

考試科目	經濟學	所別	商學院共同科目	考試時間	2月28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.

- Suppose that for a particular firm the only variable input into the production process is labor and that output equals zero when no workers are hired. In addition, suppose that when the firm hires 4 workers, the firm produces 50 units of output. If the fixed cost of production is \$8, the variable cost per unit of labor is \$20, and the marginal product of labor for the fifth unit of labor is 4, what is the average total cost of production when the firm hires 5 workers?
 - \$2.
 - \$4.
 - \$5.
 - \$20.
- If soybean farmers know that the demand for soybeans is inelastic, in order to increase their total revenues they should
 - use more fertilizers and weed killers to increase their yields.
 - plant additional acres to increase their output.
 - reduce the number of acres they plant to decrease their output.
 - hire more workers to plow the land.
- The price received by sellers in a market will increase if the government
 - decreases a binding price floor in that market.
 - increases a binding price ceiling in that market.
 - increases a tax on the good sold in that market.
 - stops subsidizing the seller.
- Neither public goods nor common resources are
 - excludable, but only public goods are not rival in consumption.
 - excludable, but only common resources are not rival in consumption.
 - rival in consumption, but only public goods are not excludable.
 - rival in consumption, but only common resources are not excludable.

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- 作答於試題上者，不予計分
- 試題請隨卷繳交。

考試科目	經濟學	所別	商學院共同科目	考試時間	二月八日(六)第一節
------	-----	----	---------	------	------------

5. When producers operate in a market characterized by negative externalities, a tax that forces them to internalize the externality will
- give sellers the incentive to account for the external effects of their actions.
 - increase demand.
 - increase the amount of the commodity exchanged in market equilibrium.
 - restrict the producers' ability to take the costs of the externality into account when deciding how much to supply.
6. As a general rule, profit maximizing producers in a competitive market produce output at a point where
- marginal cost is decreasing.
 - marginal revenue is increasing.
 - marginal cost is increasing.
 - price is less than marginal revenue.
7. When a country allows trade and becomes an exporter of a good, which of the following would NOT be true?
- The price paid by domestic consumers of the good increases.
 - The price received by domestic producers of the good increases.
 - The losses of domestic consumers exceed the gains of domestic producers.
 - The gains of domestic producers exceed the losses of domestic consumers.
8. Price discrimination requires the firm to
- differentiate between different units of its product.
 - engage in arbitrage.
 - separate customers according to their willingness to pay.
 - All of the above.
9. Assuming the oligopolists do not have the opportunity to collude, once they have reached the Nash equilibrium,
- it is always in their best interest to supply more to the market.
 - it is always in their best interest to leave supply unchanged.
 - it is always in their best interest to supply less to the market.
 - it may be their best interest to do any of the above, depending on market conditions.

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考試科目	經濟學	所別	商學院共同科目	考試時間	二月二十八日(六)第一節
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10. If a firm in a monopolistically competitive market uses advertising to decrease elasticity of demand for its product,
- the firm will eventually have to lower price to remain competitive.
 - it will be able to increase its mark-up over marginal cost.
 - it will increase the well-being of society.
 - it will reduce average total cost.
11. Policy makers should use a variety of fiscal and monetary policy measures to stabilize the economy since
- this will shorten any policy lags.
 - this will always maintain full employment.
 - this will eliminate multiplier uncertainty.
 - there is a chance that errors in estimating one multiplier will be offset by errors in estimating another.
 - None of the above.
12. According to liquidity preference theory, an increase in money demand for some reason other than a change in the price level causes
- the interest rate to fall, so aggregate demand shifts right.
 - the interest rate to fall, so aggregate demand shifts left.
 - the interest rate to rise, so aggregate demand shifts right.
 - the interest rate to rise, so aggregate demand shifts left.
13. One of the assertions that Keynesians make when explaining the severity of the Great Depression in the U.S. is that
- the economic collapse originated from the negative effect that the stock market crash had on individuals' wealth.
 - investment spending responded negatively to huge increases in the real interest rate.
 - vigorous use of expansionary fiscal policy early on could have reduced the severity of the economic downturn.
 - in response to the stock market crash, the U.S. Fed imposed credit controls that were much too restrictive.
 - None of the above.

