

$$Q^d = 2000 - 10P$$

(1) 廠商短期供給

$$STC = q^2 + 50q + 100$$

40家

$$MC = 2q + 50$$

$$AVC = q + 50 < MC \rightarrow q > 0$$

$$P = MC = 2q + 50$$

$$q = \frac{P}{2} - 25, q > 0$$

(2) 市場供給

$$Q^S = \sum_{i=1}^{40} q = 40 \left(\frac{P}{2} - 25 \right) = 20P - 1000$$

(3) 均衡 P, Q

$$Q^d = Q^S \Rightarrow 2000 - 10P = 20P - 1000 \Rightarrow P = 100, Q = 1000$$

(4) 最適 Q, π

$$q = \frac{P}{2} - 25 = \frac{100}{2} - 25 = 25$$

$$\pi = Pq - STC = 2500 - 1975 = 525$$

收入 - 成本

$$2. Q^d = 3500 - 10P$$

(1) 廠商短期供給, STC 不變, 同上題

(2) 市場供給, 同上

(3) 均衡 P, Q

$$Q^d = Q^S \Rightarrow 3500 - 10P = 20P - 1000 \Rightarrow P = 150, Q = 2000$$

(4) 最適 Q, π

$$q = \frac{P}{2} - 25 = \frac{150}{2} - 25 = 50$$

$$\pi = Pq - STC = 7500 - 5100 = 2400$$

$$3. STC = q^2 + 80q + 300$$

(1) 廠商短期供給

$$P = MC = 2q + 80 \Rightarrow q = \frac{P}{2} - 40$$

(2) 市場供給

$$Q^S = \sum_{i=1}^{40} \left(\frac{P}{2} - 40 \right) = 20P - 1600$$

(3) 均衡 P, Q

$$Q^d = Q^S \Rightarrow 2000 - 10P = 20P - 1600 \Rightarrow P = 120, Q = 800$$

(4) 最適 Q, π

$$q = \frac{P}{2} - 40 = \frac{120}{2} - 40 = 20$$

$$\pi = Pq - STC = 2400 - 2300 = 100$$

$$1. Q^d = 2000 - 10P$$

$$STC = q^2 + 50q + 100$$

$$2. Q^d = 3500 - 10P \quad \text{需求} \uparrow$$

$$P = 100 \rightarrow 150$$

$$q = 25 \rightarrow 50$$

$$Q = 1000 \rightarrow 2000$$

$$\pi = 525 \rightarrow 2400$$

$$3. STC = q^2 + 80q + 300 \quad \text{成本} \uparrow$$

$$q = \frac{P}{2} - 25 \rightarrow \frac{P}{2} - 40$$

$$Q^S = 20P - 1000 \rightarrow 20P - 1600$$

$$P = 100 \rightarrow 120 \quad q = 25 \rightarrow 20$$

$$Q = 1000 \rightarrow 800 \quad \pi = 525 \rightarrow 100$$