Question 1

10 points \((2 + 2 + 1 + 3 + 1 + 1)\)

(a) 2 points:
- One point is earned for identifying the profit-maximizing output, \(Q_2\), and explaining that \(MC=MR\) at \(Q_2\).
- One point is earned for identifying \(P_5\) on the demand curve above \(MC = MR\).

(b) 2 points:
- One point is earned for identifying the revenue-maximizing output, \(Q_3\), and explaining that since \(MR\) is zero at \(Q_3\), \(TR\) is at the maximum.
- One point is earned for identifying \(P_3\) as the price corresponding to \(Q_3\).

(c) 1 point:
- One point is earned for identifying the price the government would require, \(P_1\), and the allocatively efficient output, \(Q_4\).

(d) 3 points:
- One point is earned for stating that the firm would incur a loss.
- One point is earned for the explanation that \(ATC\) is greater than the price, \(P_1\).
- One point is earned for identifying the area of loss, \(P_1P_2\) eg.

(e) 1 point:
- One point is earned for identifying the consumer surplus, \(P_1P_7\) eg.

(f) 1 point:
- One point is earned for identifying the price, \(P_3\).
Question 2

6 points \((3 + 1 + 2)\)

(a) 3 points:
- One point is earned for the correctly labeled graph with \(Q_m\) and \(P_m\) correctly identified.
- One point is earned for correctly identifying \(Q_s\).
- One point is earned for shading the area of the deadweight loss.

(b) 1 point:
- One point is earned for stating that the MSC is less than the marginal social benefit.

(c) 2 points:
- One point is earned for stating that the tax will increase the deadweight loss.
- One point is earned for the explanation that the tax raises the cost and causes output of vaccine to fall.
Question 3

7 points \(1 + 1 + 1 + 1 + 1 + 2\)

(a) 1 point:
- One point is earned for stating the second worker.

(b) 1 point:
- One point is earned for stating the MP of the fifth worker is five units.

(c) 1 point:
- One point is earned for calculating the MRP of the third worker: $20.

(d) 1 point:
- One point is earned for stating the GW will hire four workers.

(e) 1 point:
- One point is earned for calculating the profit: $2.

(f) 2 points:
- One point is earned for stating that more workers will be hired.
- One point is earned for the explanation that the increase in the price of hats raises the marginal revenue product, hence the demand for labor.