Question 1
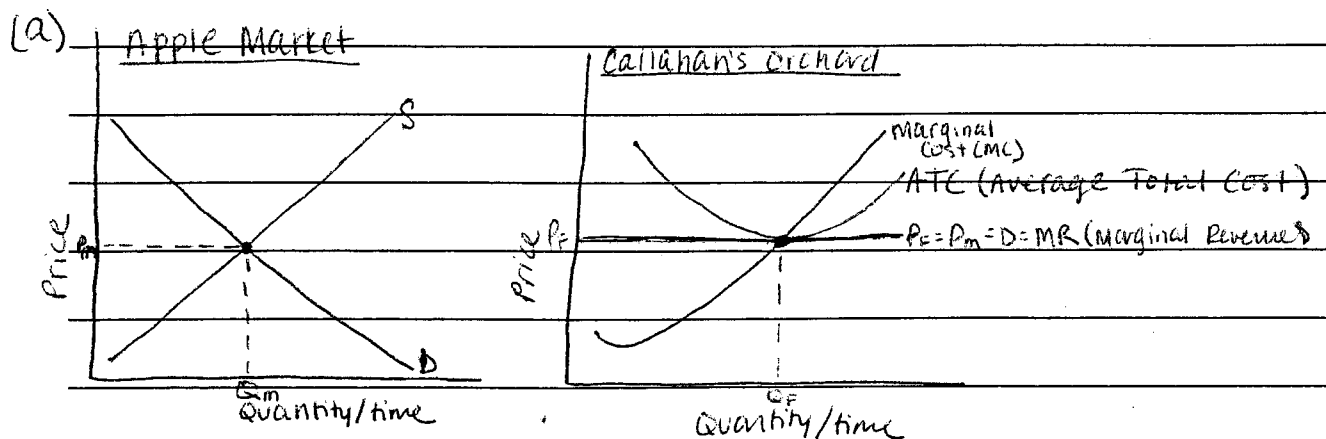
12 points (4 + 4 + 4)

(a) 4 points:
- One point is earned for a correctly labeled graph of the apple market, with P_M and Q_M properly indicated.
- One point is earned for showing that the firm's price equals the market price.
- One point is earned for the tangency of flat firm demand (P_F) and ATC.
- One point is earned for Q_F where MR (P) = MC.

(b) 4 points:
- One point is earned for concluding that the lump-sum subsidy will have no impact on Callahan's output.
- One point is earned for explaining that the lump-sum subsidy will not affect MC (or MR).
- One point is earned for concluding that Callahan's profit will increase.
- One point is earned for concluding that the number of firms in the industry will not change.

(c) 4 points:
- One point is earned for concluding that the number of firms in the industry will increase.
- One point is earned for explaining that the existence of profits attracts new firms.
- One point is earned for concluding that the price will fall.
- One point is earned for concluding that industry output will increase.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

#1   1A,

(a)

Apple Market

Callahan's Orchard

(i) The market output & price occur where Supply intersects with demand.

(ii) Callahan's ~~output~~ price occurs at the market price because it is in a perfectly competitive market & is a price taker. Its quantity occurs where its marginal revenue, equal to price, equals its marginal cost.

(b)(i) Callahan's quantity of output would not change. Because the subsidy was given in a lump sum, it does not shift the marginal cost curve. Therefore, the intersection & profit maximizing out where Marginal cost equals marginal revenue occurs at the same point.

(ii) In the Short run, Callahan will make an economic profit. The subsidy will shift the Average Total Cost (ATC) curve down. The price will then exceed ATC at Q_F, output quantity. This is shown in the following graph. →

Callahan's Orchard
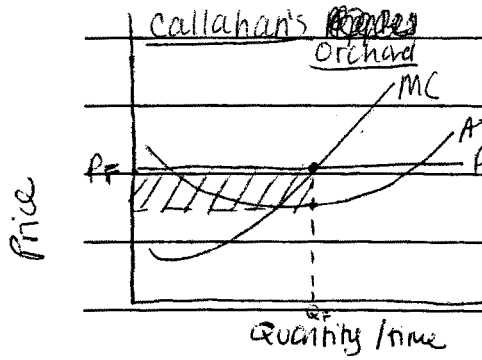
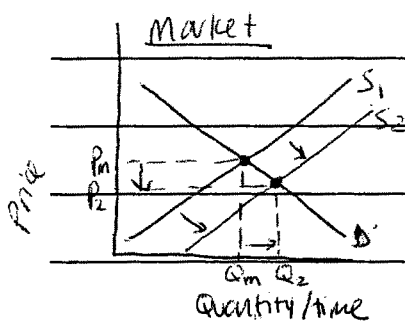The economic profit is represented by the shaded region, and is the product of (price − ATC) × Q_F.

