

國立中山大學九十四學年度轉學生招生考試試題

科目：微積分【政經系二年級】

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問答題，共五題，每題各佔 20 分

1. A manufacture produces gizmos at a cost of \$5 each. The manufacturer computes that if each gizmo sells for x dollars, $(15 - x)$ gizmos will be sold. What is the manufacture's profit function? What price should the manufacturer charge to maximize profit?
2. Compute the first and second derivatives of each of the following functions: a) xe^{3x} ; b) $\frac{x}{\ln x}$.
3. Let $f(x, y) = 3xy^2 + 2x$ where $x(t) = -3t^2$ and $y(t) = 4t^3 + t$. Use the Chain rule to find a general expression for the rate of change of the composite $f(x(t), y(t))$ with respect to t .
4. A function f is said to exhibit constant return to scale if f has the following property: $f(tx_1, \dots, tx_n) = tf(x_1, \dots, x_n)$ for all bundles (x_1, \dots, x_n) and all $t > 0$. Now consider the constant elasticity of substitution (CES) function $F(x_1, x_2) = A(a_0 + a_1x_1^\rho + a_2x_2^\rho)^{1/\rho}$. Show that F has constant return to scale when $a_0 = 0$.
5. Find the area between the graph and the x-axis for each of the following functions: a) \sqrt{x} , from $x=1$ to $x=4$; b) $x \ln x$, from $x=1$ to $x=e$.

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I. 申論題 (70%) :

1. 試說明我國「單一選區兩票制」的改革原因與學理依據，並請由選舉制度角度加以分析。而單一選區是否會促成“兩黨政治”的發展？原因為何？此外，「單一選區」制是否也有其缺陷？請舉實例說明之。最後則請說明為何我國於單一選區制中做出“兩票制”的設計，亦即我國採用“兩票制”的原因為何？而該制又將如何施行？〈25%〉
2. 「投票」是當前實踐民主治理的最重要手段。請問民眾確實可以透過「投票」來達成「人民治理」的民主目標嗎？請就「投票」與政治權力分配、選民意志表達、公共政策偏好匯聚等層面進行分析，並請舉實例加以說明〈25%〉
3. 現代民族國家的體制主要可以區分為「單一型體制」、「聯邦體制」與「邦聯體制」等三種類型。請問這三種體制的意涵為何？其又有何不同之處？請舉實例比較與說明。〈20%〉

II. 名詞解釋 (30% 每題 6 分) :

(註：名詞解釋除須有中文翻譯外，亦需解釋其內容)

1. Developmental State
2. Elective Dictatorship
3. Constitutionalism
4. Parliamentary/Cabinet Government
5. Cohabitation

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科目：經濟學【政經系二年級】

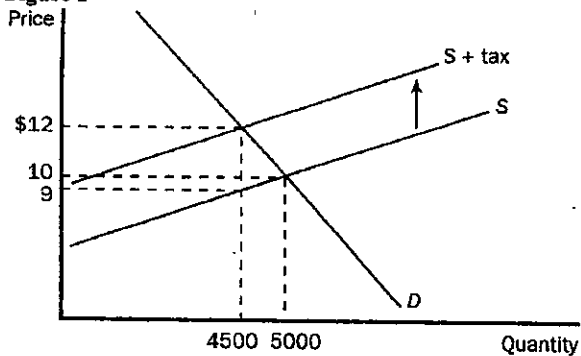
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Multiple Choice

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

- ___ 1. In a market economy, the economic well being of society is the responsibility of
 - a. central planners.
 - b. central bankers.
 - c. government policymakers.
 - d. no one; self-interested individuals bring about the well-being of society.
- ___ 2. International trade tends to occur whenever
 - a. labor is cheaper in one country than in another.
 - b. one of the trading nations is self sufficient and producing surplus goods.
 - c. one nation can profit from trade at the expense of the other.
 - d. both nations can benefit from trade.
- ___ 3. Which of the following sets of goods are most likely to be complementary goods?
 - a. shoes and pizza
 - b. automobiles and computers
 - c. baseballs and baseball gloves
 - d. football tickets and baseball tickets
- ___ 4. The U.S. Post Office finds that it now has extra costs associated with decontaminating first class mail for anthrax. It is considering a rate hike, but it will only be successful in raising more revenue to pay for these additional costs if
 - a. there are many substitutes for first class mail service.
 - b. no anthrax is found on the mail.
 - c. the demand for first class mail service is inelastic.
 - d. the rate increase is a very large one.

