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③、(A). 技術之成本函數 (T(A)) = 生產成本 + 權利

生產成本. $q = \frac{L}{2} = \frac{K}{4} \Rightarrow K = 4q \Rightarrow C = 1\times 2q + 2\times 4q = 10q$

$T_{CA} = 10q + 40$ #

$q = \frac{L}{4} = \frac{K}{2} \Rightarrow L = 4q, K = 2q \Rightarrow C = 1\times 4q + 2\times 2q = 8q$

$T_{CB} = 8q + 100$ #

(B) $q = 20$　$T_{CA} = 240$　$T_{CB} = 260$　應買A技術.

(C) $q = 40$, $T_{CA} = 440$　$T_{CB} = 420$　應買B技術.

(D) 令 $T_{CA} < T_{CB}$, 則 $q < 30$ 買A技術

④.

生產函數 $q = 10L^{0.5}K^{0.5}$, 且 $W = r = 10$

(A) $q = 10L^{0.5}K^{0.5} \rightarrow L^* = \frac{q^2}{100K}$

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

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

(B) $\frac{\partial STC}{\partial K} = \frac{-q^2}{10K^2} + 10 = 0 \Rightarrow K^2 = \frac{q}{10}$, 代入 STC

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