

商學院

考試科目	經濟學	所別	4111-4182-4121-4122 4171-4191-4194-4211	考試時間	2月22日(六)第一節
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Multiple Choice (1 point each)

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

- Which of the following is an advantage of tradable pollution permits?
 - Each firm is allowed to pollute exactly the same amount.
 - Revenue from the sale of permits is greater than revenue from a corrective tax.
 - The initial allocation of permits to firms does not affect the efficiency of the market.
 - Firms will engage in joint research efforts to reduce pollution.
- Alicia is a vegetarian, so she does not eat beef. That is, beef provides no additional utility to Alicia. She loves potatoes, however. If we illustrate Alicia's indifference curves by drawing beef on the horizontal axis and potatoes on the vertical axis, her indifference curves will
 - slope downward.
 - be vertical straight lines.
 - slope upward.
 - be horizontal straight lines.
- Which of the following demonstrates the law of demand?
 - After Jon got a raise at work, he bought more pretzels at \$1.50 per pretzel than he did before his raise.
 - Melissa buys fewer muffins at \$0.75 per muffin than at \$1 per muffin, other things equal.
 - Dave buys more donuts at \$0.25 per donut than at \$0.50 per donut, other things equal.
 - Kendra buys fewer Snickers at \$0.60 per Snickers after the price of Milky Ways falls to \$0.50 per Milky Way.
- Suppose researchers at the University of Wisconsin discover a new vitamin that increases the milk production of dairy cows. If the demand for milk is relatively inelastic, the discovery will
 - raise both price and total revenues.
 - lower both price and total revenues.
 - raise price and lower total revenues.
 - lower price and raise total revenues.

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政學院

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5. When a tax is levied on buyers of tea,
- buyers of tea and sellers of tea both are made worse off.
 - buyers of tea are made worse off, and the well-being of sellers is unaffected.
 - buyers of tea are made worse off, and sellers of tea are made better off.
 - the well-being of both buyers of tea and sellers of tea is unaffected.
6. When a country allows trade and becomes an exporter of a good
- consumer surplus and producers surplus will increase.
 - consumer surplus and producer surplus will decrease.
 - consumer surplus will increase and producer surplus will increase.
 - consumer surplus will decrease and producer surplus will increase.
7. When a perfectly competitive firm makes a decision to shut down, it is most likely that
- marginal cost is above average variable cost.
 - price is below the minimum of average variable cost.
 - fixed costs exceed variable costs.
 - average fixed costs are rising.
8. Price discrimination is a rational strategy for a profit-maximizing monopolist when
- there is no opportunity for arbitrage across market segmentations.
 - there is an opportunity for arbitrage across market segmentations.
 - consumers are unable to be segmented into identifiable markets.
 - they want to increase the deadweight loss that results from profit-maximizing behavior.
9. As a group, oligopolists would always be better off if they would act collectively
- as a single monopolist.
 - as a single competitor.
 - as if they were each seeking to maximize their own profit.
 - in a manner that would prohibit collusive agreements.
10. If firms in a monopolistically competitive industry are making profits,
- firms will likely be subject to regulation.
 - barriers to entry will be strengthened.
 - new firms will enter the market.
 - some firms must exit the market.

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11. A company uses 100 workers and 30 units of capital to produce 500 units of output. If this company increases its capital to 50 units and, as a result, its output increases by 300 units, the productivity of labor _____ to _____ units per worker.

- A. increases; 1
- B. increases; 3
- C. increases; 8
- D. decreases; 4

12. Official unemployment statistics:

- A. understate unemployment because individuals receiving unemployment compensation are counted as employed.
- B. understate unemployment because discouraged workers are not counted as unemployed.
- C. include cyclical and structural unemployment, but not frictional unemployment.
- D. overstate unemployment because workers who are involuntarily working part time are counted as being employed.

13. A car that is produced in 2004 is not sold until 2005. According to the definition of GDP, in which year's GDP should it be counted?

- A. 2004.
- B. 2004 real GDP; 2005 nominal GDP.
- C. both years.
- D. 2005.

Total Population	30,000
Working-Age Population	25,000
Employment	11,000
Unemployment	1,000

14. Consider the data in the table above for a simple economy. The unemployment rate for this simple economy equals:

- A. 4.0%.
- B. 9.1%.
- C. 8.3%.
- D. 3.3%.

