

國立中央大學104學年度碩士班考試入學試題

所別：財務金融學系碩士班 甲組(一般生) 科目：經濟分析 共 2 頁 第 1 頁
財務金融學系碩士班 乙組(一般生)

本科考試禁用計算器

*請在答案卷(卡)內作答

參考用

一、計算問答題(請依題序作答，未列算式、推理過程或適當說明者，不予計分)

1. Assume the Blackbox Theater with monopoly power sells concert tickets at the box office (B) and on internet (I). The inverse demand functions are $P_B = 3 - 0.5B$, and $P_I = 7 - 0.5I$. The theater's short-run total cost function is $STC = 4 + (B+I)$. Determine the profit-maximizing prices and quantities in each market and the corresponding elasticities of demand. (10%)
2. Suppose the demand for crude oil is given by $Q^D = 4,000 - 100P$, where Q^D is the quantity of oil and P is the price per barrel. Also, assume that there are 100 identical producers of crude oil, each with marginal cost $SMC = 0.5q + 10$, where q is a firm's output.
 - a. Assuming each producer is a price taker, calculate the market equilibrium price and quantity. (4%)
 - b. Suppose now a new technology to extract shale oil, a substitute for conventional crude oil, is developed by a potential price-leader firm, and this oil can be produced at a constant marginal cost of \$10. Assuming the supply behavior of the competitive fringe is not changed by this innovation, how much should the price leader produce for profit maximization? What will be the market price? (6%)
3. Suppose a fishing company is the only employer of labor in an area. The supply curve for female workers is $L_F = 400W_F$, and for male workers is $L_M = 100W_M + 200$, where W_F and W_M are the hourly wage rates paid to female and male workers, respectively. Assume that the firm sell its fishes in a perfectly competitive market at \$2 per unit, and each worker hired (both male and female) can harvest 4 units per hour. If the firm wishes to maximize profits, how many female and male workers should be hired and what will be the wage rates for female and male workers?(10%)
4. Anthony, a PH.D. student in finance, is considering two mutually exclusive career paths: either becoming a finance professor or becoming an asset manager in an investment firm. The professor career pays $I_P = \$100,000$ monthly; the asset manager, which has a 20% chance of becoming stranded in a financial crisis, pays I_M monthly. Anthony's preferences can be represented by the utility function $U = 1 - (100,000/I_j) - \alpha$, $j = P, M$, where $\alpha = 0$ if he is not stranded and $\alpha = 1$ if he is. Determine the risk premium Anthony requires for becoming an asset manager. (10%)
5. Two Cournot firms produce homogeneous products at zero cost and both face the market demand $P = 30 - (q_1 + q_2)$. The two firms are identical except that firm 1 is owner managed—output is determined by the owner, who receives all the profits (π_1). In contrast, the owner of firm 2 has hired a manager based on a contract where the manager's salary $I_2 = 0.25\pi_2 + 3q_2$, where π_2 is the profits of firm 2. The owner of firm 2 receives profits net of the manager's salary. The manager of firm 2 makes all the output decisions and attempts to maximize her salary. In equilibrium, what is the profit for owner of firm 1? For firm 2, what is the manager's salary and the net profit for owner?(10%)

注意：背面有試題

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二、申論題 (請依題序作答，未列算式、推理過程或適當說明者，不予計分)

1. According to the following information for each indicator listed below, please **explain** whether the information suggests that a recession or expansion should be expected in the future. Be sure to explain your prediction.
 - a. The price of crude oil is falling. (5 分)
 - b. Average initial weekly claims for unemployment insurance decreases. (5 分)
 - c. The interest rate spread between the 20-year government bond and 1-month government bonds narrows. (5 分)

2. 假設花媽的家庭預算限制式如下：

$$y_1 + \frac{y_2}{1+r_1} = c_1 + \frac{c_2}{1+r_1}$$

其中， c_1 和 c_2 分別是在第 1 期與第 2 期的實質消費 (real consumption)， y_1 和 y_2 分別是在第 1 期與第 2 期的實質所得 (real income)，而且 $y_1 = 30$ 。當實質利率 $r_1 = 7\%$ 時，花媽的家庭選擇消費 $c_1 = 20$ 。如果實質利率 r_1 下降為 5% ，請問花媽家庭的 c_2 會增加，減少，或不能確定？答題時，須說明理由。(10 分)

3. 經濟體系正處於充份就業 (full employment) 的狀態，如果此時中央銀行實施未預期貨幣寬鬆政策 (unexpected monetary expansion policy)，請以 AD-AS 模型分析此政策對於物價、實質產出、物價膨脹率的短期與長期效果。(13 分)
4. 假設「東國」與「西國」這兩個國家的生產函數可以寫成下列的Cobb-Douglas 生產函數形式：

$$\text{東國: } Y = A L^{0.3} K^{0.7}$$

$$\text{西國: } Y = A L^{0.7} K^{0.3}$$

其中 L 代表勞動量 (quantity of labor)， K 代表資本量 (quantity of capital)，已知兩個國家有相同的勞動量 ($L = 500$) 與資本量 ($K = 500$)，兩國的生產技術水準也相同， $A = 100$ 。請回答下列問題並須解釋理由。(12 分)

- a. 哪個國家的總產出 (Y) 較高？
- b. 哪個國家的勞動邊際產量 (marginal product of labor) 較高？
- c. 哪個國家的實質工資 (real wage) 較高？
- d. 哪個國家的勞動所得佔總產出的比例 (labor's share of income) 較高？

注意：背面有試題