



Notes:

There are 50 multiple-choice questions included in this test. Each of them has only one best answer and a weight of 2 points.

1. If supply is elastic in the current price range, an increase in price would
 - A. increase the total revenue of producer sellers.
 - B. decrease the total revenue of producer sellers.
 - C. not affect the total revenue of producer sellers..
 - D. be insufficient information to tell what happens to total revenue .

2. Dick owns a dog whose barking annoys Dick's neighbor Jane. Suppose that the benefit of owning the dog is worth \$500 to Dick and that Jane bears a cost of \$700 from the barking. A possible private solution to this problem is that
 - A. Jane pays Dick \$450 to get rid of the dog.
 - B. Dick pays Jane \$650 for her inconvenience.
 - C. Jane pays Dick \$650 to get rid of the dog.
 - D. There is no private solution that would improve this situation.

3. Suppose that the government imposes a tax of 10% on the first \$40,000 of income and 20% on all income above \$40,000. What is the tax liability and the marginal tax rate for a person whose income is \$50,000?
 - A. Both are 12% and 12%
 - B. 12% and \$50,000 respectively
 - C. \$6,000 and 12% respectively
 - D. \$6,000 and 20% respectively

4. A perfectly competitive firm is able to sell its product for \$5 and realizes an average total cost of \$5. Its marginal cost curve crosses the average total cost curve at an output level of 10 units. What is the profit earned by the firm at its current level of output?
 - A. \$0
 - B. -\$50
 - C. \$100
 - D. None of the above



5. In a perfectly competitive market, a decrease in demand will
- A. have no effect on prices
 - B. cause quantity supplied to go down before returning to the original level of output.
 - C. cause prices to go down before returning to their original level.
 - D. have no effect on total market output.
6. If wages rise, profit maximizing firms in competitive markets will _____ employment and marginal product of labor will _____.
- A. increase, rise
 - B. decrease, rise
 - C. increase, fall
 - D. decrease, fall
7. At the current price ratio, a consumer chooses to consume Y_0 units of commodity "Y" and X_0 units of commodity "X". If commodity Y is a normal good for this consumer, a rise in consumer income will necessarily precipitate
- A. an increase in the consumption of X.
 - B. a decrease in the consumption of Y.
 - C. an increase in the consumption of Y.
 - D. a decrease in the consumption of X.
8. You are given the following information with respect to a firm's output position: marginal product of factor A=4; marginal product of factor B=2; price of A=\$8; price of B=\$4. Assume that the firm is at its maximum-profit output. Then marginal revenue must be:
- A. 50cents.
 - B. \$1.
 - C. \$2.
 - D. zero.



		Firm B			
		III		IV	
Firm A	I	Cell a	\$60	Cell b	\$50
	II	Cell c	\$40	Cell d	-\$10
			\$25		\$15
			\$10		\$20

Figure A

9. Figure A above shows a payoff table for firm A and firm B. In Cell a, firm A obtains \$25 and firm B obtains \$60. Which strategy is a dominant strategy for firm B?
- Strategy III.
 - Strategy IV.
 - Both strategy III and strategy IV are dominant strategies to firm B.
 - None of the strategies available to firm B is a dominant strategy.
10. As shown in Figure A above, which cell is a Nash equilibrium?
- Cell a.
 - Cell b.
 - Cell c.
 - Cell d.
11. Your budget constraint for the two goods A and B is $30A+5B=I$, where I is your income. You are currently consuming more than 72 units of B. In order to get 4 more units of A, how many units of B would you have to give up?
- 0.17
 - 0.04
 - 6
 - 24
12. Hartman's utility function is $U(x_1, x_2) = x_1 x_2$. His income is \$100. The price of good 2 is $p_2 = 4$. Good 1 is priced as follows: The first 15 units cost \$4 per unit and any additional units cost \$2 per unit. What consumption bundle does Hartman choose?
- (12.5, 12.5)
 - (25, 12.5)
 - (12.5, 25)
 - (15, 10)