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15. Which of the following could cause nominal GDP to decrease, but real GDP to increase?
- The price level rises and the quantity of final goods and services produced falls.
 - The price level rises and the quantity of final goods and services produced rises.
 - The price level falls and the quantity of final goods and services produced falls.
 - The price level falls and the quantity of final goods and services produced rises.
16. When a member of the nonbank public withdraws currency from her bank account,
- both the monetary base and bank reserves rise.
 - bank reserves fall, but the monetary base remains unchanged.
 - both the monetary base and bank reserves fall.
 - the monetary base falls, but bank reserves remain unchanged.
17. When economists state that money is neutral in the long run, they mean that in the long run,
- the price level is independent of the nominal money supply.
 - the level of output is independent of the nominal money supply.
 - changes in the money supply have the same impact on the rich as they do on the poor.
 - fluctuations in the money supply are equally likely to lead to recessions as to expansions.
18. An expansionary monetary policy that successfully counteracts a recession has the side effect of
- lower investment spending than if no action had been taken.
 - lower output than if no action had been taken.
 - a higher price level than if no action had been taken.
 - a larger government deficit than if no action had been taken.
19. The less interest-sensitive is money demand, the
- steeper is the IS curve.
 - flatter is the LM curve.
 - more effective is monetary policy relative to fiscal policy.
 - more effective is fiscal policy relative to monetary policy.
20. The quantity theory of inflation indicates that the inflation rate equals
- the growth rate of the money supply minus the growth rate of aggregate output.
 - the level of the money supply plus the level of aggregate output.
 - the growth rate of the money supply plus the growth rate of aggregate output.
 - the level of the money supply minus the level of aggregate output.

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Problems and Short-essay Questions

Please answer the following questions IN SEQUENCE. All questions may be answered in either Chinese or English.

1. Suppose that a firm's fixed proportion production function is given by

$$q = \min(2k, 10l - 2).$$

The inputs are hired in perfectly competitive markets. The rental rates of capital (k) and labor (l) are v and w , respectively.

- (10 points) Calculate the firm's long-run total, average, and marginal cost functions.
- (10 points) Suppose that k is fixed at 9 in the short run. Calculate the firm's short-run total, average, and marginal cost functions.

2. (20 points) Consider the good x imported by the home country. To keep things simple, assume that x constitutes a homogeneous good and that the market for it is perfectly competitive. The demand for x at home is given by $Q_D = 200 - 4P$. The domestic market supply is given by $Q_S = 4P - 40$.

- Suppose that x can be imported at a fixed world price of \$20. Suppose that the home government imposes an import tariff of \$5 per unit of x . What is the total number of x imported from abroad?

- Suppose that, because of political-economy considerations, the home government sets its import tariff, t , in order to maximize:

$$\text{Consumer Surplus} + \text{Tariff Revenues} + A \times (\text{Producer Surplus}).$$

What is the value of A under which the home government would impose an import tariff of \$5?

3. Assume that firms care about their after-tax rate of return on investment projects. And, suppose the incumbent government has decided to raise taxes on corporations. Use the loanable funds model to explain the effect of the tax increase.

- (7 points) What effect will this have on the investment demand curve? Explain and graph the effect.
- (7 points) What effect will this have on national savings? Explain and graph the effect.
- (6 points) Consider both effects that you have described in parts a and b. What will happen to the real interest rate, national savings, and investment? Explain and graph the effect.

