Part 1. 單選題 (每題5分，共50分，不倒扣)

1. Daisy received a tape recorder as a birthday gift and is not able to return it. Her utility function is $U(x, y, z) = x + z^{1/2} f(y)$, where z is the number of tapes she buys, y is the number of tape recorders she has, and x is the amount of money she has left to spend. $f(y) = 0$ if $y < 1$ and $f(y) = 24$ if y is 1 or greater. The price of tapes is \$4 and she can easily afford to buy dozens of tapes. How many tapes will she buy?
(a) 9
(b) 11
(c) 7
(d) 13
(e) We need to know the price of tape recorders to solve this problem.

2. Yoram insists on consuming 4 times as much of y as he consumes of x (so he always has $y = 4x$). He will consume these goods in no other ratio. The price of x is 3 times the price of y. Yoram has endowment of 20 x's and 45 y's which he can trade at the going prices. He has no other source of income. What is Yoram's gross demand for x?
(a) 105
(b) 65
(c) 15
(d) 12
(e) We can't determine the answer without knowing the price of x.

3. Quasimodo has utility function $U(x, m) = 100x - x^2/2 + m$, where x is his consumption of earplugs and m is money left over to spend on other stuff. If he has \$10,000 to spend on earplugs and other stuff and if the price of earplugs rises from \$50 to \$75, then his net consumer's surplus
(a) falls by 927.50.
(b) increases by 468.75.
(c) falls by 2,937.50.
(d) falls by 625.
(e) increases by 1,875.

4. Bernice has the utility function $U(x, y) = \min\{x, y\}$, where x is the number of pairs of earrings she buys per week and y is the number of dollars per week she has left to spend on other things. (We allow the possibility that she buys fractional numbers of pairs of earrings per weeks). If she originally had an income of \$10 per week and was paying a price of \$8 per pair of earrings, then if the price of earrings rose to \$13 per pair, the compensating

(背面仍有題目，請繼續作答)

variation of that price change (measured in dollars per week) would be closest to
(a) \$3.57
(b) \$5.56
(c) \$12.11
(d) \$11.11
(e) \$10.11

5. If Bernice (whose utility function is $\min\{x, y\}$, where x is her consumption of earrings and y is the money left for other things) had an income of \$12 and was paying a price of \$4 per pair of earrings, then if the price of earrings rose to \$6 per pair, the equivalent variation of the price change (measured in dollars) would be
(a) \$4.80
(b) \$3.43
(c) \$1.71
(d) \$9.60
(e) \$4.11

6. A competitive firm production function is $f(x_1, x_2) = 12x_1^{1/2} + 4x_2^{1/2}$. The price of factor 1 is \$1 and the price of factor 2 is \$2. The price of output is \$4. What is the profit-maximizing quantity of output?
(a) 304
(b) 608
(c) 300
(d) 612
(e) 292

7. A monopoly has the demand curve $q = 10,000 - 100p$. Its total cost function is $c(q) = 1,000 + 10q$. The government plans to tax the monopoly's profits at a rate of 50%. If it does so, the monopoly will
(a) increase its price by 50%.
(b) increase its price by more than 50%.
(c) recover some but not all of the tax it pays by increasing its price.
(d) not change its price or the quantity it sells
(e) None of the above.

8. North Bend currently has one McDonald's fast-food franchise. Demand for hamburgers in North Bend is given by $Q = 300 - 10P$. Any McDonald's franchise has costs of $C = 70 + 2Q$ for producing Q hamburgers. If a second McDonald's were to move into North Bend (and both behaved as duopolists),

the profit of the original McDonald's would fall from
(a) \$1,890 to \$1,602,22.
(b) \$1,960 to \$1,602,22.
(c) \$2,240 to \$1,057,78.
(d) \$1,890 to \$801,11.
(e) \$1,960 to \$1,672.22.

9. Because the short-run aggregate expenditure model assumes that the price level is _____, its predicted effect of changes in autonomous expenditure on equilibrium output is _____ than the prediction of the AD/SAS model.
(a) fixed;greater
(b) fixed;less
(c) flexible;greater
(d) flexible;less
(e) None of the above.

10. Using fiscal policy, the best way to get the economy out of a recession in the short run is to
(a) increase government purchases of goods and services or increase tax rates.
(b) increase government purchases of goods and services or decrease tax rates.
(c) decrease government purchases of goods and services or increase tax rates.
(d) decrease government purchases of goods and services or decrease tax rates.
(e) None of the above.

Part 2. 填充題及簡答題(共50分)

1. A steel company produces a harmful chemical in its production process. This harmful chemical is placed in barrels and buried in a landfill. The firm's production process is given by $q = 5KH$, where q = the tons of steel produced, H = the barrels of harmful chemical produced, and K = the machine hours of capital employed. The firm currently faces no regulation. Without regulation, it costs the firm \$15 to bury each barrel of the chemical. The cost of capital is \$60 per hour. The operating budget for the firm is \$120,000 per year.
(a) (5%) What is the firm's optimal ratio of the harmful chemical to capital _____?
(b) (10%) Given the firm's operating budget, how much capital _____ and how much of the harmful chemical _____ should the firm use?