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考試科目	經濟學	所別	商學院共同科目	考試時間	2月8日(六)第一節
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14. Suppose that during the Great Depression long-run aggregate supply shifted left. To be consistent with what happened to the price level and output, what would have had to happen to aggregate demand?
- It would have to have shifted left by less than aggregate supply.
 - It would have to have shifted left by more than aggregate supply.
 - It would have to have shifted right by less than aggregate supply.
 - It would have to have shifted right by more than aggregate supply.
15. During the period referred to as "the Great Moderation"
- there were only mild economic fluctuations despite severe supply shocks.
 - few policy changes were implemented so output stayed close to the full employment level.
 - economic fluctuations were largely contained through effective policy changes.
 - inflation consistently exceeded 4 percent.
 - All of the above.
16. Given a certain rate of nominal money growth, an increase in inflation will cause output growth to
- increase.
 - decrease.
 - remain constant.
 - More information is needed to answer the question.
17. Research by John Taylor on the staggering of wage decisions indicates which of the following actions by the central bank should be taken to reduce inflation?
- a rapid, unannounced reduction in money growth
 - a slow, unannounced reduction in money growth
 - a rapid, announced reduction in money growth
 - a slow, but gradually faster, announced reduction in money growth
18. Which of the following actions by the Federal Reserve will result in an increase in the money supply?
- an increase in federal spending
 - an increase in buying stocks in the open market
 - a decrease in the discount rate
 - an increase in the required reserve ratio

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註

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考試科目	經濟學	所別	商學院共同科目	考試時間	2月28日(六)第一節
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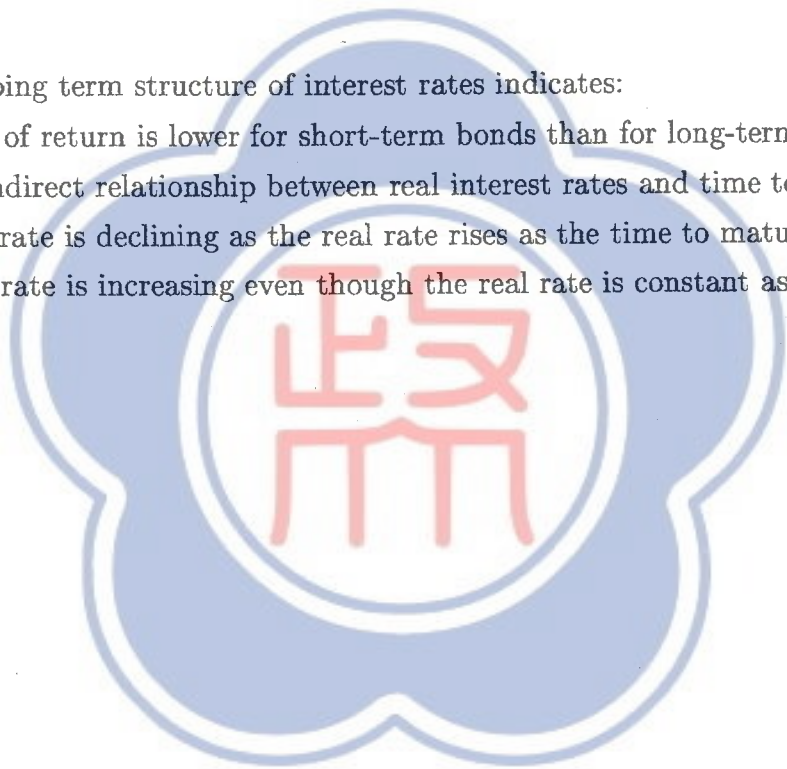
19. A 10% devaluation in the short run will cause

- I. an increase in net exports.
- II. price level to increase by more than 10%.
- III. a real depreciation.
- IV. an increase in unemployment rate.