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政學院

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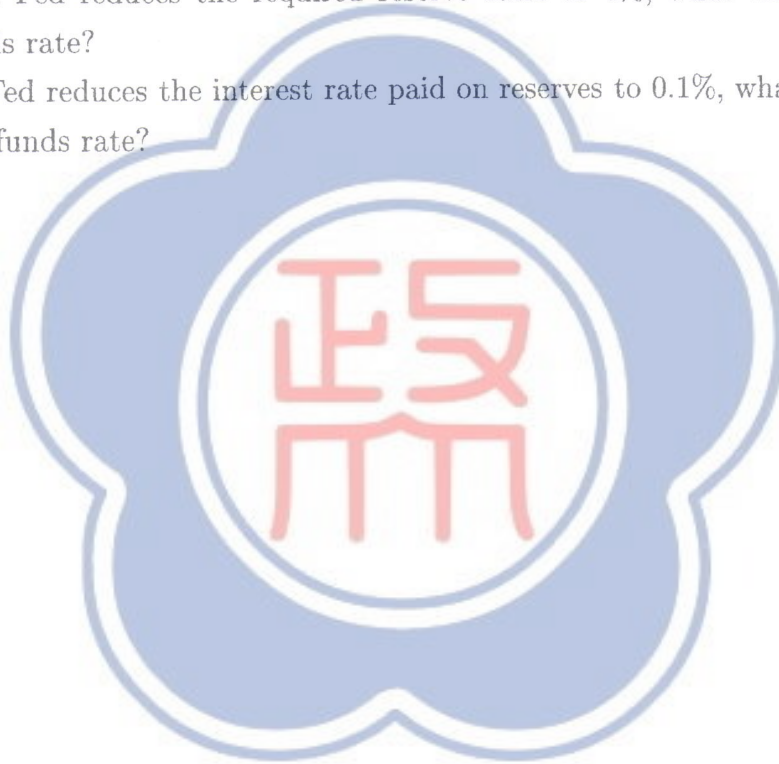
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4. Suppose currently the discount rate is 0.8%, the interest rate the Fed (the central bank) is paying for banks' excess reserves is 0.2%, the required reserve ratio is 5%, and the equilibrium federal funds rate is 0.2%.

a. (6 points) If the Fed reduces the discount rate to 0.6%, what will happen to the equilibrium federal funds rate?

b. (7 points) If the Fed reduces the required reserve ratio to 4%, what will happen to the equilibrium federal funds rate?

c. (7 points) If the Fed reduces the interest rate paid on reserves to 0.1%, what will happen to the equilibrium federal funds rate?



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I. Explain the following terms briefly (24 points, each 4 points)

1. Financial risk.
2. An implicit cost of adding debt to the capital structure.
3. MM's Proposition II.
4. IPO.
5. A private placement.
6. Underwriters.

II. Computational Question (30 points, each 6 points)

1. What is the amount of the annual interest tax shield for a firm with \$3 million in debt that pays 12% interest if the firm is in the 35% tax bracket?
2. Suppose a government wishes to auction 5 million bonds and three would-be buyers submit bids.

	Price	Quantity
Buyer A	\$1,015	2 million
Buyer B	\$1,000	3 million
Buyer C	\$990	1 million

In an uniform-price auction, what prices would the buyers pay?

3. Image Storage Corporation has #1,000,000 shares outstanding. It wishes to issue 500,000 new shares using rights issue. If the current stock price is \$50 and the subscription price is \$47/share, calculate the value of a right?
4. Analysis of past monthly movements in Wal-Mart's stock price has produced the following estimates: $\alpha = -0.45\%$ and $\beta = 0.5$. If the market index subsequently rises by 5% one month and Wal-Mart's stock price rises by 3%, what is the abnormal change in Wal-Mart's stock price?
5. The market value of Charcoal Corporation's common stock is \$20 million, and the market value of its risk-free debt is \$5 million. The beta of the company's common stock is 1.25, and the market risk premium is 8%. If the Treasury bill rate is 5%, what is the company's cost of capital? (Assume no taxes.)

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III. Short answer questions (12 points, each 6 points)

1. Why do firms rely heavily on internal funds?
2. Briefly explain why, in a competitive securities market, successive price changes are random.

IV. Questions (34 points)

1. Black & Whites Inc. is in a declining industry. Sales, earnings, and dividends are all shrinking at a rate of 10% per year.
 - a. If $r=15\%$ and $DIV_1=3$, what is the value of a share? (4 points)
 - b. What price do you forecast for the stock next year? (4 points)
 - c. What is the expected rate of return on the stock? (5 points)
 - d. Can you distinguish between "bad stocks" and "bad companies"? Does the fact that the industry is declining mean that the stock is a bad buy? (3 points)

2. As of today, assume the following information is available:

	U.S.	Mexico
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Real rate of interest required by investors	2%	2%
Nominal interest rate	11%	15%
Spot rate	—	\$.20
One-year forward rate	—	\$.19

