

考 試 科 目	財務管理 41213	所 別	金融學系/金融管理組	考 試 時 間	2 月 27 日(六) 第二節
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Part I: Multiple choice (30 points, 3 points each question)

1. Corporate governance is the set of internal controls, processes and procedures defining how a firm is managed. Which of the following statements concerning corporate governance is least accurate?

- A) Good corporate governance means that the board can work effectively with management.
- B) Good corporate governance dictates that the firm's financial, operating and governance activities are reported to stakeholders in a fair, accurate and timely manner.
- C) Corporate governance defines the appropriate rights, roles and responsibilities of management, the board, and stakeholders within a firm.

2. When a firm recognizes revenue in excess of expenses on a product not covered by a warranty before cash is collected, what is the impact on the firm's assets and liabilities, ignoring taxes?

Assets

Liabilities

- | | |
|--------------|-----------|
| A) Increase | Increase |
| B) Increase | No effect |
| C) No effect | Increase |

3. Regarding the basic principles of capital budgeting:

Statement 1: The timing of expected cash flows is crucial for determining the profitability of a capital budgeting project.

Statement 2: Capital budgeting decisions should be based on the after-tax net income produced by the capital project.

Which of the statements is most accurate?

Statement 1

Statement 2

- | | |
|--------------|-----------|
| A) Correct | Incorrect |
| B) Correct | Correct |
| C) Incorrect | Correct |

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4. An analyst computes the following ratios for a firm A and compares the results to the industry averages:

Financial Ratio	Firm A	Industry Average
Current Ratio	2.3x	1.8x
Net Profit Margin	22%	24%
Return on Equity	17%	20%
Total Debt / Total Capital	35%	56%
Times Interest Earned	4.7x	4.1x

Based on the above data, which of the following can the analyst conclude? Firm A:

- A) has better short-term liquidity than its competitors.
- B) has stronger profitability than its competitors.
- C) is most likely a younger company than its competitors.

5. Which of the following strategies is most likely to be considered good payables management?

- A) Paying invoices on the last possible day to still get the supplier's discount for early payment.
- B) Taking trade discounts only if the firm's annual return on short-term investments is less than the discount percentage.
- C) Paying trade invoices on the day they arrive.

6. XYZ Corporation recently announced a 15% increase in earnings per share (EPS) over the previous period. The consensus expectation of financial analysts had been an increase in EPS of 10%. After the earnings announcement the value of XYZ common stock increased each day for the next five trading days, as analysts and investors gradually reacted to the better than expected news. This gradual change in the value of the stock is an example of:

- A) inefficient markets.
- B) speculation.
- C) efficient markets.

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7. Which of the following statements about systematic and unsystematic risk is least accurate?
- A) As an investor increases the number of stocks in a portfolio, the systematic risk will remain constant.
 - B) Total risk equals market risk plus firm-specific risk.
 - C) The unsystematic risk for a specific firm is similar to the unsystematic risk for other firms in the same industry.
8. In preparing a cash flow forecast, a firm is likely to employ a minimum acceptable cash balance:
- A) that includes a component for opportunities that may arise.
 - B) which includes estimated expenses and a margin for unforeseen expenses only.
 - C) equal to the amount necessary to pay projected payables, interest, taxes, and day-to-day expenses.
9. Which of the following statements is FALSE? Compared to a callable bond, a noncallable bond:
- A) provides a higher yield.
 - B) is more attractive to an investor concerned with reinvestment risk.
 - C) has more predictable cash flows.
10. A firm has a capital structure of 60% debt and 40% equity and a dividend payout ratio of 50%. If a surplus results from first-pass pro forma financial statements based on estimated sales growth and assuming the capital structure and dividend payout ratio are maintained, which of the following changes in assumptions would eliminate any surplus in a single step?
- A) The entire surplus will be used to repurchase common stock.
 - B) The entire surplus will be used to pay down long-term debt.
 - C) No change in assumptions is necessary.

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Part II: Calculations (70 points, 10 points each question)

Show your calculation process and answer questions by orders. No point is given if above statement is violate.

