assume free entry and exit]
8. Suppose that due to rising interest rates, the monthly payment for a firm's long-term loan increases from \$2,000 to \$2,500. Which of the following is accurate?
- 63% A. AVC will remain constant.
 - 11% B. AVC will increase.
 - C. AVC will decrease.
 - 25% D. We have no sufficient information to determine whether AVC will change or not.
[Loan payments are fixed costs because they do not vary with production]
9. Electricity cost has increased by 20% in the last 3 months. Which of the following is NOT accurate for a producer of paper who uses electric paper mills?
- 78% A. FC will increase.
 - 20% B. VC will increase.
 - C. TC will increase.
 - D. AC will increase.
[The cost of electricity affects the cost of each unit of paper produced, thus it affects the VC, the AC and the TC]
10. Which of the following is true for a firm in the L-R, as long as LMC is below LAC curve?
- 83% A. The firm experiences Economies of Scale.
 - B. The firm experiences Dis-economies of Scale.
 - C. The firm experiences Constant Economies of Scale.
 - 11% D. We have no sufficient information to answer.
[As long as MC is below LAC curve, LAC is downward sloping]

11. ✓ Suppose that a firm is at the point where its marginal revenue is greater than its marginal cost. Which of the following is more accurate?

96%A. **The firm can earn greater profits by increasing its output.**

- B. The firm can earn greater profits by decreasing its output.
- C. The firm is losing money and must reduce its output.
- D. Firm is earning maximum profits and should not change its output level.

[As long as $MR > MC$ holds, the firm can increase its profits by increasing its production level, since each additional unit offers higher revenue than its cost]

12. Which of the following would increase the S-R market supply curve?

21%A. An increase in the number of firms. *[Output produced by new firms will be added to the current supply, thus increasing it]*

B. A technological innovation. *[This would increase output supplied at every price level]*

63%C. **Both A and B.**

D. None of the above.

Scenario 3.1: A tailor can produce 500 jackets with 5 different combinations of capital (K) and labor (L): (i) 25K and 8L; (ii) 20K and 10L; (iii) 14K and 16L.; (iv) 16K and 20L; or (v) 12K and 22L.

13. According to scenario 3.1, which of the following is accurate?

A. Combination (i) is economically more efficient than (ii). *[We cannot tell because (i) uses less L but more K than (ii)]*

B. Combination (ii) is economically less efficient than (iii). *[We cannot tell because (iii) uses less K but more L than (ii)]*

47%C. **Combination (iii) is economically more efficient than (iv).** *[Because (iii) can produce the same with less of both K and L]*

D. Combination (iv) is economically less efficient than (v). *[We cannot tell because (v) uses less K but more L than (iv)]*

39%E. All combinations are economically efficient. *[No, they are not!]*

14. ✓ According to scenario 3.1, if the per unit cost of capital is 70 and the per unit cost of labor is 50, which of the following combinations is the most economically efficient?