- a. Use the forward rate to forecast the percentage change in the Mexican peso over the next year. (6 points)
- b. Use the differential in expected inflation to forecast the percentage change in the Mexican peso over the next year. (6 points)
- c. Use the spot rate to forecast the percentage change in the Mexican peso over the next year. (6 points)

考試科目	統計學 A	所別	金融學系	考試時間	2 月 22 日(六)第三節
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1. Let X_t be a normally distributed random variable with mean rt and variance $\sigma^2 t$, i.e. $X_t \sim N(rt, \sigma^2 t)$, for a stock return and a time period $[0, t]$. If $S_t = S_0 e^{X_t}$ where S_t is the stock price at time t , then the stock price S_t is said to be lognormally distributed random variable.

- (1). (5%) Find the probability $P(S_t > K)$ for a positive real number K and a given cumulative standard normal distribution $N(\cdot)$. (i.e., the probability which the stock price exceeds K at time t).
- (2). (10%) Compute $E\left((S_t - K) 1_{\{S_t > K\}}\right)$, where $1_{\{S_t > K\}}$ denotes the indicator function. (i.e., the expected profit $(S_t - K)$ when the stock price exceeds K at time t)

2. Suppose that the joint distribution of the random variable's X and Y is the Bivariate Normal distribution.

That is

$$f_{X,Y}(x,y) = \frac{1}{2\pi\sigma_1\sigma_2\sqrt{1-\rho^2}} e^{-q/2}$$

where $q = \frac{1}{1-\rho^2} \left[\left(\frac{x-\mu_X}{\sigma_X} \right)^2 - 2\rho \left(\frac{x-\mu_X}{\sigma_X} \right) \left(\frac{y-\mu_Y}{\sigma_Y} \right) + \left(\frac{y-\mu_Y}{\sigma_Y} \right)^2 \right]$, $-\infty < x < \infty$, and $-\infty < y < \infty$

- (1). (5%) Find the marginal distribution of X and Y .
- (2). (5%) Derive the conditional distribution, the conditional mean, and the conditional variance of Y given $X = x$.
- (3). (10%) Find the MLE (maximum likelihood estimator) of μ_X , μ_Y , σ_X^2 , σ_Y^2 , and ρ .
- (4). (5%) Prove the MLE of σ_X^2 is asymptotic unbiased.

3. Consider the regression model as $Y_t = \alpha + \beta X_t + \varepsilon_t$, assume ε_t , $t=1, \dots, n$, are independent, $E(\varepsilon_t) = 0$ for all t , and $Var(\varepsilon_t) = \sigma^2$ for all t .

- (1). (5%) Find the least squares estimates $\hat{\alpha}$ and $\hat{\beta}$, and check that the estimators are unbiased.
- (2). (10%) Describe the Gauss-Markov Theorem, and prove the Gauss-Markov theorem for the least squares estimator $\hat{\beta}$ of β .