1. Company ABC reported the following financial information at the end of 2015:

in millions

Merchandise inventory	\$240
Minority interest	70
Cash and equivalents	275
Accounts receivable	1,150
Accounts payable	225
Property & equipment	2,160
Accrued expenses	830
Current portion of long-term debt	120
Long-term debt	1,570
Retained earnings	4,230

Calculate ABC's current assets and working capital.

2. A local bank offers a certificate of deposit (CD) that earns 5.0% compounded quarterly for three and one half years. If a depositor places \$5,000 on deposit, what will be the value of the account at maturity?

3. Henry borrows \$20,000 to be paid back in four equal annual payments at an interest rate of 8%. What will be the interest amount in the second year's payment?

4. One year ago, Mary purchased a 6.50% fixed coupon bond for 98.50. Recently, she sold the bond for 99.25 and calculated her return at 7.4%. Her friend reminds Mary that this is the nominal return and that to calculate the real return, she needs to factor in the inflation rate over the holding period. If the price index for the current year is 118.5 and the price index one year ago was 115.9, what is Mary's real return?

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5. The following data pertains to a common stock:

- It will pay no dividends for two years.
- The dividend three years from now is expected to be \$1.
- Dividends are expected to grow at a 7% rate from that point onward.

If an investor requires a 17% return on this stock, what will they be willing to pay for this stock now?

6. A firm is considering a \$5,000 project that will generate an annual cash flow of \$1,000 for the next 8 years. The firm has the following financial data:

- Debt/equity ratio is 50%.
- Cost of equity capital is 15%.
- Cost of new debt is 9%.
- Tax rate is 33%.

Determine the project's net present value (NPV) and whether or not to accept it.

7. A company has the following capital structure:

- Target weightings: 30% debt, 20% preferred stock, 50% common equity.
- Tax Rate: 35%.
- The firm can issue \$1,000 face value, 7% semi-annual coupon debt with a 15-year maturity for a price of \$1,047.46.
- An 8% dividend preferred stock issue has a value of \$35 per share.
- The company's growth rate is estimated at 6%.
- The company's common shares have a value of \$40 and a dividend in year 0 of $D_0 = \$3.00$.

Calculate the company's weighted average cost of capital.

備 註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。
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考試科目	統計學 A 41211	所別	金融學系金融管理組	考試時間	2 月 27 日(六)第 3 節
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1. Let X be a Bernoulli random variable with $\Pr(X = 1) = p$, $Y \sim N(0, 1)$, $W \sim N(0, 9)$ and $S = XY + (1 - X)W$.

(a) (10%) Derive $E(S)$ and $Var(S)$.

(b) (10%) Given that $0 < p < 1$, discuss the skewness and kurtosis for S .

2. Let W and Z be two random variables where $-\infty < W < \infty$ and $-\infty < Z < \infty$. The joint density $f(w, z)$ is a well-defined continuous function.

(a) (10%) Show that $E[E(W|Z)] = E(W)$.

(b) (10%) Consider a linear model $Y = \beta_0 + \beta_1 X + u$ where X , Y and u are random variables. The consistency of least square estimator $\hat{\beta}_1$ requires that $E(u|X) = 0$ so that X is not correlated with u . If $E(u|X) = k$ where $k \neq 0$ is a constant, is X still uncorrelated with u in this case? Prove your answer.

3. Let X_1, X_2, \dots, X_n denote a random sample from $f(x; \theta) = \theta x^{\theta-1}$ where $0 < x < 1$ and $\theta > 0$.

(a) (10%) Find the method of moment estimator for θ and check whether it is consistent.

(b) (10%) Derive the best critical region for testing $\theta = 1$ against $\theta = 2$.

4. Regression analysis is widely used in various applications, but its validity requires several conditions.

(a) (10%) Consider a linear model $Y_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + u_i$, $i = 1, 2, \dots, n$. When testing the hypothesis $\beta_1 = \beta_2 = \dots = \beta_k = 0$ given the significance level α , can you check the significance of individual coefficient one at a time, i.e., $\beta_1 = 0$, $\beta_2 = 0$, ..., $\beta_k = 0$? Why or why not?

(b) (10%) In the above linear model, the calculation of $Var(\hat{\beta}_j)$ depends on the properties of the error term. Use graphs to explain the concept of homoskedastic and heteroskedastic errors in regression analysis.