Figure 1



- ___ 5. Refer to Figure 1. Consider the impact of a tax on sellers, shown in this diagram of the market for whiskey. In this case, the buyers' share is _____ and the sellers' share is _____.
 - a. \$500; \$500
 - b. \$6750; \$6750
 - c. \$9000; \$4500
 - d. None of the above are correct.

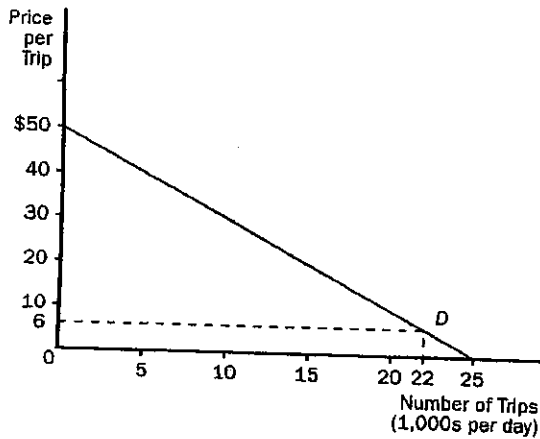
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6. The government is thinking about increasing the gasoline tax to raise additional revenue rather than to promote conservation. The tax will result in the greatest amount of tax revenue if the price elasticity of demand for gasoline equals
- 1.8.
 - 1.4.
 - 1.0.
 - .5.

Figure 2

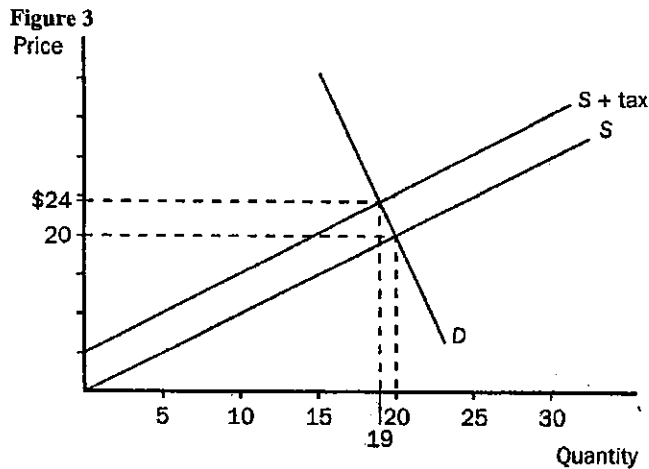


7. Refer to Figure 2. This diagram shows the demand for trips across a bridge that spans the Hudson River. If the price of crossing the bridge is \$6.00, consumer surplus is
- \$22.
 - \$46.
 - \$484.
 - \$968.
8. The area underneath a demand curve down to the equilibrium price is
- always less than the area under the supply curve.
 - always greater than the area under the supply curve.
 - consumer surplus.
 - producer surplus.
9. The market will be in equilibrium with a tax on sales of a good when
- the quantity demanded equals the quantity supplied and the price buyers pay exceeds the price sellers receive by the per-unit tax.
 - the price received by the seller equals the price paid by the buyer and the quantity demanded is less than the quantity supplied by the amount of the tax.
 - the tax is equal to the price paid by the buyer and quantity demanded is equal to the quantity supplied.
 - there cannot be a market equilibrium with a tax on sales.