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- (3). (10%) If we have a linear regression model with heteroskedasticity (the variance assumption of the residuals change from $Var(\varepsilon_i) = \sigma^2$ to $Var(\varepsilon_i) = \sigma_i^2$), then whether the least squares estimator $\hat{\beta}$ is still a linear and unbiased estimator or not? And find the variance of the least square estimator $\hat{\beta}$.
- (4). (5%) If the true model is $Y_i = \beta X_i + \varepsilon_i$, find the least squares estimator $\tilde{\beta}$ of β , and prove $\tilde{\beta}$ is unbiased?
- (5). (10%) If the true model has a constant term so that $Y_i = \alpha + \beta X_i + u_i$, show that $\tilde{\beta}$ is biased, which you use a wrong model (the regression model for no constant term) to estimate. Please derive the condition under which $\tilde{\beta}$ will be unbiased even though the wrong model was used.
4. Assume that $X_{ij} \sim N(\mu_{ij}, \sigma^2)$, $i=1,2,\dots,a$, and $j=1,2,\dots,b$; and the $n=ab$ random variables are independent. Assume that the mean μ_{ij} are composed of a row effect with a levels (factor A), a column effect with b levels (factor B), and an overall effect in some additive way, namely $\mu_{ij} = \mu + \alpha_i + \beta_j$, where $\sum_{i=1}^a \alpha_i = 0$ and $\sum_{j=1}^b \beta_j = 0$. The parameter α_i represents the i th row effect, and the parameter β_j represents the j th column effect. Let
- $$\bar{X}_{i.} = \frac{1}{b} \sum_{j=1}^b X_{ij}, \quad \bar{X}_{.j} = \frac{1}{a} \sum_{i=1}^a X_{ij}, \quad \bar{X}_{..} = \frac{1}{ab} \sum_{i=1}^a \sum_{j=1}^b X_{ij},$$
- $$SS(TO) = \sum_{i=1}^a \sum_{j=1}^b (X_{ij} - \bar{X}_{..})^2, \quad SS(A) = b \sum_{i=1}^a (X_{i.} - \bar{X}_{..})^2,$$
- $$SS(B) = a \sum_{j=1}^b (X_{.j} - \bar{X}_{..})^2, \quad SS(E) = \sum_{i=1}^a \sum_{j=1}^b (X_{ij} - \bar{X}_{i.} - \bar{X}_{.j} + \bar{X}_{..})^2$$
- where $SS(TO)$ denotes the total sum of squares, $SS(A)$ is the sum of squares among levels of factor A, $SS(B)$ presents the sum of squares among levels of factor B, and $SS(E)$ is the residual sum of squares.
- (1). (10%) Prove $SS(TO) = SS(A) + SS(B) + SS(E)$ in detail.
- (2). (10%) Derive the statistic for testing the null hypothesis $H_0: \alpha_1 = \alpha_2 = \dots = \alpha_a = 0$ against all alternatives, and find the rejection region.

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Multiple Choice Questions (40 points, 2 points each question)

- Where does a "convertible bond" get its name?
 - The option of converting into shares of common stock
 - The option of increasing its coupon payments when interest rates increase
 - The option of converting from zero-coupon to coupon-paying bond
 - The option of increasing yield without decreasing price
- Which of the following statements is correct about a stock currently selling for \$100 per share that has a 18% expected return and a 10% expected capital appreciation?
 - Its expected dividend exceeds the actual dividend.
 - Its expected return will exceed the actual return.
 - It is expected to pay \$3 in annual dividends.
 - It is expected to pay \$8 in annual dividends.
- When managers cannot determine whether to invest now or wait until costs decrease later, the rule should be to:
 - postpone until costs reach their lowest.
 - invest now to maximize the NPV.
 - postpone until the opportunity cost reaches its lowest.
 - invest at the date that gives the highest NPV today.
- Which of the following changes would be likely to increase the NPV of a project?
 - Increasing the firm's opportunity cost of capital
 - Permitting a net decrease in working capital
 - Spreading the total cash inflows over a longer interval
 - Increasing the project's estimated expenses
- Calculate the ratio of variable costs to sales for a firm with \$5,000,000 accounting break-even revenues, \$2 million fixed costs, and \$800,000 depreciation.
 - 31%
 - 44%
 - 58%
 - 62%

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6. The accounting break-even point is that level of sales where:
- A. sales revenue equals variable costs.
 - B. sales revenue equals variable plus fixed costs.
 - C. EBIT equals depreciation expense, thus cash flow equals zero.
 - D. EBIT equals zero.
7. The addition of a negative risk asset to a portfolio of assets will:
- A. increase the portfolio's expected return.
 - B. decrease the portfolio's expected return.
 - C. increase the portfolio's expected volatility.
 - D. decrease the portfolio's expected volatility.
8. Treasury bonds have provided a higher historical return than Treasury bills, which can be attributed to:
- A. greater default risk.
 - B. a higher level of unique risk.
 - C. greater price risk due to longer maturities.
 - D. the fact that they are less frequently traded than bills.
9. A project is determined to have equal probability of generating \$1 million annually or \$500,000 annually for 4 years. The initial outlay is \$2 million. The expected return on Treasury bills is 8% and the market risk premium is 5%. What is the highest project beta that will justify acceptance of the project?
- A. 0.245
 - B. 1.000
 - C. 1.245
 - D. 2.090
10. The use of debt in the firm's capital structure will increase ROE if the firm:
- A. has more debt than equity.
 - B. pays less in taxes than in interest.
 - C. earns a higher return than the rate paid on debt.
 - D. has a times interest earned greater than 1.0.