- A. I, II
- B. III, IV
- C. I, III
- D. I, II, IV

20. An upward-sloping term structure of interest rates indicates:

- A. the real rate of return is lower for short-term bonds than for long-term bonds.
- B. there is an indirect relationship between real interest rates and time to maturity.
- C. the nominal rate is declining as the real rate rises as the time to maturity increases.
- D. the nominal rate is increasing even though the real rate is constant as the time to maturity increases.



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考試科目	經濟學	所別	商學院共同科目	考試時間	二月28日(六)第一節
------	-----	----	---------	------	-------------

Problems and Short-essay Questions

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

1. John receives NT\$600 per week as an allowance to spend on anything he likes. Because he likes only soda and chips, he spends the entire amount on soda (at NT\$20 per bottle) and chips (at NT\$15 per bag). John always consumes soda and chips in the fixed proportion of one to two. That is, his preference can be represented by the utility function

$$U(s, c) = \min \left\{ s, \frac{c}{2} \right\}.$$

a. (4 points) How many bottles of soda and how many bags of chips will John buy with his NT\$600 allowance in a week?

b. (4 points) Suppose the price of soda were to increase to NT\$30 a bottle. How much of each commodity would be bought?

c. (6 points) By how much should John's allowance be increased to compensate for the increase in the price of soda in part (b)?

d. (6 points) Compare your answers in part (a) and part (b). How much of the decrease in the consumption of soda is attributable to the substitution effect and income effect, respectively?

2. (20 points) There is a small open economy producing two goods, food and cloth. The production function in food industry is represented by the following Cobb-Douglas production technology

$$Q_f = L_f^{\frac{1}{2}} T^{\frac{1}{2}},$$

where L_f is the labor hired in food industry and T is land. The production function in cloth industry is

$$Q_c = L_c^{\frac{1}{2}} K^{\frac{1}{2}},$$

where the subscript c represents cloth and K is capital. Labor is mobile between sectors. Supply of all factors is fixed.

a. Derive the real return of labor, capital and land in terms of each good.

b. How does the standard of living of each factor owner change when the supply of cloth in the international market decreases?

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	商學院共同科目	考試時間	2月28日(六)第一節
------	-----	----	---------	------	-------------

3. a. (8 points) Explain in detail how the Keynesian aggregate supply curve differs from the classical one?

b. (12 points) The aggregate demand model looks very similar to the standard demand model of microeconomics. State three reasons that cause the aggregate demand curve to be negatively sloped. Be sure to elaborate on those reasons carefully! DO NOT just list your reasons.

4. The Swiss National Bank (SNB) made an unexpected announcement on January 15th this year that it would remove its cap on Swiss franc's value vs. the euro, effective immediately. The SNB set a goal of keeping its currency from rising beyond 1.20 francs to the euro since September 2011 and that had been the de facto fixed exchange rate ever since. The Swiss economy has expanded more rapidly than the Eurozone's in recent years and was expected to do so in the near future.

a. (5 points) Please explain the rationale of the SNB to keep the cap in the past three-and-half years and how the SNB can achieve it.

b. (5 points) One reason that the SNB scraped the peg because the quantitative easing program (QE) the European Central Bank (ECB) was about to launch in the following week. Please explain the effect of the QE program on the SNB and the Swiss franc if the cap was still in place.

c. (5 points) An Italian firm knows that it will have to pay 10 million Swiss francs to a Swiss chemical company 3 months later. The current spot exchange rate is 0.9623 euro per 1 CHF. The three-month forward rate is 0.9660 euro per 1 CHF. If you are the treasurer of the company and you are worried that the euro will depreciate in the next few weeks. What will you do with this only tool and is it a wise decision if the spot exchange rate turns out to be 0.9700 three months later?

d. (5 points) If the exchange rate also has a chance to go to 0.9620 euro per 1 CHF instead of the 0.9660 predicted by the forward rate (i.e. it can go either way), is there still a reason to hedge the exchange risk with a forward contract?