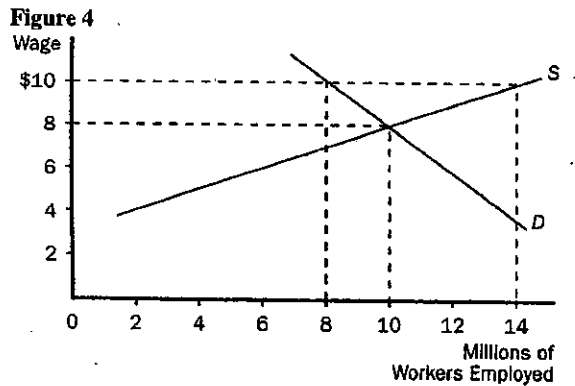
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10. Refer to Figure 3. Consider the impact of a tax in the market described in this diagram. The equilibrium price and quantity exchanged in the market before the tax is
- \$100 and 25 units.
 - \$20 and 20 units.
 - \$19 and 20 units.
 - \$0 and 25 units.
11. According to supply-side economists, a policy that _____ will cause productivity to increase, which increases the supply of goods and services in the marketplace.
- increases interest rates
 - decreases inflation
 - reduces marginal tax rates
 - funds capital investment in the economy



12. Refer to Figure 4. Consider this diagram of the market for pocket calculators in Venezuela. A tariff would completely eliminate imports of calculators if it equaled
- \$2.00.
 - \$3.00.
 - \$4.00.
 - \$5.00.

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- ___ 13. Internalizing an externality means
- the good becomes a public good.
 - government regulations or taxes are sufficient to eliminate the externality completely.
 - government imposes regulations that eliminate the externality completely.
 - incentives are altered so that people take account of the external effects of their actions.
- ___ 14. Imagine a 2,000-acre park with picnic benches, trees, and a pond. Suppose it is publicly owned, and people are invited to enjoy its beauty. Of course, when the weather is nice it is difficult to find parking, and the trash cans overflow with food wrappers on summer afternoons. Otherwise, it is a great place. The park is a common good because
- when trash cans overflow, a negative externality becomes a positive externality.
 - it is not fenced to control access.
 - if too many people use it, one person's use can prevent others from using it.
 - you have to drive to get there and the automobile is a private good.
- ___ 15. During what war did government spending rise dramatically in the United States, and then never again fall to its peacetime levels?
- Civil War
 - World War I
 - World War II
 - Vietnam War
- ___ 16. 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.
- ___ 17. Samantha has been working for a law firm and earning an annual salary of \$90,000. She decides to open her own practice. Her annual expenses will include \$15,000 for office rent, \$3,000 for equipment rental, \$1,000 for supplies, \$1,200 for utilities, and a \$35,000 salary for a secretary/bookkeeper. Samantha will cover her start-up expenses by cashing in a \$20,000 certificate of deposit on which she was earning annual interest of \$1,000. Assuming that there are no additional expenses, Samantha's annual implicit costs will equal
- \$55,200.
 - \$221,400.
 - \$91,000.
 - \$146,200.
- ___ 18. Economists assume that the goal of the firm is to maximize
- total revenue.
 - profits.
 - costs.
 - All of the above are correct.

Table 1

Unit Quantity	Marginal Cost	Marginal Revenue
12	\$5.00	\$9.00
13	\$6.00	\$9.00
14	\$7.00	\$9.00
15	\$8.00	\$9.00
16	\$9.00	\$9.00
17	\$10.00	\$9.00

