

國立中山大學 95 學年度轉學生招生考試試題

科目：微積分【政經系三年級】

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1. (20 points) Find local extrema for the following function. The second-derivative test must be performed (That is, you must consider the second-order condition).

$$f(x, y) = -\ln x - 4\ln y + 2x^2 + y + 100$$

2. (20 points) Find the global extrema of the function. The second-derivative test must be performed (That is, you must consider the second-order condition).

$$f(x_1, x_2, x_3) = x_1^2 - 6x_1x_2 + 4x_2^2 + 5x_2x_3 + 3x_3^2 - 17x_3 + 45.$$

3. (20 points) Use the Lagrangian multiplier method to determine the optimal values for each constrained optimization problem's choice variables. Use the sufficient condition to determine if they represent local maxima or local minima.

(a) $y = 3x^{0.4}y^{0.6}$ subject to $-2x + 5y = 100$.

(b) $y = x^2 + 2z^2 - xz$ subject to $2x + z = 1$.

4. (20 points) The following system of equations illustrates a partial market equilibrium model:

$$Q^D(t) = Q^S(t)$$

$$Q^D(t) = a - bP(t)$$

$$Q^S(t) = c + dP(t).$$

- (a) Solve the market equilibrium by using Cramer's rule.

- (b) Assume $\frac{dP(t)}{dt} = Q^D(t) - Q^S(t)$. Find the condition for this system to be stable.

5. (10 points) Consider each of the following systems of equations of the general form $AX = Y$. Using $X = A^{-1}Y$ to solve the following system

$$x + 3y + z = 10$$

$$y + 2z = 4$$

$$3x - 4z = 5$$

6. (10 points) Find the solution to the following differential equation.

$$\dot{x}(t) = -3x(t) + 8, x(0) = 4.$$

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以下申論，共計四題；每題 25 分

- 1、請就民主相關理論分析民主制度在運作上的可能問題。
- 2、何謂全球化？請分別從社會主義與自由主義的觀點闡釋全球化對於國家、社會的影響。
- 3、試比較總統制、內閣制與雙首長制三種制度之設計與運作的優缺點。
- 4、第三條路 (The Third Way) 是 90 年代相當受歡迎的政治思潮，請問，「第三條路」有哪些重要論點與主張？

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科目：經濟學【政經系三年級】

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Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- ___ 1. An important element of the market process is that
 - a. although people trade voluntarily, one party "wins" and the other party "loses."
 - b. the government determines the extent of market activity in order for all parties to benefit.
 - c. people are better off if they are self-sufficient than if they trade with others in the market.
 - d. people trade voluntarily and all parties expect to benefit
- ___ 2. Opportunity costs most often increase as you move down a production possibilities frontier because
 - a. resources are not completely adaptable to alternative uses.
 - b. factors of production are limited and human wants are unlimited.
 - c. efficiencies are generated by large-scale production.
 - d. economic efficiency is only possible in the short run.
- ___ 3. The production possibilities frontier is a downward-sloping straight line when the
 - a. opportunity cost of producing each good depends on the amount produced.
 - b. technology of production is constant.
 - c. opportunity cost of producing each good is independent of the amount of the good produced.
 - d. economy is industrialized.
- ___ 4. Elasticity of supply for the long run is
 - a. always greater than the long-run price elasticity of demand.
 - b. always zero.
 - c. perfectly inelastic.
 - d. always greater than the short-run elasticity of supply.
- ___ 5. Taxes levied directly on consumers
 - a. always hurt consumers rather than producers.
 - b. always hurt producers rather than consumers.
 - c. generate more revenue than taxes levied on producers.
 - d. have the same effect as taxes directly levied on producers.
- ___ 6. One way of measuring the economic inefficiency in a specific situation is to calculate the
 - a. difference between the price of the good in the inefficient situation and the price if the situation was efficient.
 - b. change in revenue reported by firms.
 - c. loss in consumer and producer surplus relative to an efficient solution.
 - d. change in economic profits relative to an efficient solution.
- ___ 7. Market failure in the form of externalities arises when
 - a. all production costs are included in the prices of goods.
 - b. not all costs and benefits are included in the prices of goods.
 - c. the total surplus is maximized but some consumers cannot buy because prices are too high.
 - d. the market fails to achieve equilibrium.
- ___ 8. When the government increases taxes on labor income,
 - a. people tend to work harder to make up for lost income.
 - b. people tend to work less because their take-home wage is lower.
 - c. most employers reduce employment.
 - d. Any of the above are correct, depending on the elasticities of demand and supply.

