

# 國立高雄大學九十六學年度轉學招生考試試題

科目：經濟學原理  
考試時間：90 分鐘

系所：金融管理學系  
本科原始成績：100 分

是否使用計算機：是

**I. MULTIPLE CHOICE (2 points each). Choose the one alternative that best completes the statement or answers the question.**

- 1) If a country can produce more of one good without producing less of another good that people value more highly, then \_\_\_\_\_.  
A) resource use is inefficient  
B) resource use is efficient  
C) the opportunity cost is the lowest possible  
D) the resources used have the highest possible value
  
- 2) In game theory, strategies include \_\_\_\_\_.  
A) the payoff matrix  
B) all possible actions and payoffs of each player  
C) only the winning action of each player  
D) all possible actions of each player
  
- 3) If the Fed unexpectedly increases the growth rate of the quantity of money, the short-run Phillips curve  
A) shifts rightward. B) does not shift.  
C) shifts leftward. D) becomes vertical.
  
- 4) Which of the following is a characteristic of the market structure for monopolistic competition?  
A) barriers to entry  
B) a large number of firms compete  
C) each firm produces a differentiated product  
D) Both answers B and C are correct.
  
- 5) The consumption function relates the consumption expenditure decisions of households to  
A) the nominal interest rate. B) investment decisions of firms.  
C) the level of disposable income. D) saving decisions of households.
  
- 6) Because of automatic stabilizers, when real GDP increases  
A) government expenditures decrease and tax revenues increase.  
B) government expenditures equal tax revenues.  
C) the economy will automatically go to full employment.  
D) government expenditures increase and tax revenues decrease.

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- 7) If good growing conditions increase the supply of strawberries and hot weather increases the demand for strawberries, the quantity of strawberries bought \_\_\_\_\_.
- A) increases and the price might rise, fall or not change
  - B) increases and the price rises
  - C) doesn't change but the price rises
  - D) doesn't change but the price falls
- 8) Assuming long-run external economies exist, when demand increases in a perfectly competitive market, in the long run, the price of the product
- A) equals the initial price (before the increase in demand) and the quantity increases.
  - B) equals the initial price (before the increase in demand) and the quantity decreases.
  - C) falls below the initial price (before the increase in demand) and the quantity increases.
  - D) rises above the initial price (before the increase in demand) and the quantity increases.
- 9) The main sources of cost-push inflation are
- A) money wage rates and the cost of raw materials.
  - B) increases in aggregate demand and real wage rates.
  - C) money wage rates and increases in aggregate demand.
  - D) real wage rates and the cost of raw materials.
- 10) Unregulated monopolies can often earn an economic profit in the long run because
- A) barriers to entry prevent competing firms from entering the market.
  - B) they receive government subsidies.
  - C) they have high costs.
  - D) the risks of running a monopoly are high.
- 11) Which of the following allow banks to minimize the cost to a business of borrowing?
- I. Borrowing long and lending short.
  - II. Raising funds from a large number of depositors.
  - III. Creating money by lending all their reserves.
- A) I and III B) II only C) I only D) II and III

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- 12) Along a straight-line demand curve, as the price falls the
- A) elasticity of demand is constant.
  - B) demand becomes less elastic.
  - C) demand becomes more elastic.
  - D) demand is always unitary elastic.
- 13) The idea that governments make choices that are inefficient in a political system in which voters are rationally ignorant is called
- A) public choice theory.
  - B) principle of minimum differentiation.
  - C) social interest theory.
  - D) None of the above answers is correct.
- 14) Which of the following is one of the Fed's policy goals?
- A) price level stability
  - B) monetary base
  - C) discount rate
  - D) help the President win reelection
- 15) If real GDP is \$2 billion and planned aggregate expenditure is \$2.25 billion, inventories will
- A) pile up and output will decrease.
  - B) be depleted and output will decrease.
  - C) be depleted and output will increase.
  - D) pile up and output will increase.
- 16) Long-run aggregate supply will decrease for all of the following reasons EXCEPT
- A) decreased human capital.
  - B) decreased capital.
  - C) reduction in the level of technology.
  - D) reduced money wages.