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- ___ 19. Refer to Table 1. This table describes the relationship between output, marginal revenue, and marginal cost. If the firm is currently producing 14 units, what would you advise them to do?
- decrease quantity to 13
 - increase quantity to 15
 - remain at 14 units
 - increase quantity to 16 units
- ___ 20. The short-run market supply curve in a perfectly competitive industry
- shows the total quantity supplied by all firms at each possible price.
 - is perfectly inelastic at the market price.
 - is perfectly elastic at the market price.
 - is usually downward-sloping.
- ___ 21. Sizable economic profits can persist over time under monopoly if the monopolist
- produces that output where average total cost is at a maximum.
 - is protected by barriers to entry.
 - operates as a price taker rather than a price maker.
 - realizes revenues that exceed variable costs.
- ___ 22. The commercial jetliner industry, consisting of Boeing and Airbus, represents
- perfect competition.
 - monopolistic competition.
 - oligopoly.
 - pure monopoly.
- ___ 23. A dominant strategy is one that
- makes every player better off.
 - makes at least one player better off without hurting the competitiveness of any other player.
 - increases the total payoff for the player.
 - is best for the player, regardless of what strategy other players follow.
- ___ 24. Cecilia's Café is a monopolistic competitor. If Cecilia's is currently producing at the output level where her average total cost is minimized and the café is earning economic profits, then in the long run output will
- decrease and average total cost will increase.
 - decrease and average total cost will decrease.
 - remain unchanged as Cecilia's is doing the best it can.
 - increase and average total costs will decrease.
- ___ 25. In the long run, freedom of entry into a market forces a _____ to charge a price equal to average total cost, but average total cost exceeds its minimum level.
- perfectly competitive firm
 - monopolistically competitive firm
 - oligopolistic firm
 - pure monopoly
- ___ 26. Which of the following individuals quoted below is least likely to argue that excess capacity in monopolistically competitive industries is a waste of resources?
- "An automobile is transportation, nothing else."
 - "Tomatoes or no tomatoes. The choice of toppings on a burger can be important to a consumer these days when individualism is increasingly important to people."
 - "Gasoline is gasoline no matter what the brand name."
 - "I take the airline that will get me from A to B at the lowest price."
- ___ 27. In the long run under monopolistic competition, when firms advertise,
- they will still earn zero economic profit.
 - they can earn positive economic profit by increasing market share.
 - the market price must fall.
 - the market price must rise.

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- ___ 28. Wally's Wheat Farm sells its output and hires its labor in perfectly competitive markets. In the short run, Wally can vary only one input-labor. When Wally is producing in short-run equilibrium, all of the following conditions, *except one*, will necessarily be satisfied. Which is the exception?
- The value of marginal product of labor equals the wage rate.
 - The marginal cost curve crosses the marginal revenue curve from below.
 - Marginal revenue equals the price of the firm's output.
 - The firm's total revenue will decrease if more labor is hired.
- ___ 29. Prejudice can generate market forces that lead to a permanent shift of an unfavored minority into low-wage jobs when the prejudice originates with
- employees or customers.
 - employers, employees, or customers.
 - employees only.
 - customers only.
- ___ 30. Over the past 20 years, wages for college graduates _____ and wages for workers with less education _____
- rose; rose.
 - rose; fell.
 - fell; rose.
 - fell; fell.
- ___ 31. Given the information above, if the consumer's income rises to \$32, then the budget line for pizza and cola would
- now intersect the horizontal axis at 4 pizzas and the vertical axis at 16 colas.
 - not change.
 - now intersect the horizontal axis at 1/4 pizza and the vertical axis at 1/16 cola.
 - rotate outward with an increased quantity of cola consumed.
- ___ 32. Assume net exports are -\$220, consumption is \$5,000, tax revenues are \$1,000, government purchases are \$1,500, and 1997 GDP, calculated by the expenditures approach, is \$8,000. We can conclude that
- private investment was \$1,940.
 - public investment was \$310.
 - private investment was \$320.
 - private investment was \$1,720.
- ___ 33. The four categories of expenditures that make up GDP are consumption, investment,
- exports, and government purchases.
 - imports, and government purchases.
 - net exports, and government [query: purchases].
 - net exports, and government transfer payments.

Table 2

An economy produces only two goods, oranges and VCRs. The quantities and prices for the years 1998 and 1999 are shown in the table. The base year is 1998.

