Week 14 A10826019 廖思勤

3.

(A) $MR_A = MC = 100 - 2g_A = 20 \Rightarrow g_A = 40 \quad P_A = 60$

$MR_B = MC = 80 - 2g_B = 20 \Rightarrow g_B = 30 \quad P_B = 50$

$T_C = 60 \times 40 + 50 \times 30 - 20 \times (40+30) = 2500 = P_S$

$C_S = C_{SA} + C_{SB} = 800 + 450 = 1250 \quad T_S = C_S + P_S = 3750$

(B) $\begin{cases} P = 100 - g & g \le 20 \\ = 90 - 0.5g & g > 20 \end{cases} \Rightarrow \begin{cases} MR_1 = 100 - 2g & g \le 20 \\ MR_2 = 90 - g & g > 20 \end{cases}$

$MR_1 = MC \Rightarrow 100 - 2g = 20 \Rightarrow g = 40$ (不合)

$MR_2 = MC \Rightarrow 90 - g = 20 \Rightarrow g = 70$ (合) $\quad P = 55$

$T_C = 55 \times 70 - 20 \times 70 = 2450 = P_S$

$C_S = C_{SA} + C_{SB} = 1012.5 + 312.5 = 1325 \quad T_S = 1325$

(C) $F = (80 - P) \times \frac{g}{2} = \frac{(80-P)(80-P)}{2} = \frac{(80-P)^2}{2}$

$T_C = 2F + (P-20)(g_A + g_B) = -P^2 + 60P + 2800$

$P = 30, \quad F = 1250, \quad g = 120, \quad T_C = 3700$

$C_S = C_{SA}(P=30) + C_{SB}(P=30) - 2F = 2450 + 1250 - 2500 = 1200$

$T_S = C_S + P_S = 1200 + 3700 = 4900$