(iii) Because in the short-run there are fixed costs and firms cannot enter/exit an industry but only use existing plants more/less intensively, no new firms will enter and the number of firms in the industry in the short run will remain the same.

(c)(i) In the long run, firms will enter the industry, drawn in by the economic profits being made.

(ii) When new firms enter, market supply increases, as shown in the graph below, from S₁ to S₂. This causes the market price, Pm, to decrease to P₂. Because firms are price takers, their prices will fall & they will only make a normal profit in the long run.

(iii) Industry output increases, from Qm to Q₂ in the above graph.

Write in the box the number of the question you are answering
on this page as it is designated in the exam.

1

1 B₁

a)

Apple Market   Callahan's Firm
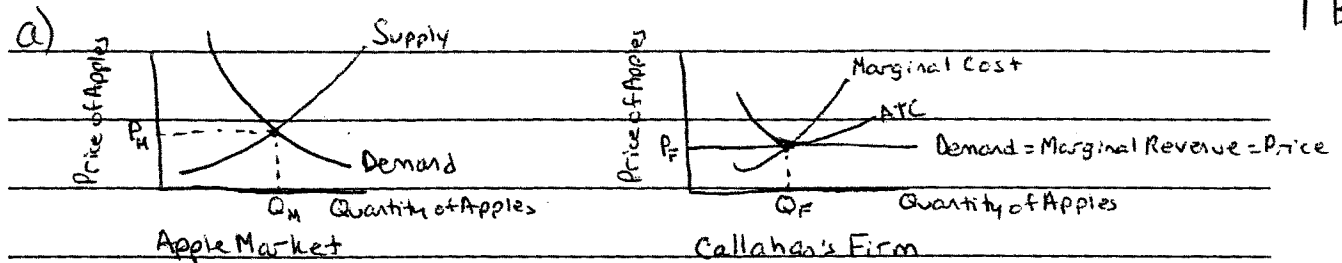
b) (i) With an annual subsidy to apple growers, farmers* in
        this industry would have decreased resource costs. This
        equates to a decrease in marginal cost and so Callahan's
        MC (marginal cost) curve shifts to the right with a subsidy.
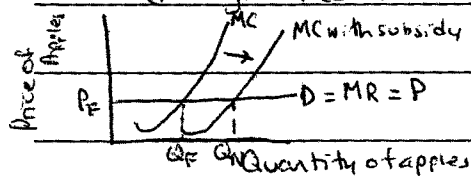
        So Callahan's quantity of output
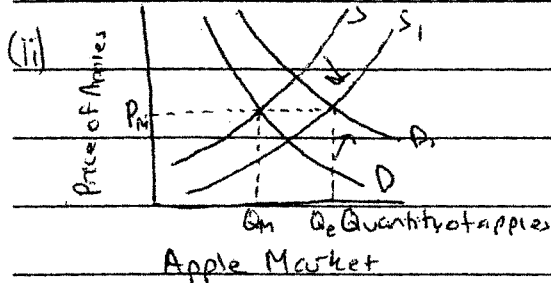   increases from Q_F to Q_N.

    (ii) Profits come from Price × Quantity and because
          of an increase in quantity for Callahan's firm,
          Callahan's profit will increase.

    (iii) On the market side ~~with less resource costs~~ the short
          run is a time too short for firms to change to another
          industry and so the number of firms remains constant.

1

Write in the box the number of the question you are answering
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1 B₂

c)

(i) Firms see that there are less resource costs in the industry
for apple farmers with the subsidy and because resource
costs are a determinant of supply, supply increases
  ^firms enter,
with an increased number of firms in the industry.

(ii)

Price of Apples

P_M

Q_M Q_e Quantity of apples

Apple Market

The price ~~increases~~ at market
   is
equilibrium in the end.

