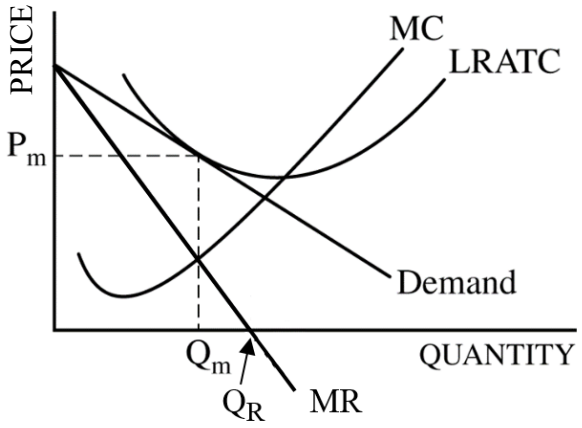
AP® MICROECONOMICS
2016 SCORING GUIDELINES

Question 3

6 points (4+1+1)



(a) 4 points:

- One point is earned for drawing a correctly labeled graph showing a downward sloping demand curve with MR curve below the demand curve.
- One point is earned for showing the quantity, Q_m, at MC=MR
- One point is earned for showing the price, P_m, on the demand curve above Q_m
- One point is earned for showing the long-run average total cost tangent to the demand curve at Q_m.

(b) 1 point:

- One point is earned for showing Q_R at MR=0.

(c) 1 point:

- One point is earned for stating that firms in this market are experiencing economies of scale in long-run equilibrium because **LRATC** is decreasing OR because Q_m is to the left of the minimum point of the LRATC.

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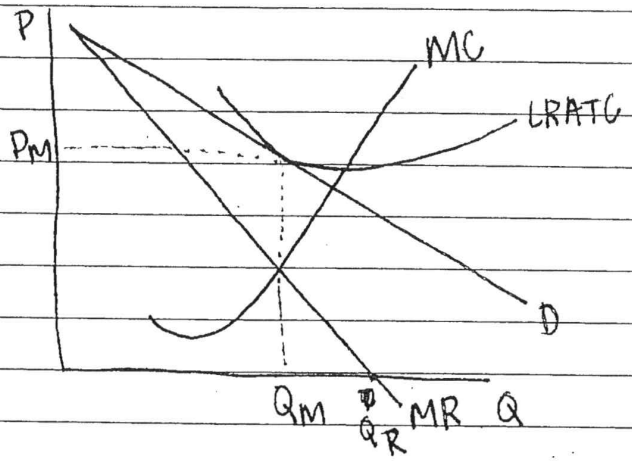
ANSWER PAGE FOR QUESTION 3

a.



b. Where MR = 0

c. economies of scale because LRATC is decreasing at the level of output. This means ATC will decrease with the addition of extra output

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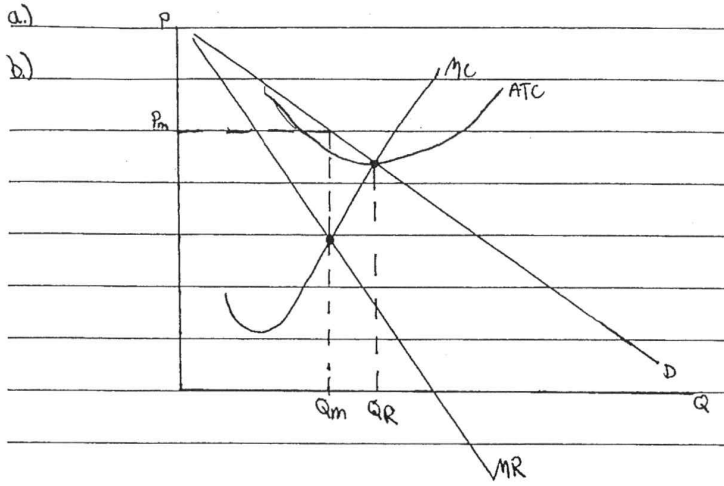
ANSWER PAGE FOR QUESTION 3

3B

a.)

b.)



c.) They experience neither in long-run equilibrium because MR = MC.