A. (i). *[Cost is $70 \cdot 25 + 50 \cdot 8 = \$2,150$]*

B. (ii). *[Cost is $70 \cdot 20 + 50 \cdot 10 = \$1,900$]*

93%C. **(iii).** *[Cost is $70 \cdot 14 + 50 \cdot 16 = \$1,780$]*

D. (iv). *[Cost is $70 \cdot 16 + 50 \cdot 20 = \$2,120$]*

E. (v). *[Cost is $70 \cdot 12 + 50 \cdot 22 = \$1,940$]*

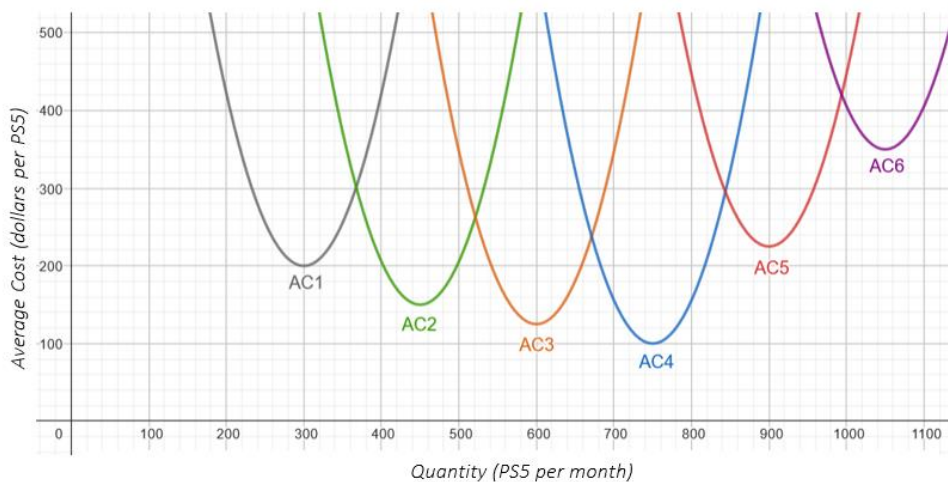


Figure 3.1: The S-R average cost curves for 6 different scales of production for Sony's production plants.

15. According to figure 3.1, how much is Sony's long-run average cost if the output is 500 PS5 per month?

- 55%A. Around \$150.
- 43%B. Around \$200.
- C. Around \$250.
- D. Around \$300.
- E. Around \$350.

[The L-R average cost curve can be thought as the lower envelope of all scales of production. So, from the AC2 and AC3 we can see that in the scale of 500 PS5 per month, the corresponding price is around \$150 per console]

16. Suppose that Sony is using scale AC1 in figure 3.1 and later turns out that the monthly demand is 400 PS5. Which of the following is true?

- A. The firm experiences Constant Returns to Scale.
- B. The firm experiences Increasing Returns to Scale.
- 80%C. The firm experiences Diminishing Returns to Scale.
- D. None of the above.

[400 consoles are at the increasing segment of AC1]

17. Suppose that Sony is using scale AC3 in figure 3.1 and later turns out that the monthly demand is 800 PS5. Which of the following is true?

- 52%A. The firm experiences Dis-economies of Scale.
- B. The firm experiences Constant Economies of Scale.
- C. The firm experiences Economies of Scale.
- 38%D. None of the above.

[LAC envelopes from below the AC for all possible scales of production. Thus, the monthly demand of 800 consoles lies on the increasing segment of LAC. The LAC to which economies of scale pertain, still exists in the short-run]

18. According to figure 3.1, which of the following could explain the LAC between 500 and 600 PS5 per month?

- 22%A. Sony can buy large quantities of semiconductors at a discount price.
- B. Sony can hire specialized workers around the world.
- 68%C. Both A and B.
- D. None of the above.

[At this levels of production Sony faces Economies of Scale. By hiring specialized workers or buying large quantities of some raw materials at a lower price, Sony could indeed decrease its LAC]

q	MC	AC
1	25	35
2	19	27
3	18	24
4	24	24
5	34	26
6	44	29
7	57	33

Table 3.1: quantity (q), MC and AC for a PC firm

19. Refer to table 3.1. If the fixed cost of the firm is \$10 and the market price is \$18, which of the following is most likely for this firm if cost conditions do not change?

24%A. To keep operating.

50%B. To shut-down immediately.

22%C. To shut-down in the long-run.

D. We need information about firm's fixed cost to answer.

[At the price of \$18, the firm will produce 3 units. From the table below, we can see that the firm cannot cover its AVC, so it will exit the market in the short-run]

q	MC	C	VC	AC	AVC
1	25	35	25	35	25
2	19	54	44	27	22
3	18	72	62	24	20.67
4	24	96	86	24	21.5
5	34	130	120	26	24
6	44	174	164	29	27.33
7	57	231	221	33	31.57

20. Refer to Table 3.1. At the market price is \$57, how much is the profit for the firm?

A. Around \$100.

B. Around \$125.

11%C. Around \$150.

70%D. Around \$175.

10%E. Around \$200.

[At $p = 57$, the firm will produce 7 units and its profit will be $(p - AC) \cdot q = (57 - 33) \cdot 7 = 168$]