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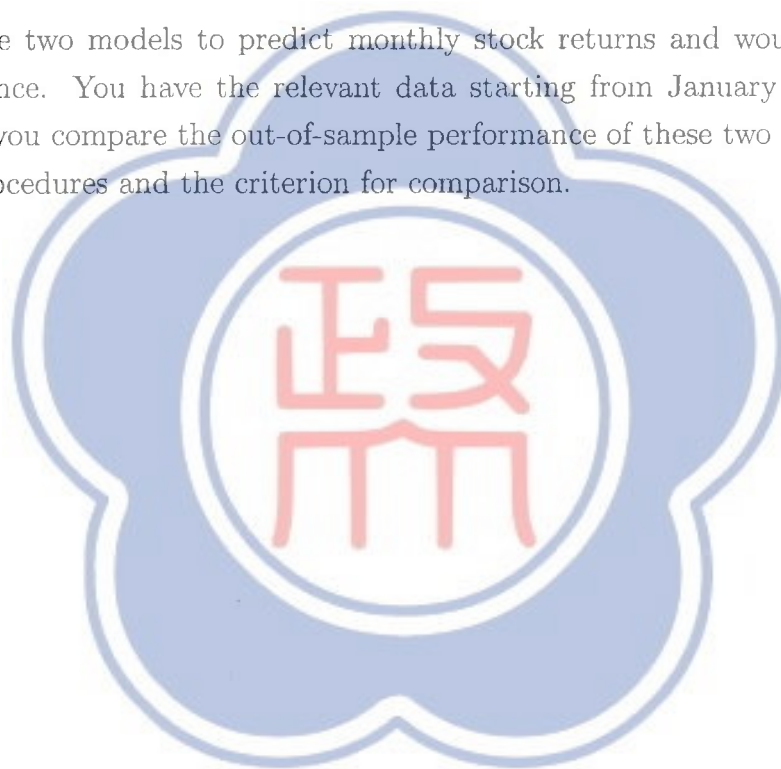
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一、作答於試題上者，不予計分。
二、試題請隨卷繳交。

考試科目	統計學 A 41211	所 別	金融學系金融管理組	考試時間	2 月 27 日(六)第 3 節
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(c) (10%) Someone studies the relationship between education and income by regressing hourly wage on years of schooling. Most of the observations have the same years of schooling since the data come from his friends and peers for convenience. What are the problems (at least two) that could contaminate the validity of regression analysis in this case? In addition, explain how these problems affect the validity of least square estimator in details.

5. (10%) You use two models to predict monthly stock returns and would like to compare their performance. You have the relevant data starting from January 1966 to December 2015. How do you compare the out-of-sample performance of these two models? Articulate the relating procedures and the criterion for comparison.



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- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

考 試 科 目	財務管理 U1228	所 別	金融學系/財務工程組	考 試 時 間	2 月 27 日 (六) 第 1 節
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I. Explain the following terms briefly (24 points, each 4 points)

1. The trade-off theory of capital structure
2. Pecking-order theory
3. A policy of dividend smoothing
4. Semistrong form of market efficiency
5. A firm's liquidation value
6. The payback rule

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. Wilt's has earnings per share of \$2.98 and dividends per share of \$.35. What is the firm's sustainable rate of growth if its return on assets is 14.6% and its return on equity is 18.2%?
3. ABC common stock is expected to have extraordinary growth of 20% per year for 2 years, after which the growth rate will settle into a constant 6%. If the discount rate is 15% and the most recent dividend was \$2.50, what should be the approximate current share price?
4. What is the rate of return for an investor who pays \$1,054.47 for a 3-year bond with coupon of 6.5% and sells the bond 1 year later for \$1,037.19?
5. Calculate the expected rate of return for the following portfolio, based on a Treasury bill yield of 4% and an expected market return of 13%: (Show your work)

Stock	Weight	Beta
A	20%	1.6
B	25%	1.2
C	10%	1.0
D	30%	0.9
E	15%	0.8

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

1. Why might a bond's current yield offer an incomplete idea of what return the investor is receiving?
2. The stock of Newmont Mining, the world's largest gold producer, has above-average volatility but a relatively low beta. Why?