	1998		1999	
	Price	Quantity	Price	Quantity
Oranges	\$2	5,000	\$3	4,000
VCRs	\$400	1,000	\$300	2,000

- ___ 34. Refer to Table 2. Nominal GDP in 1998 is
- \$402.
 - \$12,000.
 - \$200,200
 - \$410,000

- ___ 35. Factors that cause the CPI to exaggerate the inflation rate do not include
- the tendency of consumers to substitute relatively cheaper goods for those that have become relatively more expensive.
 - political pressure from unions and retirees on the Bureau of Labor Statistics to overstate the inflation rate.
 - the introduction of new technologies that make it easier to obtain the same standard of living.
 - improvements over time on the quality of products.
- ___ 36. Junk bonds are issues by firms with
- high degrees of financial security.
 - business ties to the trash-hauling industry.
 - high degrees of financial insecurity.
 - the ability to offer lower interest rates to lenders.
- ___ 37. The quantity of loanable funds supplied is
- positively related to the level of income.
 - negatively related to the price level.
 - positively related to the price level.
 - positively related to the interest rate.
- ___ 38. If taxes are reduced with no change in government spending, and people save all the money from the tax cut,
- the demand for loanable funds will increase and the interest rate will increase.
 - the demand for loanable funds will increase and the interest rate will remain constant.
 - the supply of loanable funds will increase and the interest rate will decrease.
 - neither the demand nor the supply of loanable funds will change.
- ___ 39. To diversify, a homeowner with a variable-rate mortgage should choose investments that
- pay higher returns when interest rates rise and lower returns when interest rates fall.
 - pay lower returns when interest rates rise and higher returns when interest rates fall.
 - provide a higher return than the market average.
 - provide a lower return than the market average.
- ___ 40. Efficiency wages are
- lower than market wages paid by employers to increase profitability.
 - higher than market wages paid by employers to increase productivity.
 - government-determined minimum wages set to protect workers from unfair employers.
 - negotiated by unions when officials are interested in trimming work forces.
- ___ 41. Carlos, who knew nothing about construction, paid Joe to remodel a room in his house. Two years later, the wall of the new room crumbled because Joe used poor-quality materials. This is an example of
- moral hazard.
 - an optimal contract.
 - monitoring.
 - adverse selection.
- ___ 42. Guarantees may not completely eliminate adverse selection problems because
- no one guarantees a product 100%.
 - getting the firm to honor guarantees is too much work.
 - a firm that makes low-quality products may issue guarantees and then go out of business.
 - a firm offering guarantees subjects itself to lawsuits concerning their obligations.
- ___ 43. If a bank keeps some of its excess reserves, the actual money multiplier
- increases.
 - stays the same.
 - goes to zero.
 - decreases.

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- ___ 44. Investors criticize the federal income tax system because they must pay taxes
- on gains that merely reflect the effects of inflation.
 - only on gains that exceed the effects of inflation.
 - on losses as well as gains.
 - on losses but not on gains.
- ___ 45. If U.S. imports total \$100 billion and U.S. exports total \$150 billion, which of the following would be true?
- U.S. net exports equal -\$50 billion
 - The U.S. has a trade surplus of \$50 billion.
 - The U.S. has a trade deficit of \$100 billion.
 - The U.S. has a trade deficit of \$50 billion.
- ___ 46. Which of the following will cause the aggregate supply curve to shift to the right?
- increases in wages and salaries paid to employees
 - increases in the prices of oil and natural gas
 - increases in taxes for business
 - new work rules that increase the productivity of labor
- ___ 47. The money supply curve is vertical because
- real income does not influence the quantity of money supplied.
 - the price level does not influence the level of spending.
 - only the interest rate influences the quantity of money supplied.
 - the Federal Reserve sets the money supply.
- ___ 48. The Phillips curve traces a set of combinations of rates of
- interest and unemployment.
 - real GDP and inflation.
 - real GDP and interest.
 - unemployment and inflation.
- ___ 49. If the economy were left on its own without the interference of government or the Fed, it would move toward an equilibrium rate of growth that would produce, with only minor interruptions, the natural rate of unemployment without changes in the inflation rate. What economists would support this view?
- Friedman and Phelps.
 - Phillips.
 - Samuelson and Solow.
 - Greenspan.
- ___ 50. If the Federal Reserve follows a policy of targeting the federal funds interest rate, then the money supply will increase when
- the unemployment rate falls.
 - when the rate of interest falls.
 - inflation decreases.
 - the demand for bank reserves increases.