所別： 企業管理學系 碩士班 一般甲組(一般生)
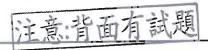企業管理學系 碩士班 一般乙組(一般生)

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一、簡答題(共 28 分，每題 7 分)：請針對各題選出選項並請說明理由。每題至少有一個選項為正確答案，答案全對始予計分，答錯不倒扣。若無計算式或說明理由，該題將不予計分。

1. What the following statements regarding a monopolistically competitive market is (are) **not** correct?

(1) If a monopolistically competitive seller's marginal cost is $5, the firm will increase its output if its marginal revenue is more than $5.

(2) A monopolistically competitive firm chooses its price and quantity just as a monopoly does. Those two types of forms both make positive profits in the short run.

(3) In the long run in monopolistic competition, firms earn a normal profit but not an economic profit.

(4) Monopolistic competition is judged to be economically inefficient because the marginal cost is greater than selling price.

(5) If a firm is maximizing its profit and producing more than the output at which its average total cost is minimized, then that firm has excess capacity.

2. What the following statements is (are) correct?

(1) Suppose the price of oil decreases from $0.75 to $0.58 a gallon and the quantity demanded increases from 23 gallons to 42 gallons. Using the midpoint method, the price elasticity of demand for oil is 0.48.

(2) Neither the demand nor the supply of gas is perfectly elastic or inelastic. If the government imposes a 10 percent tax on gas, the price of gas increases by less than 10 percent.

(3) Suppose two neighborhoods with 5 houses each in Taipei are identical except one of them is near a toxic waste dump. If houses near the dump sell for an average of $2,000 and the other houses sell for $6,000, the external cost of the dump is $20,000.

(4) A student at National Central University used to take the bus when he visited his grandfather in Taipei. After graduating, although the bus fare and the THSR (Taiwan High Speed Rail) fare were the same as they were when he was a student, with a well paid job in TSMC he now takes the THSR to Taipei to visit his grandfather. For this student, travel by bus is an inferior good.

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(5) Mary owns a farm near Taoyuan City. Last year she earned $25,000 in total revenue while incurring $23,000 in explicit costs. She could have earned $18,000 as a writer. These are all her revenue and costs. Therefore Mary earned an accounting profit of $2,000 but incurred an economic loss of $18,000.

3. What the following statements is (are) **not** correct?
The following data is collected from an economy: Government purchases of goods and services = $180, Government borrowing = $90, Government transfers to households = $30, Taxes = $120, Wages, profit, interest, rent = $790, Consumer spending = $580, Private savings = $200, Investment spending = $100, Exports = $60, Imports = $50, Borrowing and stock issues by firms = $100, Foreign borrowing and sales of stock = $120, Foreign lending and purchases of stock = $110
(1) The value of GDP is $850.
(2) The value of disposable income is $720.
(3) The government needs to finance $210 in its spending. Then the government finances $120 of its spending with tax revenue and the other $90 through borrowing in financial markets.
(4) Suppose we observe these two events in the economy: (a) David buys for himself a 20-year-old house; (b) Mary builds for herself a brand-new house. A macroeconomist counts these two houses as investment.
(5) Consider these two transactions: (a) Peter buys $15 million in Apple stock from John on the Philadelphia Stock Exchange; (b) Apple sells $20 million in stock to public and uses the proceeds to build a new factory. From the macroeconomist's point of view, investment is $20 million.

4. What the following statements is (are) **not** correct?
(1) In the short run, unemployment and inflation are negatively related. The tradeoff between unemployment and inflation depends on expected inflation. The curve is higher when expected inflation is higher.
(2) Automatic stabilizers consist of government taxing and spending programs that

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automatically increase aggregate demand during inflationary times and decrease demand during recessions.

(3) If an expansion is driven by technical innovation, one would expect prices to fall, unemployment to fall, and GDP to rise.

(4) The unemployment rate measures the percentage of the working-age population who can't find a job.

(5) If the currency drain is 0.3 and the required reserve ratio is 0.05, the money multiplier is 6.