13. Miss Chen insists on consuming 2 units of good A per unit of good B. If the price of good A is \$6 and the price of good B is \$3, then if Miss Chen's income is \$M, her demand for good B will be:
- M/3.
 - 6M/3.
 - 3M.
 - M/15.
14. Charlie's utility function is $x_A x_B$. The price of good A used to be \$1, the price of good B used to be \$2, and his income used to be \$40. If the price of good A increased to \$7 and the price of good B stayed constant, the substitution effect on Charlie's good A consumption reduces his consumption by:
- 17.14 units of good A.
 - 6 units of good A.
 - 8.57 units of good A.
 - 13.57 units of good A.
15. Wang has quasilinear preference and his demand function for x is $D(p) = 15 - p/3$. The price of x is initially \$15 per unit and increases to \$24 per unit. Wang's change leads to a consumer surplus whose value is the closest to:
- 168.
 - 76.
 - 27.
 - 75.
16. Harry's demand function for blueberries is $x = 20 - 2p$, where p is the price and x is the quantity demanded. If the price of blueberries is \$3, then what is Harry's price elasticity of demand for blueberries?
- 6/14
 - 2/20
 - 2
 - 14/6



17. The demand function for corn is $q = 200 - p$ and the supply function is $q = 50 + 0.5p$. The government sets the price of corn at \$150 and agrees to purchase and destroy any excess supply of corn at that price. How much money does it cost the government to buy this corn?
- A. 11,250
B. 18,750
C. 7,500
D. 10,750
18. The demand curve for rutabagas is a straight line with slope -5 and the supply curve is a straight line with slope 5. Suppose that a new tax of \$3 per unit of rutabagas is introduced. Which of the following must certainly be true of the change in equilibrium prices and/or quantities?
- A. The total number of rutabagas purchased increases.
B. The price paid by demanders rises by same amount as the price received by suppliers falls.
C. The price received by suppliers falls by more than the price paid by demanders rises.
D. The price paid by demanders rises by more than the price received by suppliers falls.
19. The production function is given by $f(L) = 6L^{2/3}$, where L is labor. Suppose that the cost per unit of labor is \$16 and the price of output is \$12. How many units of labor will the firm hire in order to maximize its profit?
- A. 54
B. 27
C. 13.5
D. 81
20. A competitive firm has a long run total cost function $C(y) = 2y^2 + 162$ for $y > 0$ and $C(0) = 0$. Its long run supply function is described as follows:
- A. $y = p/4$ if $p > 36$; $y = 0$ if $p < 36$.
B. $y = p/2$ if $p > 34$; $y = 0$ if $p < 34$.
C. $y = p/2$ if $p > 39$; $y = 0$ if $p < 42$.
D. $y = p/4$ if $p > 39$; $y = 0$ if $p < 39$.



21. A firm has the short run total cost function $C(y) = 16y^2 + 144$. At what quantity of output is short run average cost minimized?
- A. 3
B. 4
C. 9
D. 1.33
22. Consider a competitive industry with several firms all of which have the same cost function, $C(y) = y^2 + 4$ for $y > 0$ and $C(0) = 0$. The demand curve for this industry is $D(p) = 50 - p$, where p is the price. The long run equilibrium number of firms in this industry is:
- A. 4.
B. 23.
C. 25.
D. 46.
23. A monopolist has the total cost function, $C(q) = 1400 + 10q$ and the inverse demand function is $p = 130 - 5q$, where prices and costs are measured in dollars. If the firm is required by law to meet demand at a price equal to its marginal cost, then
- A. the firm's profit will be zero.
B. the firm will loses \$700.
C. the firm will make positive profit, but not as much profit as it would make if it were allowed to choose its own price.
D. the firm will lose \$1400.
24. An industry has two firms. The inverse demand function for this industry is $p = 190 - 6q$. Both firms produce at a constant unit cost of \$28 per unit. What is Cournot equilibrium price for this industry?
- A. 28
B. 31
C. 82
D. 41



25. Two stores are located side by side. They attract customers to each other and to themselves by advertising. The profit functions of the two stores are $(120 + x_2)x_1 - 2x_1^2$ for store 1 and $(150 + x_1)x_2 - 2x_2^2$ for store 2, where x_1 and x_2 are total advertising expenditures by stores 1 and 2 respectively. If each store sets its advertising expenditures independently (as in Nash equilibrium), how much would store 1 spend on advertising?
- A. 42
B. 44
C. 39
D. 47
26. With a Cobb-Douglas production function, the share of output going to labor:
- A. decreases as the amount of labor increases.
B. increases as the amount of labor increases.
C. increases as the amount of capital increases.
D. is independent of the amount of labor.
27. If the real return on government bonds is 3 percent and the expected rate of inflation is 4 percent, then the cost of holding money is _____ percent.
- A. 1
B. 3
C. 4
D. 7
28. An effective policy to reduce a trade deficit in a small open economy would be to:
- A. increase tariffs on imports.
B. impose stricter quotas on imported goods.
C. increase government spending.
D. increase taxes.
29. If the purchasing-power parity theory is true, then:
- A. the net exports schedule is very steep.
B. all changes in the real exchange rate result from changes in price levels.
C. all changes in the nominal exchange rate result from changes in price levels.
D. changes in saving or investment influence only the real exchange rate.



