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.
5 points (1 + 2 + 2)

(a) 1 point:
• One point is earned for defining marginal utility as the extra satisfaction received from consuming an additional unit of a good or service.

(b) 2 points:
• One point is earned for concluding that Mandy should purchase more fudge and less coffee.
• One point is earned for explaining that the per dollar MU for fudge is greater than the per dollar MU for coffee.

(c) 2 points:
• One point is earned for stating that the price elasticity of demand for good R is zero.
• One point is earned for stating that none of the tax will be paid by the seller of good R, or that buyers pay all of the tax.
Question 3

7 points (3 + 4)

(a) 3 points:
• One point is earned for a correctly labeled supply and demand graph with a price ceiling indicated below the market equilibrium.
• One point is earned for correctly labeling $Q_A$.
• One point is earned for correctly labeling $Q_B$.

(b) 4 points:

(i) 2 points:
• One point is earned for identifying $Q_1$ as the profit-maximizing output.
• One point is earned for identifying $Q_3$ as the socially efficient output.

(ii) 2 points:
• One point is earned for recognizing that at $Q_3$, the monopolist incurs a loss.
• One point is earned for identifying the area of loss, $P_1P_3DF$. 