【背面還有試題】

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科目：經濟學【政經系三年級】

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- ___ 9. Domestic producers gain from the opportunity to export goods to foreign countries because
- the free-trade price of the good is higher than the domestic price in the absence of trade.
 - producers are able to reach a wider market.
 - although the free-trade price is lower than in the absence of trade, producers are able to sell a greater quantity.
 - production rises, although there is no change in the price of the good compared to the no-trade situation.
- ___ 10. Because there are positive externalities from higher education,
- private markets would provide too little of it.
 - private markets would provide too much of it.
 - the government should impose a tax on college students.
 - the government should impose a tax on students' families.
- ___ 11. To achieve the optimal provision of public goods the
- market should be allowed to find its equilibrium without government intervention.
 - government must limit the provision of the goods.
 - government must tax producers of these goods.
 - government must either provide the goods or subsidize their production.
- ___ 12. The commercial value of ivory is a threat to the elephant, but the commercial value of beef is a guardian of the cow. This is because
- the cow is raised in developed economies while the elephant lives primarily in less-developed nations.
 - cows are private goods while elephants tend to roam without owners.
 - cows and elephants are public goods, but ivory is nonrival.
 - ivory is nonrival and nonexclusive but beef is rival and exclusive.
- ___ 13. Minimizing the total deadweight loss from taxes that raise a certain amount of revenue for the government is known as
- an external benefit.
 - optimal taxation.
 - a lump-sum tax scheme.
 - horizontal equity.
- ___ 14. Some reasons that firms may experience diseconomies of scale include that
- the firm is too small to take advantage of specialization.
 - large management structures may be bureaucratic and inefficient.
 - if there are too many employees, the work place becomes crowded and people become less productive.
 - average fixed costs begin to rise again.
- ___ 15. The textile industry is composed of a large number of small firms. In recent years, these firms have suffered economic losses and many sellers have left the industry. Economic theory suggests that these conditions will
- shift the demand curve outward so that price will rise to the level of production cost.
 - cause the remaining firms to collude so that they can produce more efficiently.
 - cause the market supply to decline and the price of textiles to rise.
 - cause firms in the textile industry to suffer long-run economic losses.
- ___ 16. A monopolist's profits with price discrimination will be
- lower than if the firm charged a single, profit-maximizing price
 - the same as if the firm charged a single, profit-maximizing price.
 - higher than if the firm charged just one price because the firm will capture more consumer surplus.
 - higher than if the firm charged a single price because the costs of selling the good will be lower.