30. Assume that some large foreign countries decide to subsidize investment by instituting an investment tax credit. Assuming that the home country is a small open economy, then the home country's real exchange rate:
- A. will fall(i.e. depreciate) and its net exports will rise.
 - B. will rise(i.e. appreciate) and its net exports will fall.
 - C. will fall(i.e. depreciate) and its net exports will fall.
 - D. will rise(i.e. appreciate) and its net exports will rise.
31. If a dollar bought 1,000 lire ten years ago and 1,500 lire now, and inflation for that period was 25 percent in the United States and 100 percent in Italy, then:
- A. the purchasing-power parity theory is correct.
 - B. for American residents, traveling in Italy today costs about the same as it did ten years ago.
 - C. for American residents, traveling in Italy is cheaper now than it was ten years ago.
 - D. for American residents, traveling in Italy is more expensive now than it was ten years ago.
32. If the fraction of employed workers who lose their jobs each month (the rate of job separation) is 0.01 and the fraction of the unemployed who find a job each month (the rate of job findings) is 0.09, then the natural rate of unemployment is:
- A. 1 percent.
 - B. 9 percent.
 - C. 10 percent.
 - D. about 11 percent.
33. Sectoral shifts:
- A. lead to wage rigidity.
 - B. explain the payment of efficiency wages.
 - C. depend on the level of the minimum wage.
 - D. make frictional employment inevitable.



34. Government policies directed at reducing frictional unemployment include:
- A. abolishing minimum-wage laws.
 - B. making unemployment insurance 100-percent experience rated.
 - C. increasing the earned income credit.
 - D. making government part of the union-form wage bargaining process.
35. If the per-worker production function is given by $y = k^{\frac{1}{2}}$, there is no population growth or technological progress, the saving ratio is 0.2, and the capital depreciation rate is 0.1, then the steady-state level of output per worker (y) is:
- A. 1
 - B. 2
 - C. 3
 - D. 4
36. Assume that two countries both have the per-worker production function $y = k^{\frac{1}{2}}$, neither has population growth or technological progress, depreciation is 5 percent of capital in both countries, and country A saves 10 percent of output whereas country B saves 20 percent. If A starts out with a capital-labor ratio of 4 and B starts out with a capital-labor ratio of 2, in the long run:
- A. both A and B will have capital-labor ratios of 4.
 - B. both A and B will have capital-labor ratios of 16.
 - C. A's capital-labor ratio will be 4 whereas B's will be 16.
 - D. A's capital-labor ratio will be 16 whereas B's will be 4.
37. If a larger share of national output is devoted to investment, then living standards will:
- A. always decline in the short run but rise in the long run.
 - B. always rise in both the short and long runs.
 - C. decline in the short run and may not rise in the long run.
 - D. rise in the short run but may not rise in the long run.



38. If all wage income is consumed, all capital income is saved, and all factors of production earn their marginal products, then:
- A. the economy will reach a steady-state level of capital stock below the Golden Rule level.
 - B. the economy will reach a steady-state level of capital stock above the Golden Rule level.
 - C. wherever the economy starts out, it will not grow.
 - D. wherever the economy starts out, it will reach a steady-state level of capital stock equal to the Golden Rule level.
39. If the economy moves from a steady state with positive population growth to a zero population growth rate, then in the new steady state total output growth will be _____ and growth of output per person will be _____.
- A. lower; lower
 - B. lower; the same as it was before
 - C. higher; higher than it was before
 - D. higher; lower
40. In a Solow Model with technological change, if population grows at a 2 percent rate and the efficiency of labor grows at a 3 percent rate, then in the steady state output per worker grows at a _____ percent rate.
- A. 0
 - B. 2
 - C. 3
 - D. 5
41. In a steady state with population growth and technological progress:
- A. the capital share of income increases.
 - B. the labor share of income increases.
 - C. in some cases the capital share of income increases and sometimes the labor share increases.
 - D. the capital and labor shares of income are constant.