IV. Questions (34 points)

1. Nodebt Inc. is a firm with all-equity financing. Its equity beta is 0.8. The Treasury bill rate is 4%, and the market risk premium is expected to be 10%.
 - (a) What is Nodebt's asset beta? (5 points)

考 試 科 目	財務管理 4122B	所 別	金融學系/財務工程組	考 試 時 間	2 月 27 日(六) 第 1 節
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- (b) What is Nodebt's WACC? (6 points)
2. Buggins Inc. is financed equally by debt and equity, each with a market value of \$1 million. The cost of debt is 5%, and the cost of equity is 10%. The company now makes a further issue of debt and uses the proceeds to repurchase equity. This causes the cost of debt to rise to 6% and the cost of equity to rise to 12%. Assume the firm pays no taxes.
- (a) How much debt does the company now have? (6 points)
- (b) What is the overall cost of capital? (5 points)
3. Surf & Turf Hotels is a mature business, although it pays no cash dividends. Next year's earnings are forecast at \$56 million. There are 10 million outstanding shares. The company has traditionally used 50% of earnings to repurchase shares of stock and reinvested the remaining earnings. With reinvestment, the company has generated steady growth averaging 5% per year. Assume the cost of equity is 12%.
- (a) Calculate Surf & Turf's current stock price, using the constant-growth discount cash flow (DCF) model. (6 points)
- (b) Now Surf & Turf's CFO announces a switch from repurchases to a regular cash dividend. Next year's dividend will be \$2.8 per share. The CFO reassures investors that the company will continue to pay out 50% of earnings and reinvest 50%. All future payouts will come as dividends, however. What would you expect to happen to Surf & Turf's stock price? Ignore taxes. (6 points)

備 註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。
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考試科目	統計學 B	所別	金融學系	考試時間	2 月 27 日 (六) 第二節
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1. Let X and Y be independent Poisson random variables with parameters λ_X and λ_Y , respectively.

(a) Show that $P(X + Y = n) = \sum_{i=0}^n P(X = i)P(Y = n - i)$. (5%)

(b) Use part (a) to prove that $X + Y$ is a Poisson random variable with a parameter $\lambda_X + \lambda_Y$. (5%)

(c) Please calculate the conditional probability and conditional expectation of X given that $X + Y = n$. (10%)

2. A stochastic process $\{X(t), t \geq 0\}$ is said to be a compound Poisson process if it can be represented as

$$X(t) = \sum_{i=1}^{N(t)} Y_i, \quad t \geq 0$$

where $\{N(t), t \geq 0\}$ is a Poisson process with a arrival rate λ , and $\{Y_i, i \geq 0\}$ is a family of independent and identically distributed random variables from normal density with mean μ and variance σ^2 which are also independent of $\{N(t), t \geq 0\}$.

(a). Please find the mean of $\exp\{X(T)\}$ at the time T . (5%)

(b). Please show $\exp\{X(T) - \lambda(k-1)T\}$ to be martingale, where $k = \exp\{\mu + 0.5\sigma^2\}$. (5%)

(c). Please find the estimators λ , μ and σ^2 when you have the data of 2 samples with the arrival numbers (n_1, n_2, \dots, n_T) and the values $\{(y_1, y_2, \dots, y_{n_1}), (y_1, y_2, \dots, y_{n_2}), \dots, (y_1, y_2, \dots, y_{n_T})\}$? (10%)

(d). If the arrival numbers are missing or unobservable, how to estimate λ , μ and σ^2 ? (10%)

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3. Let the dynamics of the stock price be $S(T) = S(0) \exp\left\{(r - \frac{1}{2}\sigma^2)T + \sigma B(T)\right\}$ under the risk neutral measure at time T , where $S(0)$ denotes the stock price at time 0, r is the riskless rate, σ is the volatility of the log stock price, and $\{B(t), t \geq 0\}$ is a Brownian motion process with $B(0) = 0$. $B(t)$ is normal distribution with mean 0 and variance t at time t , where its density function is given by

$$f_t(b) = \frac{1}{\sqrt{2\pi t}} e^{-b^2/2t},$$

and the process $B(t)$ has stationary and independent increments, where $B(t_1)$, $B(t_2) - B(t_1)$, ..., $B(t_n) - B(t_{n-1})$ for $t_1 < \dots < t_n$ are independent and $B(t_k) - B(t_{k-1})$ is normal with mean 0 and variance $t_k - t_{k-1}$.

