國立臺北大學104學年度碩士班一般入學考試試題

系（所）組別：經濟學系

科　　目：個體經濟學　　第1頁 共2頁

☑可 ☐不可使用計算機

所有考題分為中文題目與英文題目兩類，答案請依填空空格編號碼順序回答，無須寫出計算過程；每一空格配分列於空格後的括弧內，總分為100分。

一、中文題目

1. 假設中油(T)與台塑(K)為兩家生產同質性石油之廠商，總成本函數分別為$TC_T = 10Q_T$，$TC_K = 10Q_K$，所提供石油之市場需求函數為$Q = 80 - 2P$，$Q = Q_T + Q_K$，其中 Q 為石油數量，單位為公升，P 為石油市場價格，單位為元。假設中油與台塑兩家無法進行協商合作，且各自了解對方僅考慮採行 Cournot 模型及 Chamberlin 模型進行競爭。則請問若兩家廠商皆採 Chamberlin 模式競爭，則中油(T)的利潤為___(1)___元(3%)；若兩家廠商皆採 Cournot 模式競爭，則中油(T)的利潤為___(2)___元(3%)；若設定兩家廠商在兩種不同策略下的利潤為償付值，則以賽局理論基礎，前述兩家石油公司的市場競爭賽局之 Nash 解為___(3)___ (4%)。

2. 若需求函數為$Q_X = P_X^{\alpha} P_Y^{\beta} I^{\gamma}$，其中 α<0，γ<0；請求出 X 財貨的交叉彈性為___(4)___(4%)；若此一函數被設定為一階齊次函數時，則價格需求彈性、所得彈性、及交叉彈性的加總和為___(5)___(3%)，且 X 財貨與 Y 財貨互為___(6)___的關係(3%)。

3. 假設台灣地區的稻米市場為完全競爭市場，市場供給函數為$P_s = 10 + 4Q$，市場需求函數為$P_d = 330 - 2Q$，其中 P 為稻米價格(元/公斤)，Q 為稻米數量(萬公斤)；台灣政府為照顧所有稻農，要確保稻米市場的生產者剩餘為 7,200 萬元，而擬採用 a 與 b 兩種政策，a 政策為政府宣佈以每公斤保證價格 P_G 元，無限量收購稻米超額產出；b 政策則是對生產者採取每公斤銷售量補貼 S 元；請問保證價格 P_G 為___(7)___元(5%)，政府收購支出為___(8)___元(3%)；補貼 S 為___(9)___元(5%)，補貼支出為___(10)___元(2%)。

4. 假設某獨占廠商在 A 與 B 兩地需求分別為$Q_A = 36 - 0.2P_A$，$Q_B = 50 - 0.5P_B$，且兩地各有一工廠，成本分別為$TC_A = 8 + 10Q_A + 10Q_A^2$，$TC_B = 4 + 20Q_B + 5Q_B^2$，當獨占廠商決定同時採用多工廠與差別取價策略時，則 A 地的生產量為___(11)___(5%)；A 地的銷售量為___(12)___(5%)；A 地的售價為___(13)___(5%)。

二、英文題目

5. Debbie consumes C_1 units of composite good in period 1 and C_2 units of composite good in period 2. She earns \$100 in period 1 and \$460 in period 2 with a utility function given by $U(C_1, C_2) = C_1^4 C_2$. The borrowing rate and the lending rate are both 15 percent. Find Debbie's optimal consumption bundle (C_1^*, C_2^*).___(14)___(5%) What is Debbie's optimal consumption bundle if the borrowing rate is still 15 percent, but the lending rate falls to 10 percent?___(15)___(5%)

6. A competitive firm produces a single output using two inputs, labor (L) and capital (K). It has a production function $Q(L,K) = L^{0.5}K$, where Q is the quantity of output. The input prices of labor and capital are w and r, respectively. Derive the firm's long-run total cost function in terms of w, r, and Q.___(16)___(5%) Suppose in the short run, the firm's capital is fixed at 8, the price of labor is \$1, and the price of capital is \$2. The firm must produce 64 units of output. How much money is the firm sacrificing by not having the ability to choose its level of capital optimally?___(17)___(5%)

試題隨卷繳交　　接背面

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7. The footwear manufacturing industry is competitive. Each producer in the industry has a total variable cost function $TVC = q^3$ and a sunk fixed cost of \$50. The market demand curve is $D(P) = 210 - P$. There are 9 identical firms in the industry. Find the short-run equilibrium price in this industry.____(18)____(5%) What is each firm's producer surplus at the short-run equilibrium ?____(19)____(5%)

8. A consumer has a utility function $U(x, y) = x + \sqrt{y}$ and an income of \$100. The price of good x is \$10 and the price of good y is \$1. Find the consumer's optimal consumption bundle.____(20)____(5%) Denote the price of good x by P_x. What must P_x increase to in order for the consumer to buy zero quantity of good x, keeping the price of good y at \$1 and the income at \$100?____(21)____(5%)

9. An economy has two agents, Amy and Brian. There are two goods, x and y. The utility functions of Amy and Brian are $U_A(x_A, y_A) = \min\{x_A, y_A\}$ and $U_B(x_B, y_B) = x_B y_B$, respectively. Amy is initially endowed with 6 units of good x and no good y. Brian is initially endowed 4 units of good y and no good x. Suppose that Amy and Brian exchange on the basis of a price system. Find Amy's consumption bundle at the competitive equilibrium for this economy.____(22)____(5%) Find Amy's consumption bundle at the Pareto optimal allocation such that both consumers receive the same level of utility.____(23)____(5%)

試題隨卷繳交