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- 17) In the short run, a decrease in the quantity of money
- A) shifts the aggregate demand curve rightward.
  - B) shifts the long-run aggregate supply curve rightward.
  - C) shifts the long-run aggregate supply curve leftward.
  - D) shifts the aggregate demand curve leftward.
- 18) Demand is inelastic if
- A) the smaller angle between the vertical axis and the demand curve is less than 45 degrees.
  - B) a leftward shift of the supply curve raises the total revenue.
  - C) large shifts of the supply curve lead to only small changes in price.
  - D) the good in question has close substitutes.
- 19) Joshua consumes only apples and bread and is in consumer equilibrium. Joshua reads that eating bread is healthy, so his total utility from each loaf of bread increases. At his new consumer equilibrium Joshua would consume
- A) the same quantity of apples and the same quantity of bread.
  - B) fewer apples and more bread.
  - C) some combination of apples and bread corresponding to a lower ratio of the marginal utility of bread to the marginal utility of apples.
  - D) more apples and less bread.
- 20) When the total product curve is drawn in a figure that measures employment along the horizontal axis, it is a graph that shows the
- A) minimum cost of producing a given amount of output using different techniques.
  - B) minimum output attainable for each quantity of labor employed.
  - C) maximum output attainable for each quantity of labor employed.
  - D) maximum profit attainable for each unit of output sold per unit of labor employed.
- 21) An example of a nominal variable is
- A) aggregate working hours.
  - B) the price level.
  - C) the real wage rate.
  - D) the level of unemployment.
- 22) Sue consumes apples and bananas. Suppose Sue's income doubles and the prices of apples and bananas do not change. Sue's budget line will
- A) remain unchanged.

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- B) shift leftward but its slope will not change.  
C) shift rightward and become steeper.  
D) shift rightward but its slope will not change.
- 23) A characteristic of monopolistic competition is  
A) the absence of advertising.  
B) a high capital-output ratio.  
C) a low ratio of fixed to variable costs.  
D) product differentiation.
- 24) A change in the full-employment quantity of labor \_\_\_\_\_ the short-run aggregate supply curve and \_\_\_\_\_ the long-run aggregate supply curve.  
A) does not shift; shifts B) shifts; shifts  
C) does not shift; does not shift D) shifts; does not shift
- 25) The correct ranking of the four basic market structures from low HHI to high HHI is  
A) perfect competition, monopolistic competition, oligopoly, monopoly.  
B) monopoly, oligopoly, monopolistic competition, perfect competition.  
C) monopoly, monopolistic competition, oligopoly, perfect competition.  
D) perfect competition, oligopoly, monopolistic competition, monopoly.
- 26) If the quantity of money increases when the economy is at full employment, aggregate demand \_\_\_\_\_. In the long run, the price level \_\_\_\_\_ and real GDP will \_\_\_\_\_.  
A) increases; real GDP increases; increase further  
B) decreases; real GDP decreases; increase to potential GDP  
C) increases; the price level rises; return to potential GDP  
D) decreases; the price level falls; return to potential GDP
- 27) Firm A can produce a unit of output with 10 hours of labor and 5 units of material. Firm B can produce a unit of output with 5 hours of labor and 10 units of material. Firm C can produce a unit of output with 10 hours of labor and 10 units of material. If the prices of labor and material are \$10 per hour and \$5 per unit, respectively, which of these firms is the most technologically efficient?  
A) firm A only  
B) firm B only

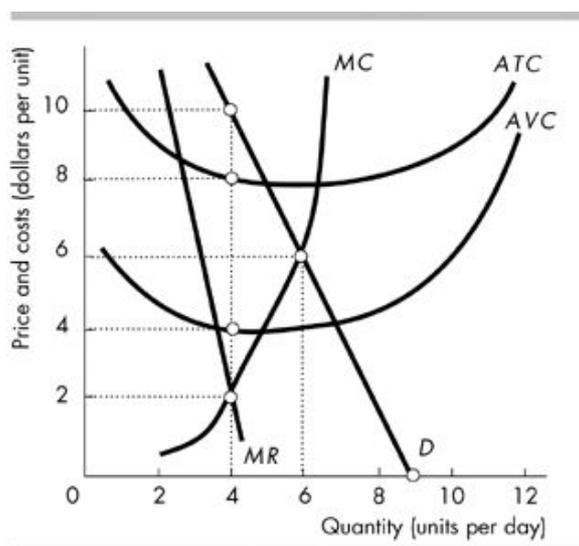
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- C) firm C only  
 D) Firms A and B could both be technologically efficient.
- 28) The real interest rate \_\_\_\_\_ the expected inflation rate \_\_\_\_\_ the nominal interest rate, approximately.  
 A) minus; equals B) equals; minus  
 C) equals; plus D) plus; equals
- 29) If there is a collusive agreement in a duopoly to maximize profit, then the price will  
 A) be the same as the price set by a monopoly.  
 B) equal the marginal cost of production.  
 C) be the same as the price set by a competitive industry.  
 D) equal the average total cost of production.
- 30) Marginal utility theory concludes that a decrease in the price of a good increases the quantity demanded and  
 A) decreases the demand for complements.  
 B) increases the demand for substitutes.  
 C) increases income.  
 D) increases total utility.



- 31) The unregulated, single-price monopolist illustrated in the figure above has a total cost of  
 A) \$8.00 per day. B) \$32.00 per day.

