

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【政經系三年級】

共 / 頁第 / 頁

1. (20 points) In the model of perfect competition, all firms are price-takers since they treat price as a market-determined constant. Assume that $P = 11$ and the total cost function for a firm facing perfect competition is

$$TC(Q) = Q^3 - 6Q^2 + 20Q - 13.$$

Determine the firm's profit function and the level of output at which it should produce in order to maximize profits. Confirm that this quantity represents maximum profits for the firm by using the second-order condition.

2. (30 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) $y = 2 \ln x + \ln z$ subject to $z = 12 - 4x$

(b) $y = \frac{1}{2}a^2 + 4b^2 - 4a + 8c^2$ subject to $\frac{1}{2}a + 3b + c = 25$

3. (15 points) Plot the phase diagram for the following equation. Identify the steady state points and characterize them as stable or unstable.

$$\dot{x}(t) = x(t)^3 - 9(x(t))^2 + 14x(t).$$

4. (15 points) Find the solution to the following differential equation.

$$\dot{x}(t) = -\frac{2}{3}x(t) + 2, \quad x(0) = 3.$$

5. (20 points) Determine the steady state values for the variable $x(t)$ and $y(t)$ for each system of equations. Describe each system as stable or unstable.

(a) $\begin{cases} \dot{x}(t) = -x(t) + 2y(t) - 1 \\ \dot{y}(t) = -2x(t) - y(t) + 8 \end{cases}$ (b) $\begin{cases} \dot{x}(t) = x(t) - 4y(t) + 2 \\ \dot{y}(t) = 3x(t) + 2y(t) - 8 \end{cases}$

國立中山大學九十四學年度轉學生招生考試試題

科目：政治學【政經系三年級】

共 / 頁 第 / 頁

以下申論題共四題，每題 25 分，請詳細作答。

- 1、 何謂政治學？政治學與政治有何異同？請說明並試舉例。
- 2、 請分別由自由主義、保守主義、社會主義等思想流派的觀點，評論民主政治運作上可能出現的問題與特點。
- 3、 政治掌權者該如何分配一國之經濟資源？請分別由自由主義、保守主義、社會主義等思想流派的論點，說明其各自主張的政治經濟政策為何？
- 4、 總統制、內閣制、半總統制各有何優缺點？請說明並舉例。

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 1 頁

Multiple Choice

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

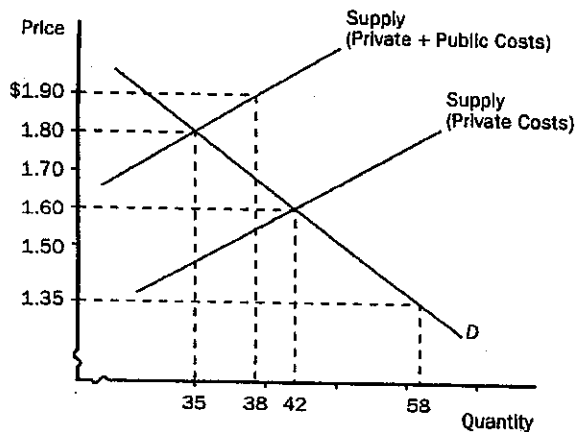
- ___ 1. According to economists who emphasize the connection between productive contribution and economic reward, a more equal income distribution
 - a. is fundamental to economic growth.
 - b. always helps the poor in the long run.
 - c. creates inefficiency.
 - d. generates greater productivity.
- ___ 2. "An increase in interest rates will lower economic growth." This statement is
 - a. a positive economic statement.
 - b. a normative economic statement.
 - c. untrue in every case.
 - d. controversial, and so not a valid economic issue.
- ___ 3. The supply of food
 - a. is subject to significant technological advance in the long run.
 - b. is characterized by a large price elasticity of demand.
 - c. has been decreasing over the long run.
 - d. can be represented by a horizontal supply curve.
- ___ 4. If a new excise tax is imposed on steak,
 - a. government's tax revenue will decrease.
 - b. government's tax revenue will increase.
 - c. amount of steak produced and sold will increase.
 - d. market price of steak will decrease.
- ___ 5. Which of the following groups has a relatively inelastic supply of labor?
 - a. heads-of-households who must support other people with their incomes.
 - b. Elderly people on Social Security, who can choose whether or not to work.
 - c. second earners in a household, who make lower wages than the primary wage earner
 - d. b and c, who have relatively elastic labor supplies
- ___ 6. Domestic producers gain from the opportunity to export goods to foreign countries because
 - a. the free-trade price of the good is higher than the domestic price in the absence of trade.
 - b. producers are able to reach a wider market.
 - c. although the free-trade price is lower than in the absence of trade, producers are able to sell a greater quantity.
 - d. production rises, although there is no change in the price of the good compared to the no-trade situation.
- ___ 7. One big difference between tariffs and quotas is that tariffs
 - a. raise the price of a good while quotas lower it.
 - b. generate tax revenues while quotas do not.
 - c. stimulate international trade while quotas inhibit it.
 - d. hurt domestic producers while quotas help them.
- ___ 8. If a perfectly competitive industry is not forced to take account of a negative externality it creates, it will produce where
 - a. the marginal cost of production equals the marginal private benefit.
 - b. the marginal cost of production equals the marginal social benefit.
 - c. the marginal social cost of production equals the marginal social benefit.
 - d. price equals marginal social benefit.

