一、簡答題(共 49 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 is (are) correct?

(1) The production possibilities frontier is the boundary between the attainable and unattainable combinations of goods and services.

(2) Moving from one point to another on a production possibilities frontier implies increasing the production of one good and decreasing the production of another.

(3) If the U.S. economy reduces unemployment, the nation's production possibilities frontier would shift outward.

(4) The following table shows a production possibilities frontier for an economy.

Possibility	Tanks (units)	Airplanes (units)
A	1,000	0
B	700	200
C	400	650
D	0	800

A combination of 400 tanks and 700 airplanes is unattainable.

(5) Moving from a point inside the production possibilities frontier to a point on the production possibilities frontier, the opportunity cost of producing more of the good on the horizontal axis decreases.

2. What the following statements is (are) **not** correct?

(1) Consumers eat pizzas with cokes. When the price of pizza rises, it decreases the demand for cokes.

(2) A 5 percent increase in price leads to a 30 percent decrease in the quantity demanded. The price elasticity of demand is equal to 6.

(3) If a $50 sales tax is imposed on a good and the equilibrium price increases by $50, the tax is paid fully by sellers.

(4) The deadweight loss associated with producing a product that has an external cost occurs because too little output is produced.

(5) If Janet plants trees in her yard, she receives a marginal benefit of $80 from the first tree, $45 from the second tree, and $20 from the third tree. However, everyone in

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the neighborhood will receive an additional $35 in social benefits from each of Janet's trees. If the price of trees is $80, Janet will buy 1 tree and the socially optimal number of trees for Janet to plant is 3.

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

(1) Suppose a perfectly competitive firm's minimum average variable cost is $6 at an output level of 30. If the price is $5, the firm should decrease output to below 30.

(2) Meta Company sells computers in a perfectly competitive market. Meta's total fixed cost is $10,000, his average variable cost at 500 computers is $30, and marginal revenue is $55. Meta's sells 500 computers a month. His economic profit would be $2,000.

(3) A single-price monopoly is producing at an output level where marginal revenue is $18, marginal cost is $16, and price is $23. This monopoly is not maximizing its profit and should increase output to increase its profit.

(4) Suppose there is a perfectly competitive market for grapefruits. Assume someone organizes all farms in the nation into a single -price monopoly. As a result, the price consumers have to pay for grapefruits might rise or fall depending on whether the demand for grapefruits is elastic or inelastic.

(5) If one firm in a duopoly increases its production by one unit beyond the monopoly output, that firm's profit increases, the other firm's profit decreases, and the total profit of the duopoly does not change.

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

(1) The population of USA is estimated to be 120 million people, of which 8 million are under 16 years of age and another 7 million are institutionalized. The civilian labor force consists of 100 million, of which 80 million currently have a job. The unemployment rate is 20%.

(2) Suppose the horsepower of a certain automobile has increased while its price has remained the same. Purchasing power (in terms of quality bought) has increased while the CPI is unchanged.

(3) Tiffany spent one hour doing repair work in her house. A professional handyman would charge $120 for the work. Her contribution to GDP is $120.

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(4) The real wealth effect states that as the price level falls, the value of the real wealth held by household increases and the quantity of real GDP demanded rises.

(5) The interest rate effect states that as the domestic price level rises, domestic and foreign demanders wish to buy less of the domestic products.

5. What the following statements is (are) **not** correct?

(1) Economists in the country have estimated that the full employment level of GDP is $100 million. In recent months there has been a large migration of workers into the country and several large mineral deposits have been discovered. One can reasonably conclude that the migration would decrease the full employment level of GDP but the mineral deposits would increase it.

(2) When the Fed decreases reserve requirements, if the ratio of currency to deposits decreases also while the monetary base is constant, then the money supply increases.

(3) If the transactions velocity of money remains constant while the quantity of money doubles, the price of the average transaction multiplied by the number of transactions must double.

(4) Assume the economy is in equilibrium at full employment real GDP. Then the government passes a law which will double the wages of all workers. Assuming no change in AD, the level of AS will decrease, and real GDP will decrease, and the price level will decrease.

(5) Assume that an economy's production function is $Y = 1,000L^{1/2}$, and the labor supply curve is $L = 31,250(W/P)$. There is an equilibrium in which output is 160,000.

6. What the following statements is (are) **not** correct?

(1) If a change in government regulations allows banks to start paying interest on checking accounts this will decrease the demand for money.

(2) Assume two economies are identical in every way except that one has a higher saving rate. According to the Solow growth model, in the steady state the country with the higher saving rate will have a higher level of total output and the same rate of growth of output per worker as/than the country with the lower saving rate.

(3) Central-bank independence refers to the degree of separation between central-bank decision making and political influence.

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(4) Assume that a government has a balanced budget when the economy is at full employment. If the economy then enters a recession, with no change in tax or spending laws, then the budget of the government is most likely to be in surplus.