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11. According to MM, if individuals cannot obtain the same borrowing terms as firms, then:
- A. capital structure may be relevant.
 - B. capital structure may be irrelevant.
 - C. individuals should not invest in levered firms.
 - D. firms should increase their payments to individuals.
12. If the present value of the tax shield equals the present value of the costs of financial distress, then the:
- A. firm is using the optimal level of debt.
 - B. firm is paying too high an interest rate.
 - C. firm's market value equals the value of the unlevered firm.
 - D. firm should increase its use of debt.
13. The beta of an investment in U.S. Treasury bills is:
- A. 0.0.
 - B. 0.5.
 - C. 1.0.
 - D. meaningless; only common stocks have betas.
14. When a firm announces a two-for-one stock split (in the absence of other new information), investors should expect that:
- A. earnings per share will fall in half but stock price will remain the same.
 - B. stock price will fall in half but earnings per share will remain the same.
 - C. both earnings per share and stock price will remain the same.
 - D. both earnings per share and stock price will fall by half.
15. What is the sustainable growth rate for a firm with net income of \$2.5 million, cash dividends of \$1.5 million, and return on equity of 20%?
- A. 3.0%
 - B. 5.4%
 - C. 7.2%
 - D. 8.0%

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16. Which of the following is least likely to be correct about the factoring of receivables?
- A. The selling firm bears the risk of default.
 - B. The higher the perceived quality of the receivables, the lower the discount rate.
 - C. The discount is paid by the selling firm in the form of reduced sales price.
 - D. Factoring may be the cheapest method of avoiding a cash flow problem.
17. What is the break-even probability in the following case? A customer wishes to purchase a \$30,000 item that has been marked up 60% over cost and the probability of collection is only 65%. Assume all cash flows are discounted to present value.
- A. 56.67%
 - B. 62.50%
 - C. 77.84%
 - D. 84.32%
18. Mergers that attempt to bootstrap earnings may obtain increased current earnings per share at the expense of:
- A. a higher price-earnings ratio.
 - B. higher total combined market value.
 - C. reduced future growth prospects.
 - D. increased free cash flow.
19. It is May 19 and you own a June, European call on ABC Corp. with an exercise price of \$60. The option trades at \$55 and ABC is trading at \$108. What should you do?
- A. Exercise the option now and take the profits.
 - B. Buy more options on ABC Corp.
 - C. Sell your ABC stock before its price declines.
 - D. Sit and wait until the June expiration.
20. A soybean oil contract calls for delivery of 90,000 pounds. What happens to the seller of a soybean futures contract at 16 cents per pound if the futures price closes the next day at 18 cents per pound?
- A. The contract is marked to market with a \$1,800 loss.
 - B. The contract is marked to market with a \$1,800 gain.
 - C. Futures contracts are voided if price increases before expiration.
 - D. Nothing happens until the expiration of the contract.

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Essay Questions (60 points)

Please answer the following questions **IN SEQUENCE**. All questions may be answered in either Chinese or English.

21. (6 points) If 4 years of college are expected to cost \$200,000 18 years from now, how much must be deposited now into an account that will average 9% annually in order to save the \$200,000? By how much would your answer change if you expected 12% annually?
22. (6 points) Determine the expected return on equity for a firm with a WACC of 15%, \$600,000 in 10% debt, and \$900,000 in equity. Both debt and equity are shown at market values, and the firm pays no taxes. How can the expected return on equity be reduced?
23. (18 points) What factors should you consider when applying CAPM model in an emerging market?
24. (15 points) How are the terms "defensive" and "aggressive" applied to individual stocks or portfolios?
25. (15 points) Why could a lender's expected return be lower when the risk premium is increased on a loan?



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考試科目	統計學 B	所別	金融系 / 財務工程組 4122	考試時間	二月 22 日 (六) 第二節
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Instructions. (i), Two question sheets in total. (ii), Answer ALL questions.

