Question 3

6 points (2 + 2 + 2)

(a) 2 points:

One point is earned for stating "false."

One point is earned for explaining that the difference between ATC and AVC is AFC, which decreases as a firm's output increases.

(b) 2 points:

One point is earned for stating "false."

One point is earned for the explanation that the profit-maximizing output occurs where P = MC, which might be to the right or to the left of the lowest point on the ATC curve.

(c) 2 points:

One point is earned for stating "false."

One point is earned for the explanation that if the firm shuts down in the short run, its losses from operating must be larger than (or equal to) its total fixed costs OR price must be less than AVC, so it is incurring a loss.

3

Write in the box the number of the question you are answering on this page as it is designated in the exam. 3A 1

a) False.

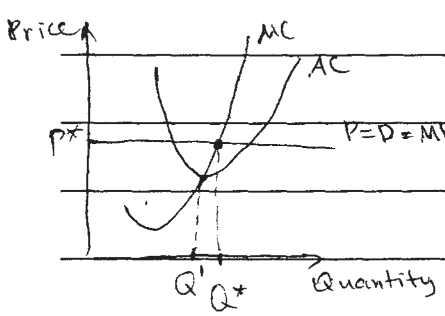
Average total cost equal average variable cost plus average fixed cost. Average fixed cost equal Fixed cost divided by the level of Output. Fixed costs are ~~aln~~ always constant while level of output changes. Thus Average fixed cost is not a constant amount and this first statement is wrong

False b) Average total cost is at minimum where they intersect with Marginal cost curve.

On the other hand perfectly competitive firm maximizes profit in the SR when Price equals Marginal cost.

It is not necessary for price to be equal to Average total cost, it may be but it is a particular situation and thus happens not always.

The given statement is true for the long run, but in the short run it is also false.



The graph of a perfectly compet. firm in the SR

Q^* - profit-maximizing output

Q' - ~~output~~ ATC-minimizing output

$Q^* \neq Q'$

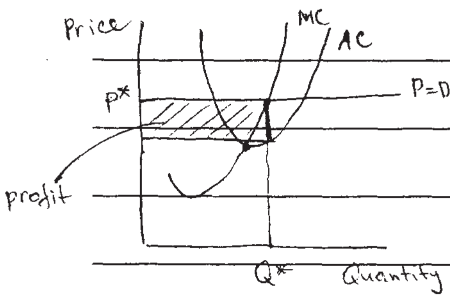
Write in the box the number of the question you are answering on this page as it is designated in the exam.

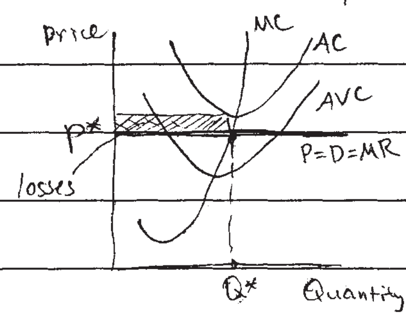
3

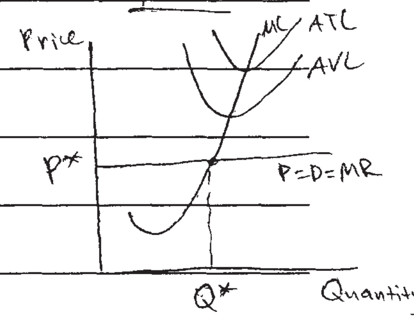
3A2

c) The condition for firms to shut down is
$P < AVC$

The firm~~s~~ ~~receiv~~ recieves zero profit where $P = ATC$
As $ATC > AVC$, firm may receive zero and even negative profit but still operate in the market
Thus, the statement ~~is false~~ that if a firm shuts down in the SR, its profits will equal zero is false.







$P > ATC \Rightarrow$ firm makes a profit

$AVC < P < ATC$
negative profit but a firm still stays in the market

$P < AVC$
negative profit, a firm leaves the industry

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3B

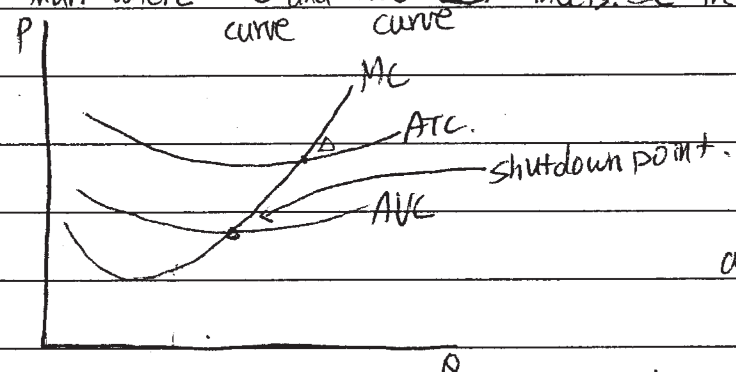
(a) "Average total cost is always greater than average variable cost by a constant amount." This statement is true because ~~A~~Average total cost is comprised ~~of~~ average variable cost and average fixed cost.

The formula would be like this: ATC = AVC + AFC.

As AFC cannot be negative number ATC is always greater than AVC by a ~~cost~~ constant amount of average fixed cost.

(b) "In the short run a perfectly competitive firm always maximizes profit when average total cost (ATC) is at minimum." This statement is false because in short run, perfectly competitive market go through trial and error. In short run supply cannot fully adjust to the demand.

(c) "If a firm shuts down in the short run, its profits will equal zero." This statement is false. The shut-down point is when price is smaller than where MC curve and AVC ~~cost~~ curve meets. (see the graph below).



~~If pr~~

△ profit equal zero point is where MC curve and ATC (average total cost) intersect).

under that point of △ the firm's profit is negative.

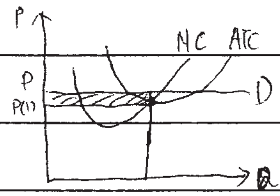
Write in the box the number of the question you are answering on this page as it is designated in the exam.

3

3C

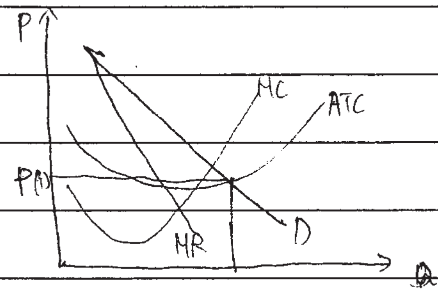
(a) True ; average total cost (ATC) = average variable cost (AVC) + $\underbrace{\text{average fixed cost (AFC)}}$
↳ constant amount

(b) True



since price is already settled. as ATC gets smaller, the profit will increase

(c)
False



At P(1), since the price = ATC, profit will be zero. However, the firm should keep producing when P = ATC, but it should shut down when P < ATC.

Question 3

Sample: 3A
Score: 6

The student earned all points in this question.

Sample: 3B
Score: 3

The student lost both points in part (a) for an incorrect conclusion and explanation. The student lost 1 point in part (b) because there is no explanation that the profit-maximizing output occurs where P = MC, which can occur to the right or left of the lowest point of the average total cost curve in the short run.

Sample: 3C
Score: 1

This is a poor response. The student answers parts (a) and (b) incorrectly. In part (c) 1 point was earned for the correct conclusion of false, but the explanation point was not earned because the short-run shut-down point is described as P < ATC rather than P < AVC.