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	財務管理 L1711	所別	財務管理研究所	考試時間	2月28日(六)第2節
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Part I: 單選題 (總分 40%, 每題 4%)

1. Villa Corporation has sales of \$640,000 and costs of \$480,000. Interest expense is \$40,000 and depreciation is \$60,000. The tax rate is 34%. What is the net income?
 - A. \$20,400
 - B. \$39,600
 - C. \$50,400
 - D. \$79,600
2. Book value:
 - A. is based on historical cost.
 - B. is equivalent to market value for firms with fixed assets.
 - C. generally tends to exceed market value when fixed assets are included.
 - D. is more of a financial than an accounting valuation.
3. Which of the following best describes how issuing zero-coupon bonds affects a company's financial statements? The company's:
 - A. net income is overstated every year until maturity.
 - B. cash flow from operations decreases for the life of the bond.
 - C. cash flow from investing decreases during the year of maturity.
 - D. cash flow from financing increases during the year of issuance.
4. The embedded option that is least likely to be a benefit to the issuer of debt securities is:
 - A. floor on a floater.
 - B. right to call the issue.
 - C. accelerated sinking fund provision.
 - D. right of the underlying borrowers in a pool of loans to repay an amount in excess of the scheduled principal payment.
5. Capital structure decisions include consideration of the:
 - I. current assets and liabilities.
 - II. cost of acquiring funds.
 - III. amount of long-term debt to assume.
 - IV. net working capital.
 - A. I and II only
 - B. II and III only
 - C. III and IV only
 - D. I, II, and IV only
6. The three parts of the Du Pont identity can be generally described as:
 - I. operating efficiency, asset use efficiency and firm profitability.
 - II. financial leverage, operating efficiency and asset use efficiency.

考試科目	財務管理 41711	所別	財務管理研究所	考試時間	2月28日(六)第2節
------	---------------	----	---------	------	-------------

- III. the equity multiplier, the profit margin and the total asset turnover.
 IV. the debt-equity ratio, the capital intensity ratio and the profit margin.
 A. I and II only
 B. I and IV only
 C. II and III only
 D. I and III only
7. A fixed income manager wants to take advantage of a forecast decline in interest rates over the next several months. Which of the following combinations of maturity and coupon rate would most likely result in the largest increase in portfolio value?
 A. maturity: year 2020; coupon: 0%
 B. maturity: year 2020; coupon: 12%
 C. maturity: year 2030; coupon: 10%
 D. maturity: year 2030; coupon: 12%
8. Which of the following statements is false?
 A. It is possible that an IRR does not exist for an investment opportunity.
 B. If the payback period is less than a pre-specified length of time you accept the project.
 C. The internal rate of return (IRR) investment rule is based upon the notion that if the return on other alternatives is greater than the return on the investment opportunity you should undertake the investment opportunity.
 D. It is possible that there is no discount rate that will set the NPV equal to zero.
9. Johnland Corp. has just paid a dividend of \$2.25. These dividends are expected to grow at a rate of 5% in the foreseeable future. The risk of this company suggests that future cash flows should be discounted at a rate of 11%. Which of the following amounts is closest to what should be paid for Johnland Corp.'s common stock?
 A. \$47.70
 B. \$39.38
 C. \$37.50
 D. \$20.45
10. Which of the following statements is false?
 A. An investor's preferences will determine only how much to invest in the tangent or efficient portfolio versus the risk-free investment.
 B. Conservative investors will invest a small amount in the tangent or efficient portfolio, choosing a portfolio on the line near the risk-free investment.
 C. Only aggressive investors will choose to hold the portfolio of risky assets, the tangent or efficient portfolio.

考試科目	財務管理 41711	所別	財務管理研究所	考試時間	2 月 28 日(六) 第 2 節
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D. Aggressive investors will invest more in the tangent portfolio choosing a portfolio that is near the tangent portfolio or even beyond it by buying stocks via borrowing.

