

# 國立中山大學 112 學年度 碩士班暨碩士在職專班招生考試試題

科目名稱：經濟學【企管系企管甲班碩士班甲組、乙組、丙組】

## — 作答注意事項 —

考試時間：100 分鐘

- 考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。
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題號：441001

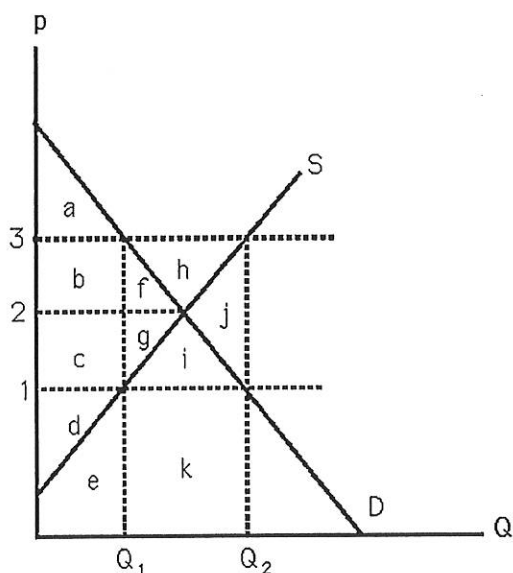
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## Part I: Multiple Choice Questions: (Single Answer, 2 points per question, 80%)

1. Suppose the inverse supply curve in a market is  $Q = 6p^2$ . What is the producer surplus when price is equal to 4?

- A) 96
- B) 128
- C) 28
- D) 48



2. The above figure shows supply and demand curves for milk. In an effort to help farmers, the government passes a law that establishes a \$3 per gallon price support. To maintain the price support, government expenditures must equal

- A)  $k + i$ .
- B)  $f + g + h + i + j$ .
- C)  $f + g + h + i + j + k$ .
- D)  $f + g + h + i + j + k + e$ .

3. Suppose the production of paved roadways can be represented as  $q = L^{0.5} + K^{0.5}$ . Which of the following statements is (are) TRUE?

- A) Labor is subject to diminishing marginal productivity in the short run.
- B) Labor and capital are imperfect substitutes.
- C) The isoquants for paved roadways are convex.
- D) All of the above.

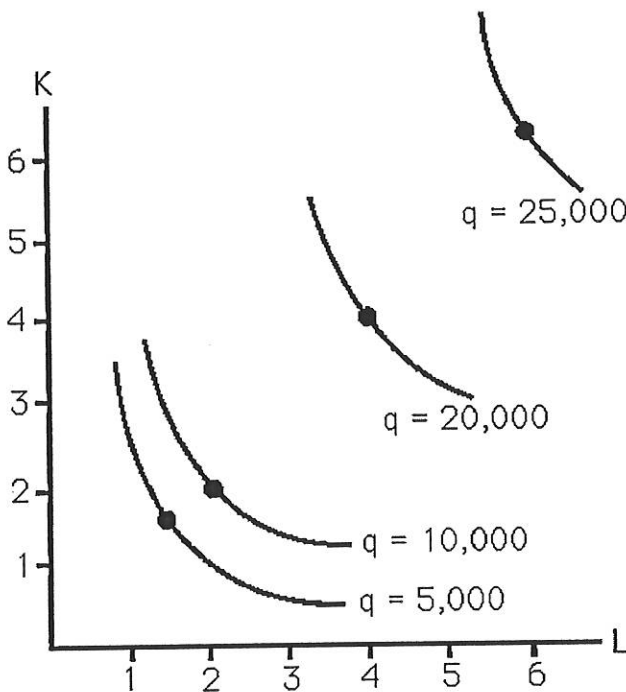
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4. The above figure shows the isoquants for producing steel. Increasing returns to scale are
- present when producing less than 10,000 tons.
  - present when producing less than 20,000 tons.
  - present when producing less than 30,000 tons.
  - never present.
5. Suppose the production function for a certain device is  $q = L + K$ . If a labor-saving technical change has occurred, which of the following could be the new production function?
- $q = L + 5K$
  - $q = 5 * (L + K)$
  - $q = 5L + K$
  - All of the above are possible.
6. Suppose the total cost of producing T-shirts can be represented as  $TC = 50 + 2q$ . Which of the following statements is TRUE at all levels of production?
- $MC = AVC$
  - $MC = AC$
  - $MC > AFC$
  - All of the above.
7. A small business owner earns \$60,000 in revenue annually. The explicit annual costs equal \$40,000. The owner could work for someone else and earn \$25,000 annually. The owner's business profit is \_\_\_\_\_ and the economic profit is \_\_\_\_\_.
- \$20,000, \$5,000
  - \$20,000, -\$5,000
  - \$25,000, -\$5,000
  - \$45,000, -\$5,000