42. If the central bank reduces the money supply by 5 percent and the quantity theory of money is true, then:
- A. every point on the aggregate demand curve moves 5 percent to the left.
 - B. every point on the aggregate demand curve moves up 5 percent.
 - C. the aggregate demand curve moves down and to the left, but it is impossible to determine exactly by how much.
 - D. the aggregate demand curve moves up and to the right, but it is impossible to determine exactly by how much.
43. If central bank A cares only about keeping the price level stable and central bank B cares only about keeping output at its natural level, then in response to an exogenous decrease in the velocity of money:
- A. both central bank A and central bank B should increase the quantity of money.
 - B. central bank A should increase the quantity of money whereas central bank B should keep it stable.
 - C. central bank A should keep the quantity of money stable whereas central bank B should increase it.
 - D. both central bank A and central bank B should keep the quantity of money stable.
44. In the Keynesian-cross analysis, assume that the analysis of taxes is changed so that taxes, T , are made a function of income, as in $T = T + tY$, where T and t are parameters of the tax code and t is positive but less than 1. As compared to a case where t is zero, the multiplier for government purchases in this case will:
- A. not change.
 - B. be smaller.
 - C. be bigger.
 - D. be equal to 1.



45. If marginal propensity to consume $MPC = 0.75$ (and there are no income taxes but only lump-sum taxes) when T decreases by 100, then the IS curve for any given interest rate shifts to the right by:
- A. 100
 - B. 200
 - C. 300
 - D. 400
46. If money demand does not depend on the interest rate, then the LM curve is _____ and _____ policy has no effect on output.
- A. horizontal; fiscal
 - B. vertical; fiscal
 - C. horizontal; monetary
 - D. vertical; monetary
47. According to the IS-LM model, when the government increases taxes and government purchases by equal amounts:
- A. income, the interest rate, consumption, and investment are unchanged.
 - B. income and the interest rate rise, whereas consumption and investment fall.
 - C. income and the interest rate fall, whereas consumption and interest rise.
 - D. income, the interest rate, consumption, and investment all rise.
48. A fall in consumer confidence about the future, which induces consumers to spend less and save more, will, according to the Mundell-Fleming model with floating exchange rates, lead to:
- A. a fall in consumption and income.
 - B. no change in consumption or income.
 - C. no change in income but a rise in net exports.
 - D. no change in income or net exports.
49. In the Mundell-Fleming model with a floating exchange rate in a small open economy, a rise in the world interest rate will lead income:
- A. and net exports both to fall.
 - B. to rise and net exports to fall.
 - C. to fall and net exports to rise.
 - D. and net exports both to rise.



50. In a small open economy with a fixed exchange rate, if the government imposes an import quota, then net exports:
- A. decrease but the money supply falls and income falls.
 - B. increase, the money supply increases, and income increases.
 - C. are unchanged but the money supply falls and income falls.
 - D. are unchanged, the money supply is unchanged, and income is unchanged.



請務必將所有演算或證明過程寫於答案卷上

1. Find the derivative of the function $f(x) = \left(x^2 + \frac{2}{x^2}\right)(3x + 2)$. (10分)

2. Find the interval(s) where $f(x) = \sqrt{6 - 2x}$ is increasing and the interval(s) where it is decreasing. (10分)

3. Evaluate the definite integral $\int_{\sqrt{2}}^{\sqrt{7}} 3x\sqrt{x^2 + 2} dx$. (10分)

4. Solve the initial value problem $2x^2 \frac{dy}{dx} = y^3, y(1) = 1$. (10分)

5. Determine whether the series $\sum_{n=0}^{\infty} \frac{3(2)^n - 1}{4^n}$ is convergent or divergent.

If it is convergent, find its sum. (10分)

6. Approximate $\int_0^1 \frac{1 - e^{-t^2/2}}{t} dt$ to six decimal place accuracy. (10分)

7. Show that if f is differentiable and $z = x \cdot f(x/y)$, then all tangent planes to the graph of this equation pass through a common point. (10分)

8. Evaluate the double integral $\iint_R xy dA$; R is the region bounded by $y = \sqrt{x}$, $y = 2 - \sqrt{x}$ and y -axis. (10分)

