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空白光碟製造產業為一完全競爭市場，甲為40家廠商中一家

消費者需求函數： $Q^d = 2000 - 10p$

設製造商技術水準相同短期生產成本為： $STC = q_i^2 + 50q_i + 100$

① 廠商短期供給曲線

$$MC = 2q_i + 50 \Rightarrow AVC < MC = q_i + 50 < 2q_i + 50 \Rightarrow q_i > 0$$

$$AVC = q_i + 50 \quad P = MC = 2q_i + 50 \Rightarrow q_i = \frac{P}{2} - 25$$

$$A: q_i = \frac{P}{2} - 25, q_i > 0$$

② 市場供給曲線

$$Q^s = 40 \left(\frac{P}{2} - 25 \right) = 20P - 1000$$

③ 市場均衡 p^*, Q^* ?

$$Q^s = Q^d \quad 20P - 1000 = 2000 - 10P$$
$$30P = 3000$$
$$P^* = 100 \quad Q^* = 1000$$

④ 廠商最適產量與利潤 (π)

$$q_i = \frac{100}{2} - 25 = 25 \Rightarrow AC = q_i + 50 + \frac{100}{q_i} = 79$$

$$\pi = 100 \times 25 - 79 \times 25 = 525 \quad \text{最適產量: } 25, \pi = 525$$

市場需求對短期均衡的影響

① 廠商短期供給曲線

$$MC > AVC$$

$$2q_i + 50 > q_i + 50$$

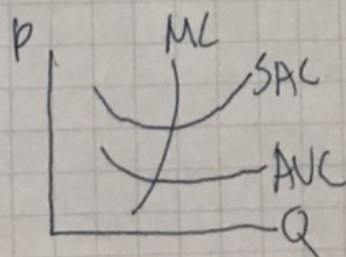
$$q_i > 0$$

$$P = MC = 2q_i + 50$$

$$\Rightarrow q_i = \frac{P}{2} - 25$$

② 市場供給曲線

$$Q^s = 40 \left(\frac{P}{2} - 25 \right) = 20P - 1000 \quad A = 20P - 1000$$



③ 市場均衡 P^*-Q^*

$$20P - 1000 = 3500 - 10P$$

$$30P = 4500$$

$$P^* = 150$$

$$Q^* = 2000 \quad \#$$

④ 廠商最適產量與利潤(元)

$$Q_1 = \frac{P}{2} - 25 = \frac{150}{2} - 25 = 50$$

$$AC = Q_1 + 50 + \frac{100}{Q_1} = 102$$

$$\pi = TR - TC$$

$$= 150 \times 50 - 102 \times 50$$

$$= 7500 - 5100$$

$$= 2400$$

最適產量 50

$$\pi = 2400 \quad \#$$