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 2 頁 第 2 頁

Figure 1



9. Refer to Figure 1. This diagram represents the tobacco industry. Which of the following would be included in the supply (private cost) curve?
- the cost of labor
 - the cost to the government of the hospital expenses of smokers with cancer
 - the increased risk of cancer to the nonsmoking passengers in the smoker's car pool
 - the price of a pack of cigarettes
10. A dentist shared an office building with a radio station. The electrical current from the dentist's drill causes static in the radio broadcast, causing the radio station to lose \$10,000 in discounted future profits. The radio station could put up a shield at a cost of \$30,000; the dentist could buy a new drill that causes less interference for \$6,000. Either would restore the radio station's lost profits. What is the economically efficient outcome?
- The radio station puts up a shield, which it pays for.
 - The radio station puts up a shield, which the dentist pays for.
 - The radio station does not put up a shield and the dentist does not buy a new drill.
 - The dentist gets a new drill and it does not matter who pays for it.
11. An overcrowded beach is an example of
- a positive externality.
 - a tragedy of the commons.
 - environmentally inefficient allocation.
 - economically unsound allocation.
12. If marginal cost is greater than average total cost then
- profits are increasing.
 - economies of scale are becoming greater.
 - average total cost remains constant.
 - average total cost is increasing.
13. The minimum points of the average variable cost and average total cost curves occur where
- the marginal cost curve lies below the average variable cost and average total cost curves.
 - the marginal cost curve intersects those curves.
 - wages are the lowest.
 - the slope of total cost is the smallest.
14. A sunk cost is one that
- changes as the level of output changes in the short run.
 - was paid in the past and will not change regardless of the present decision.
 - should determine the rational course of action in the future.
 - has the most impact on profit-making decisions.

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 3 頁

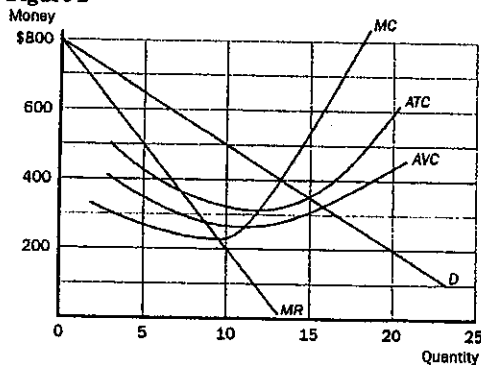
Table 1

Consider the following demand and cost information for a monopoly.

Quantity	Price	Total Cost
0	\$40	\$10
1	\$30	\$15
2	\$20	\$25
3	\$10	\$40
4	\$ 0	\$60

- ___ 15. Refer to Table 1. The marginal revenue of the second unit is
- \$10
 - \$20
 - \$30
 - \$40
- ___ 16. A firm in a monopolistically competitive market is similar to a monopolist in the sense that it
- must overcome significant barriers to entry.
 - faces a downward-sloping demand curve.
 - has no barriers to entry or exit.
 - it is only one seller of the good.
- ___ 17. The application of game theory to economics allows us to understand firm behavior in some forms of oligopoly. Game theory suggests that in a two-firm industry, each firm will
- avoid pricing high when the other prices low.
 - select high prices and defend that selection because, in the long run, their profits are higher than if they competed by lowering prices.
 - end up mistaking the other's intentions, which results in low prices and low profit for both in the long run.
 - end up colluding with the other to form a cartel.