- (a). Please describe what is the risk-neutral probability measure and the physical (real) probability measure? (10%)
- (b). Please find the mean and variance of $S(T)$ under the risk-neutral probability measure. (10%)
- (c). If the underlying asset of the futures is the stock, what is the theoretical value of the futures with the maturity T at time 0 under the risk-neutral probability measure? (10%)
- (d). If the underlying asset of the option is the stock, what is the theoretical value of the stock option with strike price K and maturity T at time 0 under the risk-neutral probability measure? (Hint: To derive Black-Scholes Option Pricing Formula.) (10%)
- (e). Please find the estimators of μ and σ by the maximum likelihood estimation (MLE) at the physical (real) probability measure based on the stock prices data for n days. (10%)

4112, 41212, 4122A, 41713, 41822, 41922, 4194C, 42112, 42122.

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Multiple Choice (1 point each)

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

1. Assume that the price elasticity of demand for good X is constant and equal to -0.5 , and the price elasticity of demand for good Y is constant and equal to -2 . Assume that goods X and Y have identical upward-sloping elastic supply curves. If a per-unit excise tax of the same amount is levied on good X and on good Y , which of the following would be true?

- A. The percentage decrease in the quantity of good X demanded would be greater than the percentage decrease in the quantity of good Y demanded.
- B. The tax share paid by consumers of good X would be relatively higher than that paid by consumers of good Y .
- C. The tax share paid by consumers of good Y would be relatively higher than that paid by consumers of good X .
- D. The tax share paid by sellers of good Y would be relatively lower than that paid by sellers of good X .

2. If the income elasticity of demand for good X is negative and the cross-price elasticity of demand between good X and good Y is negative, which of the following must be true of good X ?

- A. X is a normal good and is a substitute for Y .
- B. X is a normal good and is a complement to Y .
- C. X is an inferior good and is a substitute for Y .
- D. X is an inferior good and is a complement to Y .

3. If an industry ignores the external costs it generates in its production, which of the following will be true at the competitive market equilibrium output?

- A. Price will be greater than the marginal social cost.
- B. Price will be less than the marginal social cost.
- C. Price will be equal to the marginal social cost.
- D. Marginal private cost will be greater than the marginal social cost.

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。
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考試科目	經濟學	所別	高院共同科	考試時間	2 月 27 日 (六) 第 / 節
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4. Karen works part-time at a local convenience store and earns \$10 per hour. She wants to spend next Saturday afternoon attending a music concert. The full price of a concert ticket is \$75, but Karen was able to get a discounted price of \$50 from a friend who purchased the ticket but has become unable to attend. If Karen took 4 hours off from her job to attend the concert, what was her opportunity cost of attending the concert?

- A. \$40
- B. \$50
- C. \$90
- D. \$125

5. Which of the following is true of the substitution effect of an increase in the price of a normal good?

- A. It works to offset the income effect.
- B. It works to reinforce the income effect.
- C. It is less than the income effect.
- D. It causes an increase in the quantity demanded of the good.

6. A firm employs unskilled and skilled labor in a cost-minimizing mix at its manufacturing plant. The marginal product of unskilled labor is considerably lower than skilled labor. The equilibrium wage of the unskilled labor is only NT\$90 per hour. The government passes a law that mandates a minimum wage of NT\$120 per hour. Equilibrium wages for skilled workers exceed this minimum wage and therefore are not affected by the new law. The firm will most likely respond to the imposition of the minimum wage law by:

- A. employing fewer skilled workers and allocate their salaries to unskilled workers.
- B. keeping the mix of unskilled and skilled workers the same.
- C. employing more unskilled workers at its plant.
- D. employing fewer unskilled workers at its plant.