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科目：經濟學【政經系三年級】

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- _____ 17. Which of the following would be most likely to contribute to the breakdown of a cartel in a natural resource (e.g., bauxite) market?
- high prices
 - low price elasticity of demand
 - high compatibility of member interests
 - unequal member ownership of the natural resources
- _____ 18. An equilibrium in which each firm in an oligopoly industry maximizes profit, given the actions of its rivals, is called
- a general equilibrium.
 - a dominant equilibrium.
 - a Nash equilibrium.
 - an oligopoly equilibrium.
- _____ 19. The traditional view of monopolistic competition holds that this type of industrial structure is inefficient because
- there are too few firms to reach an efficient level of production.
 - firms do not operate at the output that minimizes average costs.
 - advertising is not used extensively enough to yield an efficient differentiation of the products.
 - consumers do not have enough choice among the product varieties available.
- _____ 20. Bill is trying to convince the owner of a pizza shop to hire him. He argues that he could help the shop sell an additional five pizzas per day at the market price of \$8 each. If the facts are not in dispute, but the owner does not hire him, then
- the wage rate must be less than \$40 per day.
 - hiring Bill would involve a negative marginal product.
 - the wage rate must be more than \$40 per day.
 - the wage rate must be less than \$8 per day.
- _____ 21. The idea of paying workers an efficiency wage is that
- doing so is more efficient than paying them the market wage.
 - paying workers less gives them the incentive to work harder.
 - workers and management gain at the expense of the stockholders of the company.
 - workers have the incentive to do high-quality work.
- _____ 22. In a world where people would have no prior information about where they are in an income distribution, given the choice, Rawls argues that they would prefer
- an income distribution that is relatively equal.
 - that everyone has the same work opportunities and market determined wage rates.
 - that private property be transformed to government property to safeguard their incomes.
 - less economic assistance to the poor because it distorts the price system.
- _____ 23. Jeffrey spends all of his income on warm-up suits and running shoes, and the price of a warm-up suit is four times as large as the price of a pair of shoes. Then, in order to maximize total utility, Jeffrey should
- buy four times as many warm-up suits as pairs of running shoes.
 - buy four times as many pairs of running shoes as warm-up suits.
 - divide his income equally between warm-up suits and running shoes.
 - buy both items until the marginal satisfaction of a warm-up suit is four times the marginal satisfaction of a pair of running shoes.
- _____ 24. The principal-agent problem is more serious in large firms than in small firms because
- monitoring employee activity in large firms is generally more difficult.
 - employees in large firms have less information.
 - profits increase with the size of the firm.
 - customers expect better treatment from small firms and they usually get it.

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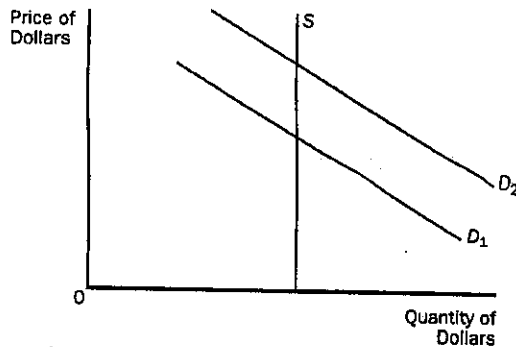
- ___ 25. Which of the following would most likely cause GDP to overstate the actual output produced in a year?
- increased production in the underground economy
 - a decline in the quality of goods and services produced
 - increased production for home use (non-market production)
 - a decline in population
- ___ 26. When borrowing money to purchase an automobile, Wei has the choice between a fixed nominal interest rate or adjustable nominal interest rate loan. Typically the adjustable rate loans start with a lower rate than the fixed rate loans. Given that, Wei would most likely want to borrow money at the higher fixed rate when she expects the
- inflation rate to rise.
 - inflation rate to fall.
 - inflation rate to remain unchanged.
 - government to take action to lower the inflation rate in the near future.
- ___ 27. An increase in the capital stock causes labor productivity to
- decrease and the standard of living to increase.
 - increase and the standard of living to increase.
 - decrease and the standard of living to decrease.
 - increase while the standard of living remains constant.
- ___ 28. The supply of loanable funds curve is upward sloping because a rise in the interest rate
- decreases the opportunity cost of firms' investment spending.
 - increases the opportunity cost of firms' investment spending.
 - decreases the opportunity cost to households of consuming.
 - increases the opportunity cost to households of consuming.
- ___ 29. According to the efficient markets hypothesis,
- fundamental analysis is a way to profit from predicting stock prices.
 - fundamental and technical analysis are largely useless.
 - technical analysis is the best approach to profit from predicting stock prices.
 - fundamental and technical analysis must be synthesized in order to profit from predicting stock prices.
- ___ 30. The natural rate of unemployment is the economist's notion of
- full employment.
 - cyclical employment.
 - structural unemployment.
 - frictional unemployment.
- ___ 31. When the Fed (U.S. central bank) decreases the discount rates, it makes it easier for banks to
- decrease their reserves by borrowing from the Fed, causing the money supply to shrink.
 - increase their reserves by borrowing from the Fed, causing the money supply to grow.
 - protect against the inevitable accompanying increase in the legal reserve requirement.
 - convert its loans into deposits.
- ___ 32. Hyperinflation occurs because governments want to _____ spending but they ignore the fact that increasing the money supply will _____.
- decrease, require greater government spending
 - increase, also increase the price level
 - increase, put upward pressure on interest rates
 - decrease, put downward pressure on interest rates