Part II: 計算題 (總分 60%, 每題 10%)

- (10%) You are enrolling in an MBA program. To pay your tuition, you can either take out a standard student loan (the interest payments are not tax deductible) with an effective annual rate (EAR) of 5.5%, or you can use a tax-deductible home equity loan with an annual percentage rate (APR) of 6% with monthly compounding. Assume that your tax rate is 15%. Which loan should you use?
- (10%) Consider the following information about Stocks X and Y:

State of Economy	Probability of State of Economy	Rate of Return if State Occurs	
		Stock X	Stock Y
Recession	0.25	0.11	-0.40
Normal	0.50	0.29	0.10
Boom	0.25	0.13	0.56

The market risk premium is 8%, and the risk-free rate is 4%.

- (5%) Which stock has the most total risk?
 - (5%) Which stock has the most systematic risk?
- (10%) The Sunny Corp. is unlevered and is valued at \$640,000. Sunny Corp. is currently deciding whether including debt in its capital structure would increase its value. The current cost of equity is 12%. Under consideration is issuing \$300,000 in new debt with an 8% interest rate. Sunny Corp. would repurchase \$300,000 of stock with the proceeds of the debt issue. There are currently 32,000 shares outstanding and its effective marginal tax bracket is zero.
 - (5%) What is the cost of levered equity?
 - (5%) What will Sunny Corp. new WACC be?
 - (10%) Consider a European put and a European call on the same stock. The options are written at the same time, have the same strike price, and the same expiration date. Suppose the strike price X is equal to the price of the stock at the time the options are written. Which option will have a larger price? (You need to support your answer with a proof for this question.)
 - (10%) An analyst determines the following information about a semiannual coupon bond:

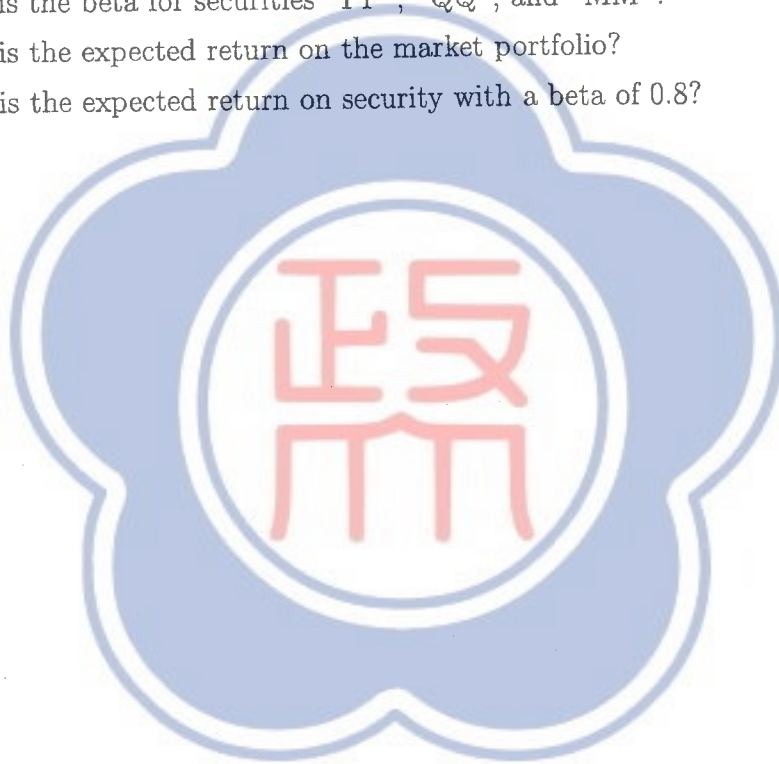
Par value	\$1,000
Modified duration	10
Current price	\$800
Yield to maturity (YTM)	8%

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	財務管理 41711	所別	財務管理研究所	考試時間	2 月 28 日(六) 第 2 節
------	---------------	----	---------	------	-------------------

If the YTM increases to 9 percent, what is the predicted price using the duration concept?

6. (10%) Suppose that the return of the market portfolio is equally likely to increase by 24% or decrease by 8%. The return of security "PP" goes up on average by 29% when the market goes up and goes down by 11% when the market goes down. The return of security "QQ" goes down on average by 16% when the market goes up and goes up by 16% when the market goes down. The return of security "MM" goes up on average by 4% when the market goes up and goes up by 4% when the market goes down.
- (a) (3%) What is the beta for securities "PP", "QQ", and "MM"?
- (b) (3%) What is the expected return on the market portfolio?
- (c) (4%) What is the expected return on security with a beta of 0.8?