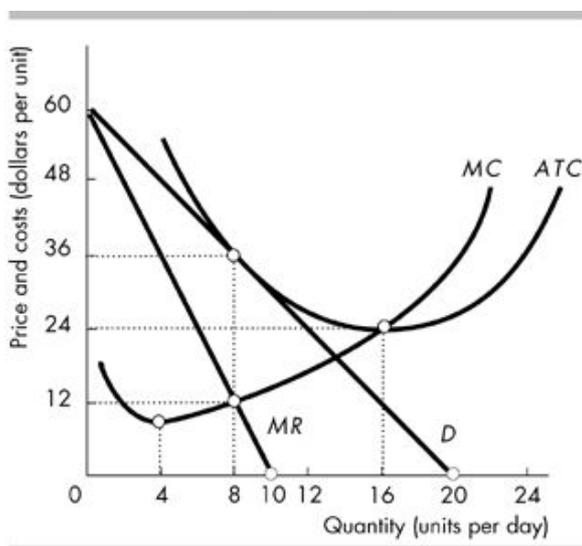
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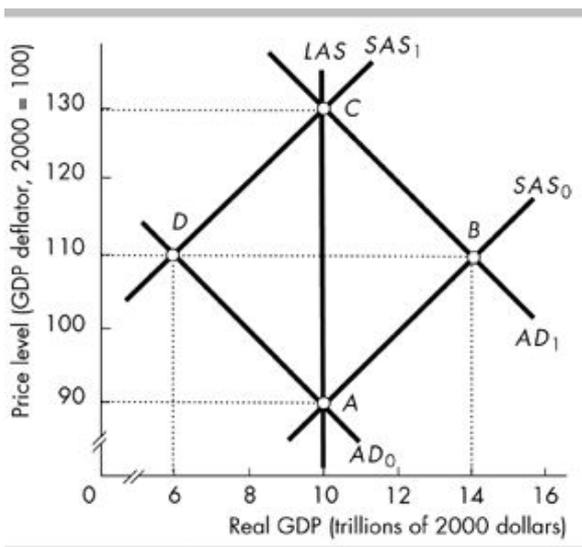
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C) \$16.00 per day. D) \$40.00 per day.



32) The above figure depicts a firm in monopolistic competition. At the profit maximizing level of output, excess capacity for the firm is equal to  
 A) 16 units per day. B) 8 units per day.  
 C) 0 units per day. D) 4 units per day.



33) An economy is at point A in the figure. Investment increases. The economy will move to point \_\_\_\_\_ in the short run and to point \_\_\_\_\_ in the long run.

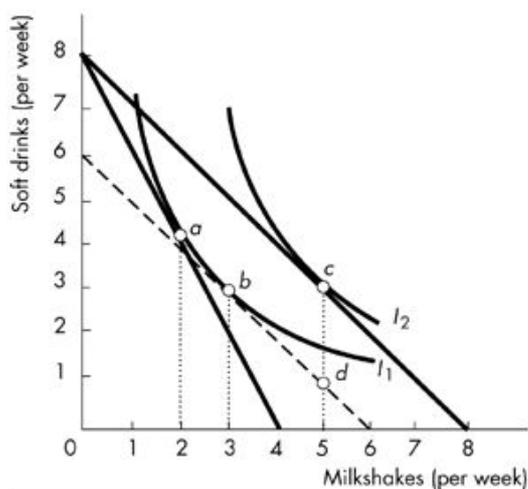
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A) B; C B) D; C C) D; A D) B; A



34) In the above figure, if income is \$8, the initial price of a soft drink is \$1, and the initial price of a milkshake is \$2, a decrease in the price of a milkshake to \$1 will move the consumer from point \_\_\_\_\_ to point \_\_\_\_\_.

A) a; c B) b; c C) a; b D) a; d

**Firm 1**

		<u>Sell</u>	<u>Give away</u>
<b>Firm 2</b>	<u>Sell</u>	1: \$3 2: \$3	1: \$4 2: -\$1
	<u>Give away</u>	1: -\$1 2: \$4	1: \$2 2: \$2

35) Two software firms have developed an identical new software application. They are debating whether to give the new application away free and then sell add-ons or sell the application at \$30 a copy. The payoff matrix is above and the payoffs are profits in millions of dollars. What is Firm 1's best strategy?

- A) Give away the application only if Firm 2 gives away the application.
- B) Give away the application regardless of what Firm 2 does.
- C) Sell the application at \$30 a copy regardless of what Firm 2 does.
- D) Give away the application only if Firm 2 sells the application.