Figure 2



- ___ 18. Refer to Figure 2. Assume the firm in the figure is currently producing 8 units of output and charging \$380. The firm
- will increase its profits if it raises its price and reduces its production level.
 - will increase its profits if it lowers its price and expands its production level.
 - is maximizing profits.
 - will increase its profits if it raises its prices and expands its production level.

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 4 頁

- ___ 19. If some coffee drinkers continue to buy Maxwell House coffee even when Folger's coffee is on sale and cheaper, it may be a result of
- irrational consumer behavior.
 - a high cross elasticity between the two goods.
 - brand loyalty.
 - Maxwell House being a monopoly.
- ___ 20. If an employer begins to pay higher wages to white workers, then in the short run
- wages for white workers would fall.
 - wages for nonwhite workers would rise.
 - profits would rise as nonwhite workers leave the firm.
 - profits would fall as nonwhite workers leave the firm.
- ___ 21. Comparable worth policies can have effects similar to
- efficiency wages in that employment may rise in the affected markets.
 - minimum wages in that surpluses of labor may occur in the affected markets.
 - government regulation in the case of natural monopolies.
 - economies of scale in that efficiencies are created by increases in output.
- ___ 22. For dessert, Mac has the choice between cheesecake and apple pie. The cheesecake has a marginal satisfaction of 50 and a price of \$5, and the apple pie has a marginal utility of 30 and a price of \$3. Given this information, Mac should buy
- the cheesecake.
 - the apple pie.
 - two servings of the apple pie and no cheesecake.
 - either the apple pie or the cheesecake, it makes no difference to Mac at this point.
- ___ 23. If the price of hamburgers increases, the substitution effect works to
- decrease the quantity of hamburgers supplied.
 - increase the number of hamburger buns demanded.
 - decrease the quantity of hamburgers demanded.
 - increase the number of hamburger buns supplied.
- ___ 24. An individual's demand curve for a good is derived by
- varying the income level and observing the resulting total utility derived from both goods.
 - varying the price of one good and observing the resulting quantities of the other good.
 - shifting the budget line to the left and calculating the loss in total utility.
 - varying the price of one good and observing the resulting quantities demanded of that good.
- ___ 25. Suppose that Annette gets an increase in her wage and she decides to work fewer hours. For her, the substitution effect of the wage change is
- greater than the income effect.
 - less than the income effect.
 - exactly offset by the income effect.
 - zero.
- ___ 26. Guarantees may not completely eliminate adverse selection problems because
- no one guarantees a product 100%.
 - getting the firm to honor a guarantee 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.
- ___ 27. Personal consumption spending now comprises approximately what fraction of GDP?
- one-third
 - one-sixth
 - three-quarters
 - one half

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 5 頁

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

- ___ 28. Refer to Table 2. The growth rate of nominal GDP in 1999 was about
 - a. 10 percent.
 - b. 49 percent.
 - c. 78 percent.
 - d. 100 percent.

- ___ 29. Refer to Table 23-1. The rate of inflation in 1999 was about
 - a. -48 percent.
 - b. -24 percent.
 - c. 33 percent.
 - d. 67 percent.

- ___ 30. Which of the following is a problem with the measurement of GDP?
 - a. Transfer payments are not included.
 - b. Production in the underground economy is not counted.
 - c. Non-market production is not counted.
 - d. Both b and c are correct.

- ___ 31. Which price index measures the average price of things purchased by the typical family in an urban area?
 - a. GDP deflator
 - b. producer price index
 - c. consumer price index
 - d. minimum wage

- ___ 32. If the consumer price index has a value of 150 today and the base year is 1987, then consumer prices have
 - a. increased by 50 percent since 1987.
 - b. doubled since 1987.
 - c. more than doubled since 1987.
 - d. declined 50 percent since 1987.