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- ___ 33. Which of the following is a statement of the purchasing power parity theory of exchange rate determination? The exchange rate will adjust in the
- long run until the interest rate is roughly the same in both countries.
 - long run until real GDP is roughly the same in both countries.
 - long run until the average price of goods is roughly the same in both countries.
 - short run until the average price of goods is roughly the same in both countries.
- ___ 34. Which of the following is a reason why exchange rates may deviate from their purchasing power parity values for many years?
- Some goods are not tradable.
 - In some cases, a foreign-produced good is not a perfect substitute for a domestically-produced version of the same thing.
 - In some markets, import quotas limit the ability of firms to agree on exchange prices.
 - Both a and b are correct.
- ___ 35. Consider this diagram of the market for foreign exchange. If the U.S. government decides to increase import tariffs on imported steel, we could expect the



- demand for dollars to shift from D_1 to D_2 .
 - demand for dollars to shift from D_2 to D_1 .
 - supply of dollars to increase.
 - supply of dollars to decrease.
- ___ 36. To say that nominal prices are sticky means
- the average price level seldom changes.
 - relative prices seldom change.
 - it takes at least one year for prices to change to a new equilibrium level.
 - it takes time for prices to adjust to equilibrium.
- ___ 37. Which of the following will cause stagflation?
- an increase in the money supply
 - an increase in oil prices
 - a decrease in the money supply
 - technical progress

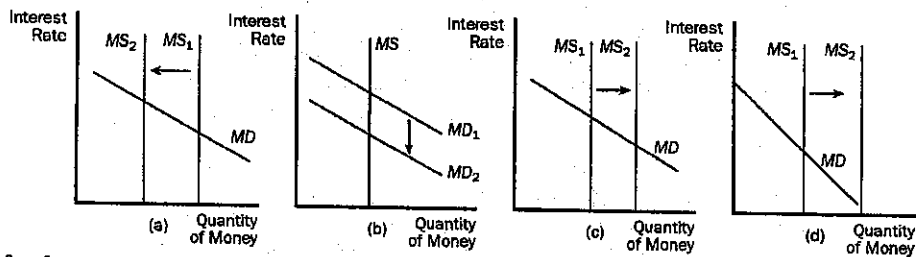
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38. Which of these diagrams describes an open market sale by the Fed?



- a. a
- b. b
- c. c
- d. d

39. The natural rate hypothesis argues that

- a. inflation eventually returns to its natural rate, regardless of the rate of unemployment.
- b. the inflation rate and the unemployment rate always return to their natural levels.
- c. inflation will increase at a natural rate, regardless of monetary policy.
- d. unemployment eventually returns to its natural rate, regardless of the rate of inflation.

40. One reason some economists argue for a credible monetary policy rule is a belief that such a rule could be used to

- a. reduce inflationary expectations, and lower actual inflation without raising the unemployment rate.
- b. reduce inflationary expectations, and lower actual inflation without raising the unemployment rate very much.
- c. reduce inflationary expectations, and lower actual inflation while the unemployment rate rises for only a short time period.
- d. change the growth rate of real GDP without affecting the unemployment rate.