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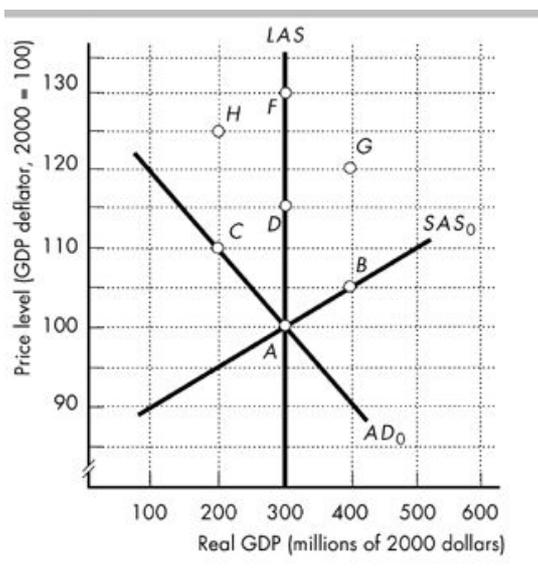
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**II. ESSAY (15 points each). Write your answer on a answer sheet.**

- 1) Margo's CoolDesign, is a firm that designs personal Web sites. Margo is considering buying a new computer that costs \$1,600. She expects that the computer will generate an additional \$1,000 at the end of the first year, \$600 at the end of the second year, and \$200 at the end of the third year, after which it will be worthless. The interest rate in the next three years is 6 percent per year.
  - a) What is the present value of the computer?
  - b) What is the net present value of the computer?
  - c) Will Margo buy the computer? Why or why not?
  - d) What is the highest price that Margo is willing to pay for the computer?
  - e) How will your answers in (a), (b), (c), and (d) change if the interest rate rises to 8 percent per year?



- 2) The figure above shows the initial aggregate demand curve,  $AD_0$ , the initial short-run aggregate supply curve,  $SAS_0$ , and the long-run aggregate supply curve,  $LAS$ . The points in the figure show possible combinations of real GDP and the price level at which the economy of Taiwan is in macroeconomic equilibrium. The economy is initially at point A. Then, the government increases its purchases of goods and services. Draw the new aggregate demand and short-run aggregate supply curves in the figure to show the effects of this event on Taiwan's real GDP and price level.
  - a) What happens to Taiwan's potential GDP?
  - b) In the short run, what happens to aggregate supply and aggregate demand?
  - c) What are the new short-run equilibrium real GDP and price level?
  - d) In the long run, what happens to the short-run aggregate supply and aggregate demand?
  - e) What are the new long-run equilibrium real GDP and price level?

國立高雄大學九十六學年度轉學招生考試試題

科目：微積分  
考試時間：90 分鐘

系所：金融管理學系  
本科原始成績：100 分

是否使用計算機：是

計算題每題 10 分：

1. The demand function for a product is modeled by  $p = \sqrt{420 - 4x}$ ,  $0 \leq x \leq 105$ , where  $p$  is the price at which  $x$  units of the product are demanded by the market. Find the price elasticity when the demand is  $x = 88$  units. Is the demand elastic, inelastic, or does it have unit elasticity?
2. Determine the convergence or divergence for the following series:  
(a)  $\sum_{n=1}^{\infty} \frac{e^n \cdot n!}{n^n}$ , (b)  $\sum_{n=2}^{\infty} \frac{1}{n \cdot \ln n}$ .
3. Find the intervals on which the graph of  $f(x)$  is concave upward and those on which it is concave downward, where  $f(x) = -x^5 + 15x^4 - 60x^3 + 648$ .
4. Find  $\frac{dy}{dx}$  for  $y = \sqrt{x + \sqrt{x + \sqrt{x + \dots}}}$ .
5. Find the volume of the solid bounded by the graphs of the equations:  $z = 2xy$ ,  $z = 0$ ,  $y = 0$ ,  $y = 2$ ,  $x = 0$ ,  $x = 4$ .
6. Find the integrals (a)  $\int x \ln x \, dx$ , (b)  $\int x^2(2-x)^{55} \, dx$ .
7. Please use (a) Trapezoidal rule, and (b) Simpson's rule both with  $n=4$  to approximate  $\int_0^6 \frac{1}{1+x^2} \, dx$ .
8. Find the Maclaurin series representation for  $f(x) = e^{-x}$ , then find  $f^{(99)}(0)$ .
9. A deposit of \$1,000 is made into a fund with an annual interest rate of 5%. Find the time (in years) necessary for the investment to **triple** if the interest is **compounded continuously**. ( $\ln 2 \approx 0.693$ ,  $\ln 3 \approx 1.099$ ,  $\ln 5 \approx 1.609$ )
10. 一購屋者計畫購買一現值總價  $P$  元之新屋，此購屋者準備了  $x$  元 ( $x < P$ ) 之頭期款，其餘不足款項將向銀行辦理年利率為  $r$  之房屋貸款，自繳交頭期款並同時辦理房貸後的第一個月開始還款，共計  $N$  年，前五年每月只還利息 ( $N > 5$ )，第六年開始每月支付本息攤提固定金額  $F$  元予銀行，請列式說明以上各變數間之關係為何？