考試科目	統計學 41712	所別	財務管理學系	考試時間	2月28日(六)第三節
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Multiple Choice Questions (2 pts each, 40 pts in total)

- What is the lowest level of measurement to which a median can be computed?
 - Nominal
 - Ordinal
 - Interval
 - Ratio
- A survey item asked students to indicate their class in college: freshman, sophomore, junior, or senior. Which measure(s) of central location would be appropriate for the data generated by that questionnaire item?
 - Mean and median.
 - Mean and mode.
 - Mode and median.
 - Mode only.
- The test scores for a class of 151 students are computed. What is the location of the test score associated with the third quartile?
 - 113
 - 114
 - 74
 - 75%
- In a statistics class, the final grade is computed based on three tests. Historically, the instructor tells the class that the probability of scoring "A"s on the first two tests is 0.4. A student assigns a probability of 0.4 that he will not get an "A" on the first test. What is the probability that the student will score an "A" on the second test given that he scored an "A" on the first test?
 - 0.60
 - 0.66
 - 0.85
 - 1.00
- When an experiment is conducted "without replacement," which one of the following is true?
 - Events are equally likely.
 - Events are dependent.
 - The experiment can be illustrated using a Venn diagram.
 - The probability of two or more events is computed as a joint probability.
- The College basketball association is considering a Big Ten Basketball Conference. The top 10 basketball teams in the country would be members of the Big Ten Conference. Each team would play every other team in the conference during the season and the team winning the most games would be declared the national champion. How many games would the conference commissioner have to schedule each year?
 - 45
 - 90
 - 125
 - 5

考 試 科 目	統計學 41712	所 別	財務管理學系	考 試 時 間	2 月 28 日(六) 第三節
---------	--------------	-----	--------	---------	-----------------

7. You are asked to design color codes for different cloths. Four colors are used to code on each cloth. Once a combination of four colors is used – such as red, yellow, green, and blue – these four colors cannot be rearranged to use as a code for another cloth. If there are 60 different cloths, how many different colors are needed?
- A. 5
B. 6
C. 7
D. 8
8. A total of 80% of the customers of a fast food chain order a set menu (hamburger, French fries, and a drink.) If a random sample of 10 cash register receipts is selected, what is the probability that 8 or more will show that a set menu was ordered?
- A. 0.382
B. 0.677
C. 0.878
D. 0.930
9. North Face Insurance writes weekend trip insurance at a very nominal charge. Records show that the probability that a motorist will have an accident during the weekend and file a claim is 0.001. Suppose they wrote 200 policies for the coming weekend, what is the probability that exactly one claim will be filed?
- A. 0.0001
B. 0.0164
C. 0.1638
D. 0.8187
10. A tennis match requires that a player win three of five sets to win the match. If player A wins the first two sets, what is the probability that player A wins the match, assuming that player A is twice likely to win each set than the other player?
- A. $\frac{2}{3}$
B. $\frac{8}{9}$
C. $\frac{26}{27}$
D. $\frac{80}{81}$
11. What is an important similarity between the uniform and normal probability distributions?
- A. About 68% of all observations are within one standard deviation of the mean.
B. The mean, median, and mode are all equal.
C. The mean and median are equal.
D. Larger mean indicates larger variance.
12. Which of the following is true in a normal distribution?
- A. The area under the curve is less than one.
B. The mode and the third quartile are equal.
C. The interquartile range is two.
D. The mean divides the distribution into two equal areas.
13. All possible samples of size n are selected from a population and the mean of each sample is determined. What is the mean of the sample means?
- A. The population mean.
B. On average, it is larger than the population mean.
C. On average, it is smaller than the population mean.
D. It cannot be estimated in advance.

