二、

④

(A). $q = 10L^{0.5}K^{0.5} \Rightarrow L^* = q^2/100k$

$STC = 10L^* + 10k = (q^2/10k) + 10k$

$AC = (q/10k) + (10k/q)$ $MC = q/5k$

(B) $\frac{\partial STC}{\partial k} = \frac{-q^2}{10k^2} + 10 = 0 \Rightarrow k^2 = \frac{q}{10}$ 代 STC 函式又

$TC = STC(k=k^2) = \frac{q^2}{10\cdot(\frac{q}{10})} + 10\frac{q}{10} = q + q = 2q$

②

(A) $AFC = FC/q = 50/10 = 5$

(B) $AVC = q^2 - 12q + 1 \Rightarrow dAVC/dq = 2q - 12 = 0 \Rightarrow q = 6$

(C) $q \geq 6$. ∵當 AVC 遞增時, AP_L 遞減

(D) $MC = 3q^2 - 24q + 1 \Rightarrow dMC/dq = 6q - 24 = 0 \Rightarrow q = 4$

∵當 MC 遞增, MP_L 遞減 ∴ $q \geq 4$