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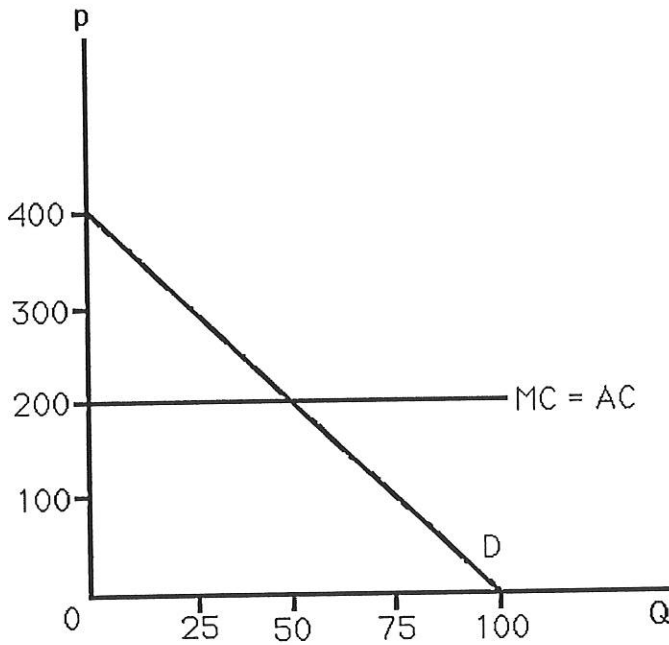
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8. At an output level of 100, a monopolist faces  $MC = 15$  and  $MR = 17$ . At output level  $q = 101$ , the monopolist faces  $MC = 16$  and  $MR = 15$ . To maximize profits, the firm

- A) should produce 100 units.
- B) should produce 101 units.
- C) The firm cannot maximize profits.
- D) The firm is not a monopoly.



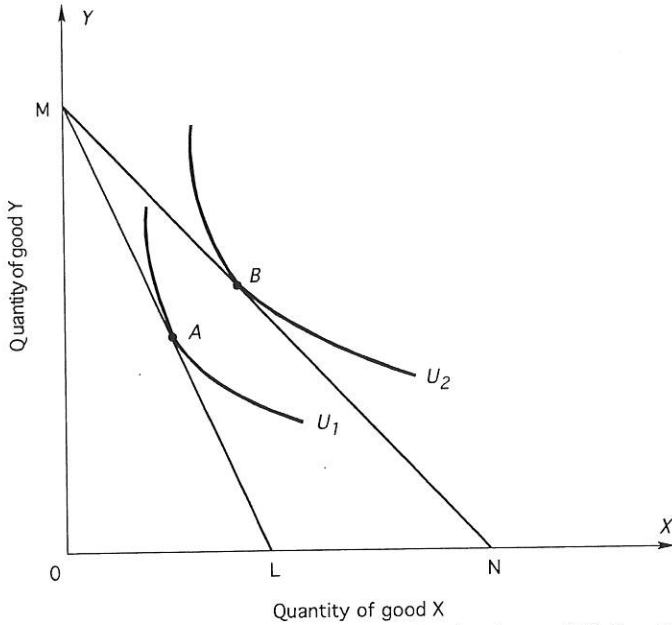
9. The above figure shows the demand and cost curves facing a monopoly. Maximum profit equals

- A) \$0.
- B) \$100.
- C) \$1,000.
- D) \$2,500.

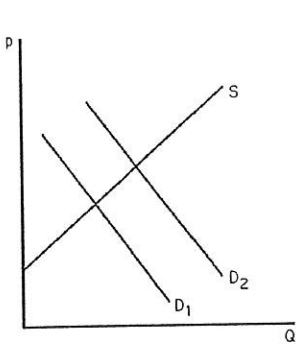
10. A profit-maximizing monopoly will never operate in the portion of the demand curve with MR equal to

- A) 3.
- B) 2.
- C) 1.
- D) -1.