考 試 科 目	統計學 41712	所 別	財務管理學系	考 試 時 間	2 月 28 日(六) 第三節
---------	--------------	-----	--------	---------	-----------------

14. Which one of the following is true on the size of the sampling error?
- It is directly related to the sample size, i.e., the larger the sample size, the larger the sampling error.
 - It is directly related to the population mean, i.e., the larger the mean, the larger the sampling error.
 - It is inversely related to the sample size, i.e., the larger the sample size, the smaller the sampling error.
 - It is inversely related to the population standard deviation, i.e., the smaller the standard deviation, the larger the sampling error.
15. According to the Central Limit Theorem, which one of the following is true?
- The population mean and the mean of all sample means are equal.
 - Increasing the sample size decreases the dispersion of the sampling distribution.
 - The sampling distribution of the sample means is approximately normally distributed.
 - All of the above are true.
16. Manufacturers were subdivided into groups by volume of sales. Those with more than \$100 million in sales were classified as large; those from \$50 to \$100 million as medium size; and those below \$50 as small size. Samples were then selected from each of these groups. What is this type of sampling called?
- Simple random sampling
 - Systematic random sampling
 - Stratified random sampling
 - Cluster sampling
17. To evaluate the assumption of linearity, a multiple regression analysis should include
- a calculation of variance inflation factors
 - scatter diagram of the dependent variable plotted as a function of each independent variable
 - an ANOVA table
 - hypothesis tests of individual regression coefficients
18. In an ANOVA table, for a multiple regression analysis, the variation of the dependent variable explained by the variation of the independent variables is represented by
- the regression sum of squares
 - the total sum of squares
 - the residual mean square
 - the p -value
19. When does multicollinearity occur in a multiple regression analysis?
- When the dependent variables are highly correlated.
 - When the regression coefficients are correlated.
 - When the regression coefficients are all positive.
 - When the independent variables are highly correlated.
20. Which one of the following can be used to test the hypothesis that two nominal variables are related?
- A goodness-of-fit test
 - A contingency table analysis.
 - ANOVA
 - A regression analysis.

考試科目	統計學 41712	所別	財務管理學系	考試時間	2 月 28 日(六) 第三節
------	--------------	----	--------	------	-----------------

General Questions (60 pts in total)

1. The British Bankers' Association wanted to look at the relationship between the amount of deposits made (in billions of £) and the number of customers that a bank had. Analysts collected data on six different large banks and found the following information. Assuming linear regression model is used.

Bank Name	Deposit (£ billion)	Customers (million)
Abbey National	101.7	13.6
Barclays	108.2	10.0
Lloyds	96.9	15.0
National Westminster	113.8	7.5
Woolrich	27.5	4.0
Halifax	77.1	7.6

- a. Write down the model. Which variable is the independent variable? Which is the dependent variable? (5 pts)
- b. Find the equation of the regression line for the data. (10 pts)
- c. At the 0.05 level, is the model significant? (10 pts)

Note: You need to write down H_0 , H_1 , the test statistic, the critical value, the rejection region and the conclusion to receive full credit for this question.

2. How does time spent using the computer impact the speed with which you work? A software company ran a study that looked at the effectiveness with which a person uses a mouse. It selected 10 people with the same computer skills and measured the speed with which they moved a mouse at the beginning of a long session of computer use and after two hours of use. The data (in hundredths of a second) are shown below.

1	2	3	4	5	6	7	8	9	10
67	64	69	88	72	80	85	116	77	78
57	53	71	61	73	50	53	80	63	41

Assuming that the data are normally distributed, set up the hypotheses to test at the 0.05 level of significance whether there was a change in the mean speed with which the people moved the mouse. (15 pts)

Note: You need to write down H_0 , H_1 , the test statistic, the critical value, the rejection region and the conclusion to receive full credit for this question.

3. A random sample of individuals who drive alone to work in a large metropolitan area was obtained, and each individual was categorized with respect to both size of car and commuting distance. Does the accompanying data suggest that commuting distance and size of car are related in the population sampled? State the appropriate hypotheses and test at 0.05 level of significance. (20 pts)

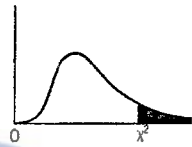
Note: You need to write down H_0 , H_1 , the test statistic, the critical value, the rejection region and the conclusion to receive full credit for this question.

