

3. A, 技術之成本函數 (TCA) = 生產成本 + 權利金成本

$$\text{生產成本} = q = \frac{L}{2} = \frac{k}{4} \Rightarrow L = k \quad k = 4q \Rightarrow C = 1 \times 2q + 2 \times 4q = 8q$$

$$TCB = 8q + 100$$

(B) $q=20$, $TC_A \Rightarrow 240$ $TC_B \Rightarrow 60$ 故買 A

(C) $q=40$ $TC_A=440$ $TC_B=420$ 故買 B

(D) 令 $TC_A < TC_B$ 則 $q < 30$ 買 A

4. 生產函數 $q = 10L^{0.5}K^{0.5}$ A $w=r=10$

$$(A) \quad q = 10L^{0.5}K^{0.5} \rightarrow L^* = \frac{q^2}{10K}$$

$$STC = 10L^* + 10K = \frac{q^2}{10K} + 10K$$

$$AC = \frac{q}{10K} + \frac{10K}{q}, \quad MC = \frac{q}{5K}$$

$$(B) \quad \frac{\partial STC}{\partial K} = \frac{-q^2}{10K^2} + 10 = 0 \Rightarrow K^2 = \frac{q}{10} \quad \text{it's } STC$$

$$TC = STC(K = \bar{K}) = \frac{q^2}{10 \times \frac{q}{10}} + 10 \times \frac{q}{10} = q + q \Rightarrow q$$