SMU
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Homework 3 – KEY

Average: 87.99 + 0pts GI bonus

Due on 4/2/2025, by 23:00

The tasks in this assignment were designed for the average student to solve independently after mastering the material. The answers provided here are written in an instructional manner to help you understand the problem-solving process for each task. If you continue to struggle with a task after reviewing this key, the difficulty may stem not from the task itself, but from having missed or overlooked some parts of the required material.

1✓ Which of the following is most likely to be a sunk cost for Starbucks?

90%**A. Employee uniforms with their name printed on them.** *[If the employee quits, their uniform cannot be repurposed]*

B. The cost of a coffee machine. *[It can be resold as used]*

C. Accounting service. *[It is a variable cost]*

D. The water bill. *[It is also a variable cost]*

2✓ Which of the following is the case in a PC market?

A. Bigger firms can influence the market price, while smaller cannot. *[All firms are price-takers in PC]*

B. Small firms must sell their product at a lower price to keep operating in the long-run. *[Price is the same for everyone in PC]*

C. Older firms can maintain positive profits even in the long-run. *[Entry or exit bring L-R profits to zero for everyone]*

94%**D. None of the above.**

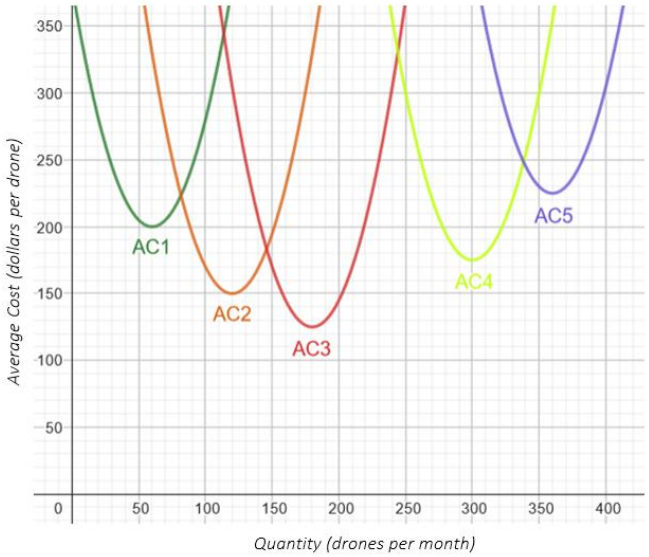

Figure 3.1: The S-R average cost curves for 5 different scales of production for a firm that produces drones.

3✓ According to figure 3.1, over which of the following ranges of production does the firm face dis-economies of Scale?

A. From 0 to 75 drones per month.

B. From 75 to 125 drones per month.

16%C. From 125 to 225 drones per month.

76%**D. From 225 to 300 drones per month.**

[Economies and dis-economies are relevant to the L-R AC (LAC), which is traced by the S-R AC minimums. Above 225 units, LAC increases, which means that the firm faces dis-economies of Scale]

4. ✓ According to figure 3.1, which of the following could explain the LAC between 50 and 150 units?

   A. Ineffective communication between managers and employees. *[This could explain the upward sloping part of LAC]*

   95% **B. The firm enjoys quantity discounts for raw materials.** *[Could explain why LAC decreases]*

   C. The firm has more profits. *[We cannot tell by looking at its average costs]*

   D. The firm pays higher salaries to newly hired workers. *[LAC does not indicate this]*

5. ✓ A firm can produce 10,000 backpacks with 3 alternative combinations of capital (K) and labor (L): (i) 120K and 60L; (ii) 100K and 70L; (iii) 80K and 50L; Which of the following is accurate?

   A. All combinations are efficient.

   B. Only combination (i) is inefficient.

   C. Only combination (ii) is inefficient.

   D. Only combination (iii) is inefficient.

   83% **E. Combinations (i) and (ii) are inefficient.** *[Combinations (i) and (ii) can produce as much output as (iii) but requiring more K and more L]*

   F. Combinations (i) and (iii) are inefficient.

   G. Combinations (ii) and (iii) are inefficient.

6. ✓ Which of the following indicates technological improvement?

   A. Producing more output with less labor but with the same capital.

   B. Producing more output with the same labor but with less capital.

   C. Producing more output with the same labor and with the same capital.

   91% **D. All of the above.** *[Technological improvement is to be able to produce more output with the same or less production factors]*

7. ✓ Which of the following products is most likely to be homogeneous among different sellers?

   97% **A. Apples.**

   B. Bicycles.

   C. Mobile phones.

   D. Robot vacuums.

   [Bicycles, mobile phones and robot vacuums are more likely to be heterogeneous, since consumers can easier find differences between different brands]

8. ✓ Which of the following should be taken into account when a firm chooses its profit maximizing quantity?

   13% A. Fixed cost.

   B. Sunk cost.

   C. Both A and B.

   83% **D. None of the above.**

   [Fixed costs do not affect the MC; thus, they cannot affect the $MC = MR$ condition]

q	MC	VC
1	30	30
2	26	56
3	20	76
4	24	100
5	30	130
6	42	172
7	53	225

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

9. ✓ Refer to table 3.1, which of the following is most likely for the firm If the market price is $24?

A. To keep operating indefinitely.

86% **B. To shut down immediately.**

C. To exit the market in the long-run.

[At the price of $24, the firm will produce 4 units. $AVC = 100/4 = 25 > \mathrm{p}$, so the firm will shut down immediately]

10. ✓ Refer to table 3.1. Which of the following is most likely for this firm if the fixed cost is $30 and the market price is $30?

16% A. To keep operating indefinitely.

B. To shut-down in the short-run.

75% **C. To exit the market in the long-run.**

[When $\mathrm{p} = 30$, the firm will produce 5 units. $AVC = 130/5 = 26$. Total cost is $C = VC + FC = 130 + 30 = 160$. Average total cost is $AC = 160/5 = 32$. Thus, $\mathrm{AVC} < \mathrm{p} < \mathrm{AC}$, so the firm will stay in business in the S-R but will shut down in the L-R]