(背面仍有題目,請繼續作答)

(c) (10%) The EPA now imposes a \$15 effluent fee per barrel of harmful chemical that is buried. If the firm wants to maintain the same level of output after the imposition of the fees, how much capital _____ and harmful chemical _____ should the firm use (in order to minimize its operating cost)?
(d) (5%) How much will the firm pay in effluent fees _____?

2. Read the below article on the newspaper "The Washington Times" on January 1, 2002. The three figures shows the data to which the article refers and place 2000 and 2001 in the longer term perspective. Answer the following questions.
(a) (5%) What happened to stock prices during 2001 on the average? Which stock price index fell most during 2001 and what can you infer from this price fall about the profit prospects in different parts of the economy?
(b) (5%) What do you learn about the performance of "new economy" technology stocks from this news article.
(c) (5%) Why do some investment strategist believe that stock prices are poised for a future rise?
(d) (5%) Are the expectations of rising stock prices based on rational expectations of the fundamentals or a speculative bubble?

Stocks End Year of Losses; Analysts Predict Growth for 2002

The stock market made a strong comeback after the September 11 terrorist attacks but failed to recoup a long string of earlier losses, leaving the major indexes down for a second straight year in the poorest showing in a generation.

"New economy" technology stocks took the biggest hit, with the NASDAQ Composite Index dropping an additional 21 percent last year after plummeting 39 percent in 2000. Tech stocks were the darlings of investors during the economic boom of the 1990s, when they enjoyed spectacular yearly gains that topped out with the NASDAQ's 89 percent rise in 1999, a record for any stock index.

The "old economy" stocks that inhabited the Dow Jones Industrial Average never boasted such extraordinary returns but suffered milder losses last year by comparison, declining by 7 percent after a 6.4 percent drop in 2000.

The blue-chip Standard and Poor's 500 index, reflecting the woes of large multinational corporations in a world recession, fell 13 percent last year after a 10 percent loss in 2000.

In keeping with the tone for the year, selling by investors seeking to post losses for tax purposes drove down the indexes in the final day of trading yesterday. The Dow fell 116 points to 10,021, and the NASDAQ shed 36 points to close at 1,951.

With the 2000-01 bear market now in many ways surpassing the deep bear market of 1974-75, most stock analysts believe the worst is behind and that the market can look forward to a year of growth, bolstered by a recovering U.S economy.

"We think the S&P 500 and NASDAQ will see double-digit gains over the course of 2002," said David M. Blitzer, chief investment strategist with Standard & Poor's. But "stocks face some formidable hurdles" from the lingering recession and traumas of last year.

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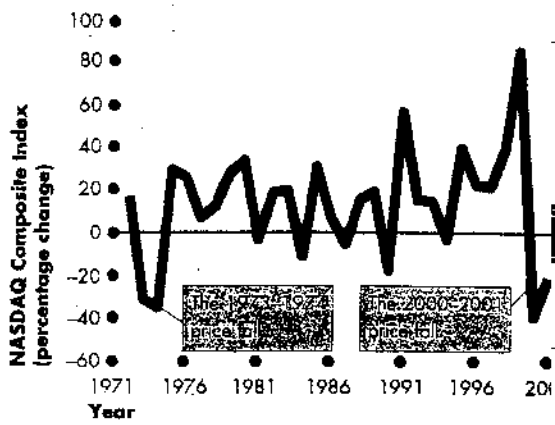

Figure 1 NASDAQ Composite

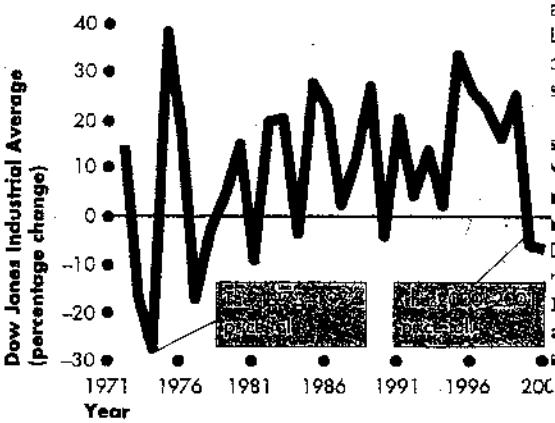

Figure 2 Dow Jones Industrial Average

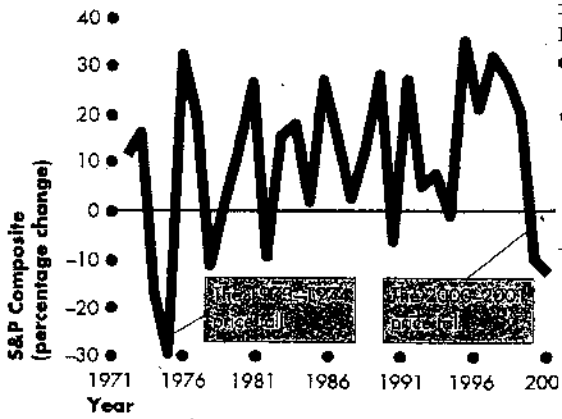

Figure 3 S&P Composite