9. Show that $0 < \frac{\ln x}{x} < \frac{2}{\sqrt{x}}$, when $x > 1$. (10分)

10. Find all relative extrema of $f(x, y) = x^{1/3}y$ subject to the constraint $x - \sqrt{y} = 7$. (10分)



一、簡答題：

1. 台新金控為了降低購併彰化銀行後的高負債比率而引進新橋私募基金(New Bridge Private Equity Fund)，請問該基金與一般的共同基金(Mutual Fund)不同點為何？(十五分)
2. 請繪出殖利率曲線(Yield Curve)最常見的三種形態(五分)？目前台灣的殖利率曲線為哪一種(五分)？中央銀行最不願意見到的是哪一種(五分)？為什麼中央銀行最不願意見到該種形態(五分)？
3. $Y=C+I+G+(X-M)$ ，請約略估出台灣四大部門各自所佔的百分比(五分)。目前的「雙卡效應」又會如何影響到 Y？(十分)

二、為促進申請上櫃公司之股權分散，以提升申請公司股票之流動性，並達成資本大眾化的目的，國內於民國 94 年間實施證券承銷新制，請問該新制的重點特色有哪些？實施後市場對新掛牌上櫃公司股價的反應為何？(十五分)

三、最近一年來，宏達電的股價漲了四、五倍，有人認為這是因為宏達電採用藍海策略的關係。何謂藍海策略？妳(你)認同這個說法嗎？是不是所有公司都適合採用藍海策略？為什麼？(十五分)

四、繼「金磚四國」之後，高盛證券今年再提出「金鑽 11 國」概念。請問高盛證券主要是依據哪些標準挑選「金鑽 11 國」？(十分)

五、由價格、未平倉量與成交量關係中，可能解讀出哪些市場趨勢訊息？(十分)



填充題

1. 投擲五個一致且公正之骰子一次, 若假設“一點可代表任何點數時”,

(a) 試問出現“四個相同點數”的事件之機率為何? (5分)

(b) 假設已知只出現兩個一點, 試問有可能出現“四個相同點數”的條件機率為何? (5分)

2. Let X be distributed as $\text{Gamma}(\alpha, \beta)$ and g is a bounded differentiable function,

then find the value of $\frac{E[g(X) \cdot (X - \alpha\beta)]}{E[Xg'(X)]} =$ (10分).

3. Suppose that the fraction of an hour during which a phone booth is unoccupied has

the probability density function $f(x; \theta) = \theta \cdot x^{\theta-1}$, $0 < x < 1$. Based on a random

sample of size n , what is the uniformly minimum variance unbiased estimator of θ ?

(10分) Also, find an unbiased estimator of $\frac{1}{\theta}$. (10分)

4. Let T be a random variable denoting the life time of an equipment, which is distribut-

ed as $\text{Exponential}(\lambda)$. Then the reliability of the equipment at time t , say $R(t; \lambda)$,

is defined as the probability that $T > t$. In other words, $R(t; \lambda) = \mathcal{P}\{T > t\}$.

Based on a random sample of size n , find the maximum likelihood estimator of

$R(t; \lambda)$. (10分)



5. The length in centimeters of $n=29$ fish yielded an average length of $\bar{x}=16.82$ and $s^2 = 34.9$. Determine the size of a new sample so that $\bar{x} \pm 0.5$ is an approximate 95% confidence interval for μ . (10分)

6. Let $f(x, y) = 1/8$, $0 \leq y \leq 4$, $y \leq x \leq y+2$ be the joint p.d.f. of X and Y .

(a) Find $f_1(x)$, the marginal p.d.f. of X . (5分)

(b) Determine $h(y|x)$, the conditional p.d.f. of Y , given $X = x$. (5分)

7. The density function of a continuous random variable X is given by

$$f(x) = \begin{cases} kx(2-x) & \text{for } 0 \leq x \leq 2 \\ 0 & \text{otherwise} \end{cases}$$

(a) Find the value of k . (4分)

(b) Find $E(X)$ and $\text{Var}(X)$. (6分)

8. In the model $y_i = \alpha + \beta x_i + u_i$, $i=1, \dots, N$, the following sample moments have been calculated from 10 observations:

$$\sum y_i = 8 \quad \sum x_i = 40 \quad \sum y_i^2 = 26 \quad \sum x_i^2 = 200 \quad \sum x_i y_i = 20$$

(a) Calculate the predictor of y for $x=10$ (5分)

(b) Obtain a 95% confidence interval for part(a). (5分)

9. In the regression model $y_i = \alpha + \beta x_i + u_i$ if the sample mean \bar{x} of x is zero, Find out $\text{Cov}(\hat{\alpha}, \hat{\beta})$, where $\hat{\alpha}$ and $\hat{\beta}$ are the least squares estimators of α and β . (10分)