1. (a) Given that, the joint probability density function of a bivariate random variable (X, Y) is:

$$f_{XY}(x, y) = \begin{cases} \frac{1}{y} e^{-\frac{x}{y}} e^{-y} & x > 0, y > 0 \\ 0 & \text{otherwise} \end{cases}$$

1. (5 points) Evaluate explicitly the integral

$$\int_{-\infty}^{\infty} \int_{-\infty}^{\infty} f_{XY}(x, y) dx dy$$

2. (5 points) Find $\Pr(X > 1 | Y = y)$.

- (b) (10 points) Suppose that, the joint probability density function of a bivariate random variable (X, Y) is given by:

$$f_{XY}(x, y) = \frac{1}{2\sqrt{3}\pi} \exp\left[-\frac{1}{3}(x^2 - xy + y^2 - x - 2y + 1)\right]$$

where $-\infty < x, y < \infty$.

Find the means, the variances, and the correlation coefficient of X and Y .

2. (a) Let (X_1, \dots, X_n) be a random sample of a Poisson random variable X with unknown parameter λ .

1. (5 points) Show that both

$$\Lambda_1 = \frac{1}{n} \sum_{i=1}^n X_i \text{ and } \Lambda_2 = \frac{1}{2}(X_1 + X_2)$$

are unbiased estimators of λ .

2. (5 points) Which estimator is more efficient?

- (b) (10 points) Show that, based on Chebyshev's inequality, an estimator Φ_n , is consistent if

$$\lim_{n \rightarrow \infty} E(\Phi_n) = 0 \text{ and } \lim_{n \rightarrow \infty} Var(\Phi_n) = 0$$

3. Let Y_1, \dots, Y_n be a random sample of a random variable y with the probability density function containing the unknown parameter $\theta > 0$ given as:

$$f(y|\theta) = \begin{cases} \frac{1}{\theta} y^{\frac{1}{\theta}-1} & \text{for } 0 < y < 1 \\ 0 & \text{otherwise} \end{cases}$$

- (a) (10 points) Find the method of moment estimator for θ using the Y_i .

- (b) (10 points) Find the maximum likelihood estimator for θ using the Y_i .

備

註 試題隨卷繳交

考試科目	統計學 B	所別	金融系/財務工程組 4/22	考試時間	二月 22 日(六) 第二節
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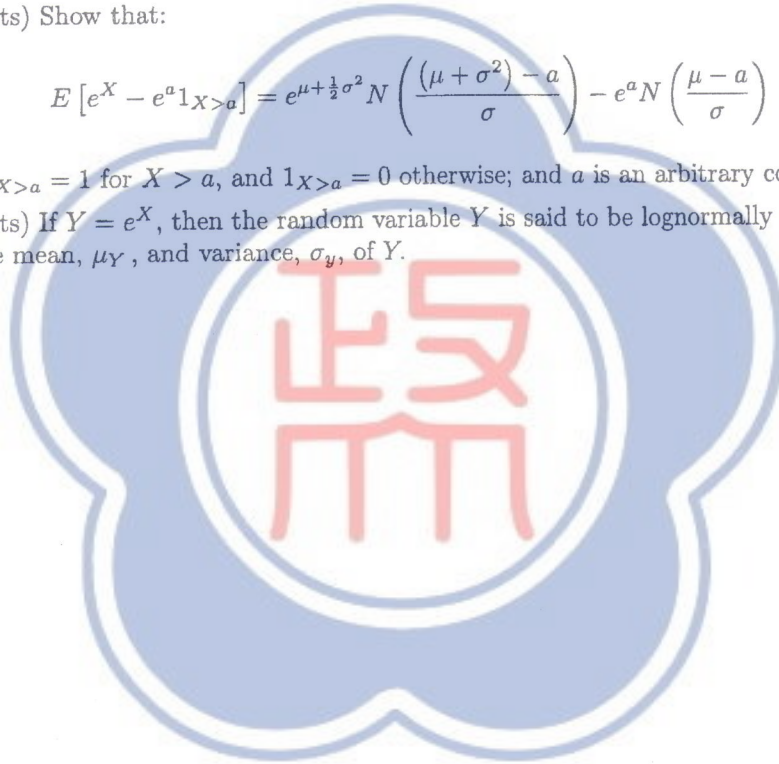
4. (a) (5 points) Explain the difference between an autoregressive (AR) and a moving-average (MA) process.
- (b) (5 points) Why are they referred to as stationary processes?
- (c) Show that:
- (5 points) an AR(1) process is equivalent to an MA(∞) process.
 - (5 points) an MA(1) process is equivalent to an AR(∞) process.
5. Let X be a normally distributed random variable, i.e. $X \sim N(\mu, \sigma^2)$.

