本試題是否可以使用計算機： ☑可使用 ， □不可使用 （請命題老師勾選）

填充題（每格5分，共20格）

1.

Consider a perfectly competitive market of product X with 10,000 identical firms. Cost structure of each firm is $TC(q) = \frac{1}{8}q^2 - \frac{9}{4}q + 10$. There are 10,000 consumers with the same utility function $u(q, r) = \sqrt{q \cdot r}$, where q is the quantity of product X and r is the quantity of other products. Each consumer has an income of \$5 and faces the prices $p_q = \$0.25$ and $p_r = \$1$. Please answer the following questions.

(a) Derive each firm's supply function **s** = _____ ,and each consumer's demand function **d** = _____ .

(b) Derive market's supply function and market's demand function **S** = _____ , **D** = _____ . What are the equilibrium market price and quantity **P** = _____ , **Q** = _____ ?

2.

Consider a duopoly market of firms 1 and 2. Cost structure of each firm is $TC(q_i) = 0.28q_i$. Market demand is $Q = 1,000 - 1,000P$, where market quantity $Q = q_1 + q_2$. Please analyze the following competitive situations.

(a) Suppose that the two firms competes in Cournot quantity. Calculate each firm's profit π = _____ , and market price and consumer surplus **P** = _____ , **CS** = _____ .

(b) Suppose that the two firms engage in Cartel collusion. Calculate two firms' profit Π = _____ , and market price and consumer surplus **P** = _____ , **CS** = _____ .

(c) Suppose that firm 1 is market leader and the two firms competes in Stackelberg quantity. Calculate two firms' profit π_1 = _____ , π_2 = _____ , and market price and consumer surplus **P** = _____ , **CS** = _____ .

(d) Suppose that the two firms merge into one big firm (with the same cost as before) and that this monopoly is regulated by marginal cost pricing. Calculate market price and quantity **P** = _____ , **Q** = _____ . How much is consumer surplus **CS** = _____ ?

3.

Suppose in a closed economy that $C = 60 + 0.8Y_D$, $I = 150 - 10r$, $G = 250$, $T = 200$, $M^s = 100$ and $M^d = 40 + 0.1Y - 10r$. Please answer the following questions.

（背面仍有題目，請繼續作答）

(a) Write the equations for IS and LM schedules $\underline{IS = }$, $\underline{LM = }$.

(b) Find the equilibrium values for income $\underline{Y_0 = }$ and the interest rate $\underline{r_0 = }$.

Suppose that investment is assumed to be completely interest inelastic; namely, investment does not depend on the rate of interest and we have $I = 150$.

(c) Write the new equations for IS and LM schedules $\underline{IS' = }$, $\underline{LM' = }$.

(d) Find the new equilibrium values for income $\underline{Y_1 = }$ and the interest rate $\underline{r_1 = }$.