7. The short-term shutdown point of production for a firm operating under perfect competition will most likely occur when:

- A. price is equal to average total cost.
- B. marginal revenue is equal to marginal cost.
- C. marginal revenue is less than average variable costs.
- D. price is less than the marginal cost.

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- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

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8. Which of the following might cause a monopoly to exist?

- I. Economies of scale
 - II. A single firm owning a key resource
 - III. A firm owning a patent on a product
 - IV. A firm being a price taker
 - V. Price discrimination
- A. I, II, and III only.
 - B. II, III, and V only.
 - C. I, II and IV only.
 - D. II, III and V only.

9. Which of the following events could cause an increase in the production of labor?

- I. Office workers receive faster computers.
 - II. Wages for textile workers rise.
 - III. More useful tools are given to a construction crew working on a house.
 - IV. The minimum wage law is enforced.
 - V. Bank clerks take a training course.
- A. I and III only.
 - B. I, III and V only.
 - C. I, II, and IV only.
 - D. II, IV, and V only.

10. Companies most likely have a well-defined supply function when the market structure is

- A. oligopoly.
- B. monopoly.
- C. perfect competition.
- D. monopolistic competition.

11. Suppose that a country produces only two goods, x and y . In year 2012, the price of x is $P_x = 5$ and the production level is $Q_x = 5$. The price and production level of y are $P_y = 5$ and $Q_y = 5$. In year 2015, they are $P_x = 10$, $Q_x = 2.5$, $P_y = 10$, and $Q_y = 2.5$. If the base year is 2012, how the nominal and real GDP change between 2012 and 2015.

- A. The nominal GDP does not change. The real GDP decreases.
- B. The nominal GDP increases. The real GDP increases.

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- C. The nominal GDP decreases. The real GDP decreases.
 D. The nominal GDP does not change. The real GDP increases.
12. In the Keynesian model, the output is more sensitive to the change of money supply if
 A. investment is more elastic to changes in interest rate.
 B. the unemployment is high.
 C. the country trades more with rest of the world.
 D. the country has been operating on the production possibility frontier.
13. If the central bank purchases government bonds from the public,
 A. supply of money increases.
 B. interest rate increases.
 C. the discount rate increases.
 D. the price of bond decreases.
14. The natural rate of unemployment is the unemployment rate when the country
 A. has zero growth rate.
 B. has no inflation.
 C. has only cyclical and structural unemployment.
 D. operates on the production possibility frontier.
15. When the central bank increases the money supply, according to the short-run Philips curve, which of the following is true?
 A. Both the unemployment rate and the inflation rate will decrease.
 B. Both the unemployment rate and the inflation rate will not change.
 C. The unemployment rate will decrease but the inflation rate will increase.
 D. Both the unemployment rate and the inflation rate will increase.
16. Which of the following will decrease U.S. net capital outflow?
 A. capital flight from the United States
 B. the government budget deficit increases
 C. the U.S. imposes import quotas
 D. None of the above is correct.

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- 一、作答於試題上者，不予計分。
 二、試題請隨卷繳交。

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17. An economic contraction caused by a shift in aggregate demand remedies itself over time as the expected price level

- A. rises, shifting aggregate demand right.
- B. rises, shifting aggregate demand left.
- C. falls, shifting aggregate supply right.
- D. falls, shifting aggregate supply left.

18. The term *crowding-out effect* refers to

A. the reduction in aggregate supply that results when a monetary expansion causes the interest rate to decrease.

B. the reduction in aggregate demand that results when a monetary expansion causes the interest rate to decrease.

C. the reduction in aggregate demand that results when a fiscal expansion causes the interest rate to increase.

D. the reduction in aggregate demand that results when a decrease in government spending or an increase in taxes causes the interest rate to increase.

19. Given a nominal interest rate of 20 percent, in which case would you earn the highest after-tax real interest rate?

- A. Inflation is 5 percent; the tax rate on interest income is 20 percent.
- B. Inflation is 4 percent; the tax rate on interest income is 30 percent.
- C. Inflation is 3 percent; the tax rate on interest income is 40 percent.
- D. The after-tax real interest rate is the same for all of the above.

20. If output is above its natural rate, then according to sticky-wage theory

A. workers and firms will strike bargains for higher wages. This increase in wages shifts the short-run aggregate supply curve right.