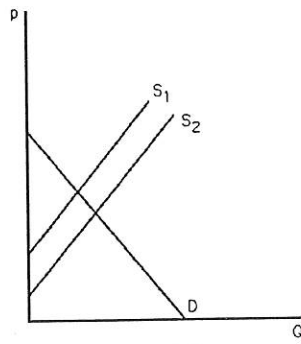
11. According to the following figure, at point A,



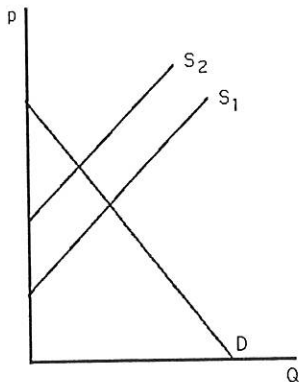
- A) the marginal rate of substitution of X for Y is greater than it is at point B.
- B) the ratio of the price of X to the price of Y is greater than it is at point B.
- C) the consumer's utility is less than it is at point B.
- D) all of the above



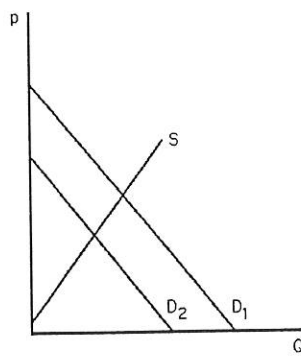
Graph A



Graph B



Graph C



Graph D

12. The above figure shows four different markets with changes in either the supply curve or the demand curve. Which graph best illustrates the market for tea after severe weather destroys a large portion of the coffee crop?

- A) Graph A

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- B) Graph B
- C) Graph C
- D) Graph D

13. The supply and demand for wheat is given by  $Q_S = 200 + .2A + p$  and  $Q_D = 500 - p$ , where  $p$  is the price of wheat and  $A$  is the amount of rainfall (inches per year). The effect of an incremental increase in rainfall on equilibrium will be

- A) a decrease the price of wheat by 10¢.
- B) a decrease the price of wheat by 20¢.
- C) an increase in the price of wheat by 20¢.
- D) an increase in the price of wheat by 10¢.

14. If the demand curve for comic books is expressed as  $Q = 10,000/p$ , then demand has a unitary elasticity

- A) only when  $p = 10,000$ .
- B) only when  $p = 100$ .
- C) always.
- D) never.

15. The market demand for wheat is  $Q = 100 - 2p + 1p_b + 2Y$ . If the price of wheat,  $p$ , is \$2, and the price of barley,  $p_b$ , is \$3, and income,  $Y$ , is \$1000, the income elasticity of wheat is

- A)  $2 * (1000/2099)$ .
- B) 2.
- C)  $1/2 * (1000/2099)$ .
- D) Cannot be calculated from the information provided.

16. Suppose the demand curve for a good is downward sloping and the supply curve is upward sloping. At the market equilibrium, if demand is more elastic than supply in absolute value, a \$1 specific tax will

- A) raise the price to consumers by 50 cents.
- B) raise the price to consumers by less than 50 cents.
- C) raise the price to consumers by more than 50 cents.
- D) raise the price to consumers by \$1.

17. If the utility function (U) between food (F) and clothing (C) can be represented as  $U = \sqrt{F \times C}$ , the marginal rate of substitution of clothing for food will \_\_\_\_\_ if more food and less clothing are consumed.

- A) increase in absolute terms
- B) decrease in absolute terms
- C) remain the same
- D) Not enough information.

18. If Johnny likes homework (H) but hates exercise (E), which of the following might best represent his utility function for homework and exercise?

- A)  $U = H + E$
- B)  $U = H/E$
- C)  $U = H^2 + \sqrt{E}$
- D)  $U = H^2 \times \sqrt{E}$

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19. By selecting a bundle where  $MRS = MRT$ , the consumer is saying