		Commuting Distance		
		0 - 10 km	10 - 20 km	≥ 20 km
Size of Car	Subcompact	6	27	19
	Compact	8	36	17
	Midsize	21	45	33
	Full-size	14	18	6

考試科目	統計學 L1712	所別	財務管理學系	考試時間	2 月 28 日(六) 第三節
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Critical Values of Chi-Square

This table contains the values of χ^2 that correspond to a specific right-tail area and specific number of degrees of freedom.



Example: With 17 df and a .02 area in the upper tail, $\chi^2=30.995$

Table 5 Percentage Points of the t Distributions



$t_{.100}$	$t_{.050}$	$t_{.025}$	$t_{.010}$	$t_{.005}$	df
3.078	6.314	12.706	31.821	63.657	1
1.886	2.920	4.303	6.965	9.925	2
1.638	2.353	3.182	4.541	5.841	3
1.533	2.132	2.776	3.747	4.604	4
1.476	2.015	2.571	3.365	4.032	5
1.440	1.943	2.447	3.143	3.707	6
1.415	1.895	2.365	2.998	3.499	7
1.397	1.860	2.306	2.896	3.355	8
1.383	1.833	2.262	2.821	3.250	9
1.372	1.812	2.228	2.764	3.169	10
1.363	1.796	2.201	2.718	3.106	11
1.356	1.782	2.179	2.681	3.055	12
1.350	1.771	2.160	2.650	3.012	13
1.345	1.761	2.145	2.624	2.977	14
1.341	1.753	2.131	2.602	2.947	15
1.337	1.746	2.120	2.583	2.921	16
1.333	1.740	2.110	2.567	2.898	17
1.330	1.734	2.101	2.552	2.878	18
1.328	1.729	2.093	2.539	2.861	19
1.325	1.725	2.086	2.528	2.845	20
1.323	1.721	2.080	2.518	2.831	21
1.321	1.717	2.074	2.508	2.819	22
1.319	1.714	2.069	2.500	2.807	23
1.318	1.711	2.064	2.492	2.797	24
1.316	1.708	2.060	2.485	2.787	25
1.315	1.706	2.056	2.479	2.779	26
1.314	1.703	2.052	2.473	2.771	27
1.313	1.701	2.048	2.467	2.763	28
1.311	1.699	2.045	2.462	2.756	29
1.282	1.645	1.960	2.326	2.576	inf.

Degrees of Freedom, df	Right-Tail Area			
	0.10	0.05	0.02	0.01
1	2.706	3.841	5.412	6.635
2	4.605	5.991	7.824	9.210
3	6.251	7.815	9.837	11.345
4	7.779	9.488	11.668	13.277
5	9.236	11.070	13.388	15.086
6	10.645	12.592	15.033	16.812
7	12.017	14.067	16.622	18.475
8	13.362	15.507	18.168	20.090
9	14.684	16.919	19.679	21.666
10	15.987	18.307	21.161	23.209
11	17.275	19.675	22.618	24.725
12	18.549	21.026	24.054	26.217
13	19.812	22.362	25.472	27.688
14	21.064	23.685	26.873	29.141
15	22.307	24.996	28.259	30.578
16	23.542	26.296	29.633	32.000
17	24.769	27.587	30.995	33.409
18	25.989	28.869	32.346	34.805
19	27.204	30.144	33.687	36.191
20	28.412	31.410	35.020	37.566
21	29.615	32.671	36.343	38.932
22	30.813	33.924	37.659	40.289
23	32.007	35.172	38.968	41.638
24	33.195	36.415	40.270	42.980
25	34.382	37.652	41.566	44.314
26	35.563	38.885	42.856	45.642
27	36.741	40.113	44.140	46.963
28	37.916	41.337	45.419	48.278
29	39.087	42.557	46.693	49.588
30	40.256	43.773	47.962	50.892

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註

- 一、作答於試題上者，不予計分。
- 二、試題請隨卷繳交。