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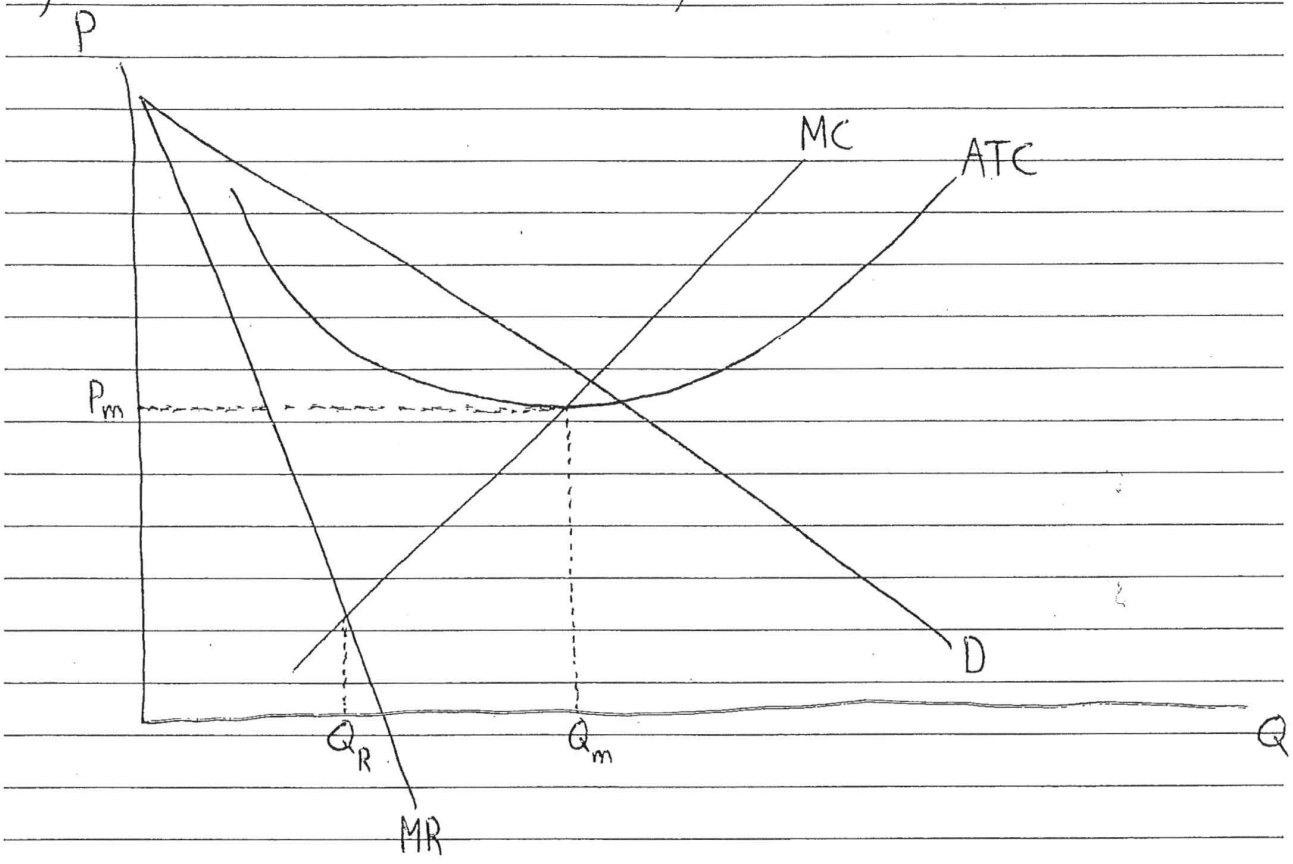
3C

ANSWER PAGE FOR QUESTION 3

a) Camden's Cakery



b) done in graph

c) Firms in this market experience

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AP® MICROECONOMICS
2016 SCORING COMMENTARY

Question 3

Overview

This question assessed students' ability to analyze a firm in a monopolistically competitive market in long-run equilibrium, as well as the concept of economies and diseconomies of scale. Although students were not asked to identify in which market the firm operates, recognizing that it was a monopolistically competitive market was necessary for the correct firm graph in part (a). Students were asked to draw a correctly labeled graph showing a demand curve, marginal revenue curve, marginal cost curve, and a long-run average total cost curve, as well as the profit-maximizing output and price. Items required in part (a) tested for understanding: 1) that the typical monopolistically competitive firm has a downward sloping demand curve with the marginal revenue curve below the demand curve; 2) that the long-run average total cost curve is tangent to the demand curve at the profit-maximizing quantity in long-run equilibrium; and 3) how the typical monopolistically competitive firm determines its profit-maximizing output and price. In part (b) students used the graph they drew in part (a) to identify the output at which total revenue was maximized. In part (c) students were asked if firms in that market experience economies of scale, diseconomies of scale, or neither in long-run equilibrium and then explain their answer. Part (c) tested whether students understand what happens to the firm's average total costs in the long run.

Sample: 3A
Score: 6

The student answers all parts of the question correctly and earned all the points.

Sample: 3B
Score: 3

The student did not earn 1 point in part (a) for not drawing the long-run average total cost curve tangent to the demand curve at Q_m.The student did not earn 1 point in part (b) for incorrectly showing output, Q_R, at the intersection point of marginal cost (MC) and average total cost (ATC), not where marginal revenue (MR) equals zero. The student did not earn 1 point in part (c) for incorrectly stating that firms in this market are experiencing neither economies of scale nor diseconomies of scale in the long-run equilibrium.

Sample: 3C
Score: 1

The student earned 1 point in part (a) for correctly drawing a downward sloping demand curve with a MR curve below the demand curve.

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