- (a) (10 points) Show that:

$$E[e^X - e^a 1_{X>a}] = e^{\mu + \frac{1}{2}\sigma^2} N\left(\frac{(\mu + \sigma^2) - a}{\sigma}\right) - e^a N\left(\frac{\mu - a}{\sigma}\right)$$

where $1_{X>a} = 1$ for $X > a$, and $1_{X>a} = 0$ otherwise; and a is an arbitrary constant.

- (b) (10 points) If $Y = e^X$, then the random variable Y is said to be lognormally distributed. Find the mean, μ_Y , and variance, σ_Y , of Y .



考 試 科 目	中 英 語 文 能 力	所 別	會 計 系	4131 4132	考 試 時 間	2 月 22 日(六) 第 一 節
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將英文內容翻譯成中文

1.

(1) 10%

“Where corporate responsibility reporting was once seen as fulfilling a moral obligation to society, many companies are now recognizing it as a business imperative. Companies are increasingly realizing that corporate responsibility reporting is about more than just being a good corporate citizen; it drives innovation and promotes learning, which helps companies grow their business and increase their organization’s value. It seems clear, therefore, that companies not yet reporting on their corporate responsibility activities are under significant pressure to start. This will be increasingly critical; not only to stay competitive in a societal context, but also to gain a better understanding of how corporate responsibility activities impact and benefit the business in areas such as cost savings and new business opportunities.”

(2) 10%

“A fundamental feature of the financial reporting landscape is that investors want a firm’s management to diligently and faithfully report on its firm’s affairs. In the event of fraudulent material misstatement or omission of information, the federal securities laws provide investors with the right to take legal action. The efficacy of securities litigation at deterring fraudulent management and compensating aggrieved shareholders has been vigorously debated. Within this debate, a commonly held view is that securities actions can serve an important deterrence role only if legal damages are borne by the culpable managers and not by the corporation and its insurance firm.”

以英文回答

2. 20%

Do you agree or disagree with the following statement?

“People today spend too much time on personal enjoyment — doing things they like to do — rather than doing things they should do.”

Use specific reasons and examples to support your answer.

3. 10%

Your friend, James, made this comment: “My major is biology and I plan to research for cures for major illnesses. Thus, I have no need to study accounting.” What is your response to James?

備

註

試 題 隨 卷 繳 交

考試科目	中英語文能力	所別	會計系 4131 4132	考試時間	2 月 22 日(六) 第一節
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將英文內容翻譯成中文

4. (30%)

Forensic accounting is the action of identifying, recording, settling, extracting, sorting, reporting, and verifying past financial data or other accounting activities for settling current or prospective legal disputes or using such past financial data for projecting future financial data to settle legal disputes. Practice of forensic accounting was common even before independent accountants were asked to certify financial statements in auditing engagements.

A forensic accountant may take on fraud auditing engagements and may be a fraud auditor, but he or she will also use other accounting, consulting, and legal skills in broader engagements. In addition to accounting skills, he or she will need a working knowledge of the legal system and excellent communication skills to carry out expert testimony in the courtroom and to aid in other litigation support engagements.

In 2003, the AICPA's Litigation and Dispute Resolution Services Subcommittee issued a report of its Fraud Task Force entitled, "Incorporating Forensic Procedures in an Audit Environment." The report covers the professional standards that apply when forensic procedures are employed in an audit and explains the various means of gathering evidence through the use of forensic procedures and investigative techniques.

以英文回答

5. (20%)

Assume that the president of Global Technology made the following statement in the Annual Report to Shareholders:

"The founding family and majority shareholders of the company do not believe in using debt to finance future growth. The founding family learned from hard experience during Prohibition and the Great Depression that debt can cause loss of flexibility and eventual loss of corporate control. The company will not place itself at such risk. As such, all future growth will be financed either by stock sales to the public or by internally generated resources."

As a public shareholder of this company, how would you respond to this policy?