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$$(A) \begin{cases} MRS_{xy} = \frac{P_x}{P_y} \\ P_x X + P_y Y = M \end{cases} \Rightarrow \begin{cases} \frac{Y}{X} = \frac{1}{2} \\ 10X + 20Y = 1000 \end{cases} \Rightarrow \begin{cases} X_0 = 50, Y_0 = 25 \\ U_0 = 1250 \end{cases}$$

$$(B) \begin{cases} MRS_{xy} = \frac{P_x + t}{P_y} \\ (P_x + t)X + P_y Y = M \end{cases} \Rightarrow \begin{cases} \frac{Y}{X} = 1 \\ 20X + 20Y = 1000 \end{cases} \Rightarrow \begin{cases} X_1 = Y_1 = 25 \\ U_1 = 625 = U_0 \end{cases}$$

(C) 政府稅收 $T = 10 \times 25 = 250$

$$(D) \begin{cases} MRS_{xy} = \frac{P_x}{P_y} \\ P_x X + P_y Y = M - T \end{cases} \Rightarrow \begin{cases} \frac{Y}{X} = \frac{1}{2} \\ 10X + 20Y = 750 \end{cases} \Rightarrow \begin{cases} X_2 = 37.5, Y_2 = 18.75 \\ U_2 = 703.125 < U_0 \end{cases}$$

(E) $\because X_1 < X_2$, \therefore 消費稅能抑制消費

(F) 但 $U_2 > U_1$, 小本可接受定額稅

$$(G) \begin{cases} MRS_{xy} = \frac{(P_x + t)}{P_y} \\ (P_x + t)X + P_y Y = M + T \end{cases} \Rightarrow \begin{cases} \frac{Y}{X} = 1 \\ 20X + 20Y = 1250 \end{cases} \Rightarrow \begin{cases} X^* = 31.25, Y^* = 31.25 \\ U_1 = 976.5625 < U_0 \end{cases}$$

故小本效用會下降