(5) Assume that the money demand function is $(M/P)^d = 1,500 - 100r$, where r is the interest rate in percent. The money supply M is 2,100 and the price level P is 3. If the price level is fixed and the supply of money is raised to 2,400, then the equilibrium interest rate will drop by 2 percent.

7. What the following statements is (are) **not** correct?

Assume that in a certain economy the LM curve is given by $Y = 2,000r - 2,000 + 2(M/P) + u$, where u is a shock that is equal to +200 half the time and −200 half the time, and the IS curve is given by $Y = 8,000 - 2,000r$. The price level (P) is fixed at 1.0. The natural rate of output is 4,000. The government wants to keep output as close as possible to 4,000 and does not care about anything else. Consider the following two policy rules:

a. Set the money supply M equal to 1,000 and keep it there.

b. Manipulate M from day to day to keep the interest rate constant at 2 percent.

(1) Under rule a, $Y = 4,100$ when $u = +200$.

(2) Under rule a, $Y = 4,000$ when $u = -200$.

(3) Under rule b, $Y = 4,000$ when $u = +200$.

(4) Under rule b, $Y = 3,900$ when $u = -200$.

(5) Rule a will keep Y closer to 4,000.

二、計算與問答題(共 51 分)：<u>若無計算式或說明理由，該題將不予計分</u>。

1. Susan has the utility function given by $U = X_1^2 X_2^2$, and the prices of Good 1 and 2 are $P_1 = \$4$ and $P_2 = \$2$, respectively. She has an income of \$16 to spend. When the price of Good 1 decreases from \$4 to \$2, how much her income could be reduced to maintain her utility level? (5 分)

2. There are four lotteries A, B, C, and D. Their outcomes (payoffs) and probabilities are shown in the following tables.

Scenario 1:

Lottery　Payoff	$800	$300	$100
A	-	1.00	-
B	0.20	0.75	0.05

Scenario 2:

Lottery　Payoff	$800	$300	$100
C	-	0.25	0.75
D	0.20	-	0.80

If David chooses Lottery A in the scenario 1, what does David choose in the scenario 2? (7 分)

3. Drugs such as marijuana, cocaine, ecstasy, and heroin are illegal goods. The government wants to decrease the quantity bought and sold of drugs.
(1) Penalties would be imposed on sellers, buyers, or both for violating the law. How does the imposition of a penalty for selling or buying an illegal drugs influence demand, supply, price, and quantity of the drug consumed? (2 分)
(2) Please show that the quantity bought of a drug could be also decreased if the drug was legalized and taxed. (2 分)
(3) Which is more effective: prohibition or taxes? (2 分)

4. Intertemporal choice
(1) Please use the consumer's intertemporal budget constraint to analyze how a change in the real interest rate alters the amount of consumption he chooses in both periods. (4 分)
(2) Please decompose the impact of an increase in the real interest rate on consumption into two effects: an income effect and a substitution effect. (4 分)
(3) If the consumer cannot borrow, he will face the constraint that first-period consumption cannot exceed first-period income. Please show how this borrowing constraint affects the consumption decision. (3 分)

5. In the Mundell-Fleming model, a small open economy can be described by following two equations:

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IS:　　$Y = C(Y-T) + I(r) + G + NX(e)$,

LM:　　$M/P = L(r, Y)$.

We assume that the interest rate in a small open economy is determined by the world interest rate plus a risk premium θ : $r = r^* + \theta$.

(1) Suppose that political turmoil causes the country's risk premium θ to rise. What happen to aggregate output (Y) and the exchange rate (e) under floating exchange rates? (5 分)

Please illustrate the two equations on a graph in which output is on the horizontal axis and the exchange rate is on the vertical axis to show that an increase in the risk premium leads income to rise and the currency to depreciate.

(2) Please provide some reasons why such a boom in income does not occur in practice. (3 分)

6. Suppose Congress raises taxes. According to the IS-LM model, what effect will this policy have on the economy? We consider three situations, respectively, when

(1) the Fed holds the money supply constant, (2 分)

(2) the Fed wants to hold the interest rate constant by reducing the money supply, (2 分) and

(3) the Fed holds the level of income constant by raising the money supply. (2 分)

7. Assume that a country's production function is $Y = K^{1/2}L^{1/2}$.

(1) What is the per-worker production function $y=f(k)$? (2 分)

(2) Assume that the country possesses 900 units of capital and 100 units of labor. What is Y? What is labor productivity computed from the per-worker production function? (2 分)

(3) Assume that 20 percent of capital depreciates each year. What gross saving rate is necessary to make the given capital-labor ratio the steady-state capital-labor ratio? (2 分)

(4) If the saving rate equals the steady-state level, what is consumption per worker? (2 分)