With an increase in supply price
decreases and demand as a result
rises from D to D₁. At this point
the industry is back to equilibrium
and the price has returned to
the market equilibrium price, P_M.

(iii) With the increase in supply and demand Quantity of apples
have increased from Q_M to Q_e and so industry
output has increased.

Write in the box the number of the question you are answering on this page as it is designated in the exam.

| 1 |

1C₁

MARKET   FIRM

PRICE   PRICE

Pₘ = MC

                    Qₘ   QUANTITY   QF   QUANTITY
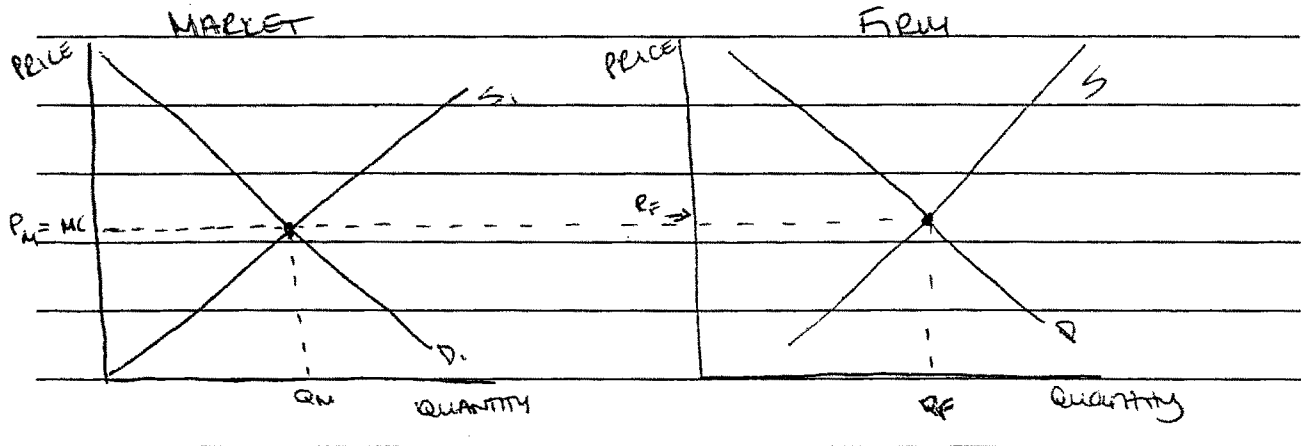
Now that the government granted a lump-sum subsidy to all apple growers, there is a chance that Callahan's output & profit will increase or decrease. If Callahan is known for his apples & consumers really like his produce, then his output will increase. If his output increases then his profit will also increase. More consumers will purchase his apples now that he has a greater advantage. However, if consumers weren't too pleased with his apples & other apple growers were given a chance to step into the market, they may try someone new. In this case, Callahan's output & price will decrease. There will not be as many customers as before. Since the government granted a subsidy to all apple growers, firms may enter into the market now, meaning more competition. In the long-run, firms who aren't making enough profit because consumers aren't purchasing from

| 1 |

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1 C₂

them may not enter in the short-run because they would have to exit in the log-run. When exiting in the long-run, they might face an economic loss. If more firms exit the industry, ~~price~~ price will increase because there will not be as much competition + other firms can charge, more in order to make a profit. Depending on how many firms are left + how ~~much to~~ many apples are demanded, the industry output can increase or decrease.

AP® MICROECONOMICS
2008 SCORING COMMENTARY

Question 1

Overview

The question asked students to draw diagrams of a perfectly competitive firm and a market in long-run equilibrium and to determine the effect of a lump-sum subsidy in the short run and in the long run.

Sample: 1A
Score: 12

All parts are correctly answered.

Sample: 1B
Score: 7

The student lost a point in part (a)(i) for failing to show that the market price is equal to the firm's price. In part (b)(i) the student lost the first point for incorrectly asserting that the lump-sum subsidy causes output to increase in the short run and the second point for an incorrect explanation. The student lost a point in part (c)(i) for failing to explain that profits cause the increase in the number of firms and a point in part (c)(ii) for incorrectly asserting that price does not change in the long run.

Sample: 1C
Score: 2

In part (a)(i) the student earned the first point for a correctly labeled graph of the apple market and the second point for indicating that the firm's price is equal to the market price.