二、計算與問答題(共 72 分)：若無計算式或說明理由，該題將不予計分。

1. The price of cake is $2 and the price of apple is $3.

cake		apple	
Quantity	Marginal Utility	Quantity	Marginal Utility
1	20	1	30
2	18	2	27
3	14	3	24
4	12	4	21
5	10	5	17
6	8	6	12
7	6	7	6

(1) In the above table, what is the marginal utility per dollar spent on the 2nd unit of apple? (3%)

(2) If this consumer has an income of $18, what is the optimal amount of cake and apple to buy? If this consumer has an income of $30? (6%)

(3) Suppose that with an income of $23, the consumer chooses to buy four prices of cake and five apples. Is it a utility-maximizing choice at this income level? If it is not the optimal choice, how could this consumer do to increase his utility? (4%)

2. In a perfect competitive market, a firm's product price is $100/per piece. Within the market, it consists of two types of labors including high productive workers and low productive workers. The marginal product and average product of labors with low

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productivity are 10 pieces per year, respectively. However, regarding to the marginal product and average product of labors with high productivity are twice as much as those with low productivity. Assume that we have the same number of the two types of labors in the market and each labor can work for 20 years. Please answer the following questions:

(1) If the firm cannot identify which type of labor does someone belong to while recruiting, the firm thus has to offer the same salary for each labor. What would be the salary offered to each labor per year by the firm? (2%)

(2) If the firm can identify which type of labor does someone belong to by the years of education, what would be the salary offered to these two types of labor per year by the firm, respectively? (4%)

(3) If X denotes the years of education for each labor, we assume costs of education for those labors with high productivity is 20000X and for those with low productivity is 10000X. How would the firm identify these two types of labors by their years of education? (4%)

3. Suppose that McDonald's and Burger King are the only two producers of hamburgers, making them duopolists. Both companies have zero marginal cost and a fixed cost of $80,000. Assume that consumers regard McDonald's and Burger King as perfect substitutes. Currently both are sold for $60 per hamburger, and at that price each company sells 18 thousand hamburgers per day.

(1) How large is Burger King's profit? (3%)

(2) If Burger King were to raise its price to $80 per hamburger, and McDonald's does not respond, what would happen to Burger King's profit? (2%)

Now suppose that each company advertises to differentiate its product from the other company's. As a result of advertising, Burger King faces the downward sloping demand curve, as shown by the demand schedule in the following table.

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Quantity of Burger King demanded (thousands of hamburgers)	Price of Burger King (per hamburger)
20	$40
18	60
16	80
14	100
12	120

(3) If Burger King now were to raise its price to $80 per hamburger, what would happen to its profit? (2%)

(4) What is the maximum amount Burger King would be willing to pay on advertising? (2%)

4. Suppose two roommates (X and Y) in an apartment. They are badly bitten by mosquitoes. They both need some mosquito-repellent sprays. However, the mosquito-repellent spray is a pure public good. The demand function of X and Y are $Q_A=100-P$ and $Q_B=200-2P$, respectively, where P is the price of mosquito-repellent spray and Q denotes the quantity of mosquito-repellent spray. Marginal cost is 80.

(1) What would be the equilibrium price and quantity? (4%)

(2) Suppose the government provides the public goods and taxes in X and Y to reflect their benefits from the public goods, what would be the maximum amounts of taxes for X and Y to reflect their benefits from the public goods, respectively? (4%)

5. Assume that the production function of France is $Y = K^{0.2}L^{0.8}$. The growth rate of output is 5 percent, the depreciation rate is 2 percent, and the ratio of capital to output is 2. Capital is paid its marginal product.

(1) Calculate the marginal product of capital in France. (3%)

(2) What must be the saving rate when the economy is in a steady state? (3%)

(3) What must the saving rate be to achieve the Golden Rule level of capital? (3%)

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6. Suppose that the real wage is held above equilibrium. Graphically illustrate how an increase in the supply of labor will change the number of unemployed workers. Explain in words what happens to the number of unemployed as a result of this change. (4%)

7. A small open economy at the full employment output level can be described by following equations:

$$Y = C + I + G + NX,$$
$$C = C(Y-T), I = I(r), r = r^*.$$

(1) Could you use above equations to get the new identity to describe the relationship between national saving and net export? Please use the economic intuition to explain this identity. (5%)

(2) Suppose that the economy begins in a position of balanced trade. If the government expands domestic spending by increasing government purchases, how a fiscal expansion influences the trade balance? (4%)

Please illustrate the equations on a graph in which investment and saving are on the horizontal axis and the real interest rate is on the vertical axis.

8. In the Keynesian model, we have following equations:

$$Y = C + I + G + X - M,$$
$$C = C_0 + b(Y-T), T = T_0 + tY,$$
$$M = M_0 + mY.$$

(1) Please show the government expenditure multiplier. How does the tax rate influence the government expenditure multiplier. (5%)

(2) Please show the balanced budget multiplier. How does the marginal propensity to import influence the balanced budget multiplier. (5%)

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