- ___ 33. If a lender wants a real return of 6 percent and she expects inflation to be 4 percent, which of the following is the nominal interest rate to charge?
 - a. 4 percent
 - b. 6 percent
 - c. 2 percent
 - d. 10 percent

- ___ 34. Suppose that a labor union leader is trying to bargain for an increase in union workers' real wages of 5 percent. If she expected the price level to rise at a rate of 3 percent this year, how much would nominal wages need to increase for her to accomplish her objective?
 - a. 2 percent
 - b. 3 percent
 - c. 5 percent
 - d. 8 percent

- ___ 35. Poor countries often have a difficult time attracting foreign investment funds because
 - a. wages are low in poor countries.
 - b. investment risks are quite low in poor countries so rates of return are low.
 - c. property rights are not protected so investors fear their property may be confiscated.
 - d. All of the above are correct.

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 6 頁

- ___ 36. When interest rates rise, the quantity of loanable funds demanded by
- firms decreases.
 - government decreases.
 - firms increases.
 - government increases.
- ___ 37. Yuan recently completed his college degree and is entering the labor market for the first time. He has been submitting applications and has been interviewed twice in the last two weeks, but so far has not found a job. Yuan could be classified as
- frictionally unemployed.
 - seasonally unemployed.
 - structurally unemployed.
 - cyclically unemployed.
- ___ 38. 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.
- ___ 39. The Federal Open Market Committee is composed of
- 12 Federal Reserve bank presidents and presidents of the seven largest commercial banks in the U.S.
 - the Board of Governors and the 12 Federal Reserve bank presidents.
 - the Board of Governors, the Secretary of the Treasury, and the President of the FDIC.
 - the Board of Governors and presidents of five Federal Reserve Banks.
- ___ 40. When the potential money multiplier is 7, a \$3,000 increase in demand deposits could support the creation of _____ additional new demand deposits.
- \$3,000
 - \$9,000
 - \$15,000
 - \$18,000
- ___ 41. If a bank receives a new demand deposit of \$10,000, and the legal reserve requirement is 20 percent, then the bank can lend out
- \$2,000.
 - \$10,000.
 - \$40,000.
 - \$8,000.
- ___ 42. Within the context of the equation of exchange, the higher the equilibrium price level is
- the higher is the nominal money supply.
 - the lower is the nominal interest rate.
 - the higher is real GDP.
 - the lower is velocity.
- ___ 43. If real GDP falls and the nominal interest rate rises, then the equilibrium price level
- must fall.
 - must rise.
 - will fall if the effect of the decline in real GDP dominates.
 - will fall if the effect of the increase in the nominal interest rate dominates.
- ___ 44. Monopoly sellers
- charge higher prices than more competitive firms and therefore cause inflation.
 - can achieve economies of scale not available to competitive firms and therefore charge lower prices, which causes deflation.
 - charge higher prices than more competitive firms, but do not cause inflation.
 - are much greedier than sellers in more competitive markets.

國立中山大學九十四學年度轉學生招生考試試題

科目：經濟學【政經系三年級】

共 7 頁 第 7 頁

- ___ 45. What does a positive U.S. capital inflow signify?
- Nothing.
 - That the government is running a budget deficit.
 - That more funds were invested in the United States by foreigners than the United States invested abroad.
 - That the United States is running a trade surplus.
- ___ 46. U.S. trade deficits are a sign of
- reduced national savings.
 - reduced production of manufactured goods.
 - an over reliance on the service economy.
 - high rates of unemployment in the U.S. economy.
- ___ 47. If the U.S. price level is increasing by 3 percent annually and the Swiss price level is increasing by 5 percent annually, by what percent would the dollar price of francs need to change according to purchasing power parity?
- depreciate by 5 percent
 - appreciate by 3 percent
 - appreciate by 5 percent
 - depreciate by 2 percent
- ___ 48. The supply of foreign exchange is
- determined by the real exchange rate.
 - independent of the real exchange rate.
 - determined by central bankers.
 - determined by the President.
- ___ 49. The link between the loanable funds market and the foreign exchange market is
- the governments of the countries involved.
 - the International Monetary Fund.
 - net capital outflow.
 - purchasing power parity.
- ___ 50. According to the theory of rational expectations,
- workers' experience tells them that government action to lower unemployment will not affect inflation.
 - consumers and investors generally behave so that rationally formed government attempts to stimulate aggregate demand have their desired effects.
 - policy goals can be achieved more easily in the short run than in the long run.
 - workers' wage demands include anticipated inflation.