B. workers and firms will strike bargains for higher wages. This increase in wages shifts the short-run aggregate supply curve left.

C. workers and firms will strike bargains for lower wages. This decrease in wages shifts the short-run aggregate supply curve right.

D. workers and firms will strike bargains for lower wages. This decrease in wages shifts the short-run aggregate supply curve left.

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

考試科目	經濟學	所別	商院共同科	考試時間	2 月 7 日 (六) 第 / 節
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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. Assume that sugar production in the U.S.A. was 15.6 billion pounds, and sugar consumption in the U.S.A. was 21.1 billion pounds in 1995. In the same year, price of sugar in the U.S.A. was 21.9 cents per pound, while the world price was 11.1 cents per pound.

a. (5 points) With a -0.3 price elasticity of demand, derive the demand function of the sugar in the U.S.A. in 1995. (Assume that the demand function of sugar is linear.)

b. (5 points) With a 1.5 price elasticity of supply, derive the supply function of the sugar in the U.S.A. in 1995. (Assume that the supply function of sugar is linear.)

c. (5 points) Compute the loss of consumer's surplus caused by the higher sugar price in the U.S.A.

d. (5 points) Compute the changes in producer's surplus caused by the higher sugar price in the U.S.A.

2. The processing of payroll for the workers of a major corporation can be done to varying degrees by clerks and computers. Suppose that we can represent the trade-offs between labor and capital by the following production function $Q = K^{3/4}L^{1/4}$. Q is measured in thousands of payment processed, K is measured in hours of processing time and L is measured in man-hours.

a. (5 points) Does the production function exhibit constant, increasing, or decreasing returns to scale? Please show your result with a simple demonstration or proof.

For the remainder of the question you may assume that the wage rate is NT\$160 per man-hour and the rental rate of capital is NT\$30 per hour.

b. (5 points) Given the prices of the inputs and the production function, find the compensated factor demands for labor and capital.

c. (5 points) What is the variable cost curve of the firm? If fixed costs are 100, then what is the total cost curve of the firm.

d. (5 points) Without calculating the derivative, are marginal costs constant, upward sloping, or downward sloping? Briefly explain your answer.

備

註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。

考試科目	經濟學	所別	商院共同科	考試時間	2 月 27 日 (六) 第 / 節
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3. Suppose in an economy, the autonomous consumption equals 100, the marginal propensity to consume equals 0.8, the net taxes are fixed at 100, the planned private-sector investment is fixed at 100, the government purchases are fixed at 100, and the net exports are fixed at 100. Answer the following questions.

- a. (10 points) What is the equilibrium output in this economy?
- b. (10 points) Suppose the government increases its expenditure to 200, which is financed by the fixed taxes. What is the equilibrium output in this economy?

4. In the summer of 1986 the *Economist* magazine conducted an extensive survey on the prices of Big Mac hamburgers at McDonald's restaurants throughout the world. Since then it has periodically updated its calculations. The following table reproduces the results of the *Economist's* January 2015 survey report with slight modification to make the calculation easier.

Country	Price of a Big Mac	Predicted Exchange Rate	Actual Exchange Rate
Taiwan	80 NTD	_____ NTD/USD	32 NTD/USD
Japan	360 JPY	_____ JPY/USD	120 JPY/USD
USA	4.8 USD	1 USD/USD	1 USD/USD

- a. (6 points) Suppose that purchasing power parity (PPP) holds. For Taiwan and Japan, compute the predicted exchange rate of local currency per U.S. dollar.
- b. (4 points) According to PPP, what is the predicted exchange rate between the Japanese Yen and the New Taiwan Dollar? What is the actual exchange rate?
- c. (4 points) Given the actual nominal exchange rate, what is the real exchange rate between Japan and Taiwan?
- d. (6 points) Suppose that the actual exchange rate between Japan and Taiwan will converge to the PPP predicted exchange rate over the next ten years. Which of these two countries will experience a higher rate of inflation over this period? Which country will likely have a higher nominal interest rate? Why?

備註	一、作答於試題上者，不予計分。 二、試題請隨卷繳交。
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