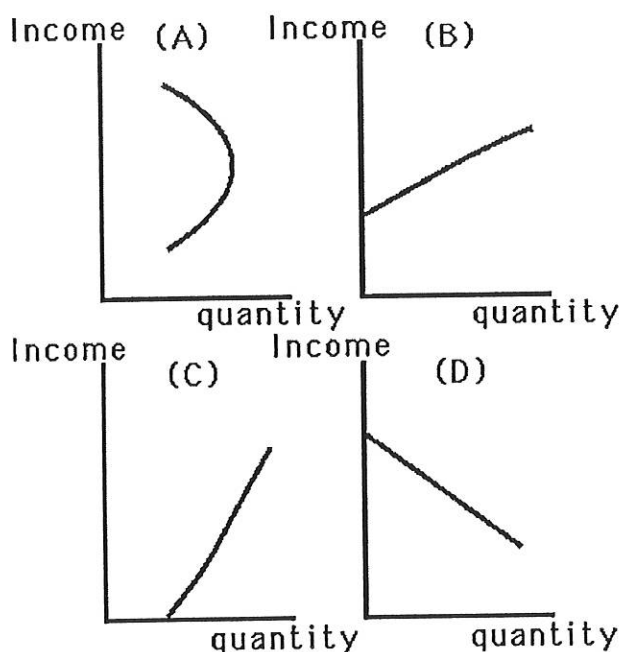
- A) "I value my last unit of each good equally."
- B) "I am willing to trade one good for the other at the same rate that I am required to do so."
- C) "I will equate the amounts spent on all goods consumed."
- D) All of the above.

20. Max has allocated \$100 toward meats for his barbecue. His budget line and an indifference map are shown in the above figure. What is the price of chicken?

- A) \$0.80/lb
- B) \$1.25/lb
- C) \$4/lb
- D) \$5/lb

21. Jane's utility function is represented as:  $U = F^{0.5} C^{0.5}$ , F is quantity of food and C is quantity of clothing. If her budget constraint is represented as:  $120 = 2F + C$ , her optimal bundle of consumption should be

- A) (40F, 40C).
- B) (20F, 60C).
- C) (50F, 50C).
- D) (45F, 20C).



22. When John's income was low, he could not afford to dine out and would respond to a pay raise by purchasing more frozen dinners. Now that his income is high, a pay raise causes him to dine out more often and buy fewer frozen dinners. Which graph in the above figure best represents John's Engel curve for frozen dinners?

- A) Graph A
- B) Graph B
- C) Graph C
- D) Graph D

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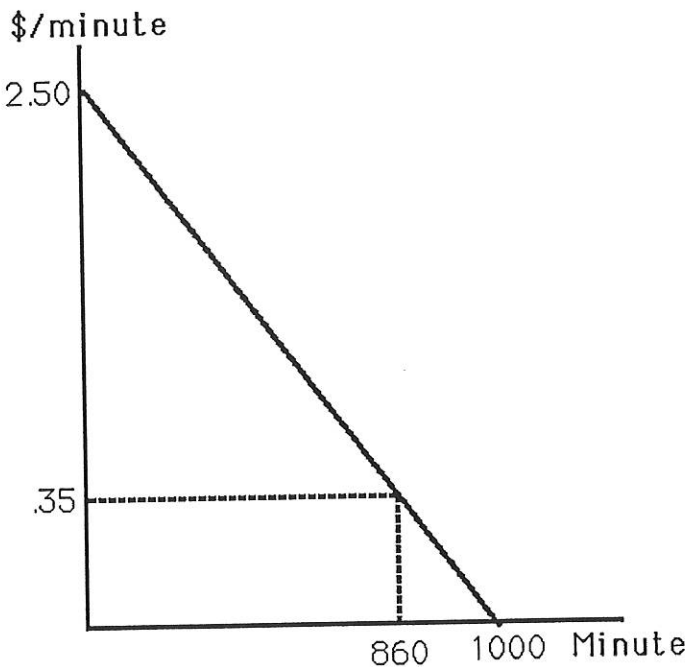
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23. The substitution effect can be measured holding \_\_\_\_\_ constant.

- A) income
- B) utility
- C) the price of one good
- D) the price of all goods

24. Richard receives government transfer payments and currently consumes five guns and six goose livers. Assume the price of guns decreases by 10% and the price of goose liver increases by 20%. The government raises Richard's transfer payments so he can still afford five guns and six goose livers. Does this constitute a true cost-of-living adjustment?

- A) No. Richard is overcompensated.
- B) No. Richard is undercompensated.
- C) Yes. The payment just achieves the right level of compensation.
- D) Not enough information.



25. The above figure shows the market demand curve for telecommunication while driving one's car (time spent on the car phone). The current price is 35¢ per minute. If the price were to increase by ten cents per minute, consumer surplus would

- A) fall to \$820.
- B) fall by \$84.
- C) fall by \$58.
- D) fall to \$369.

26. The graph below shows George's indifference curves and budget lines. From A to B, we can



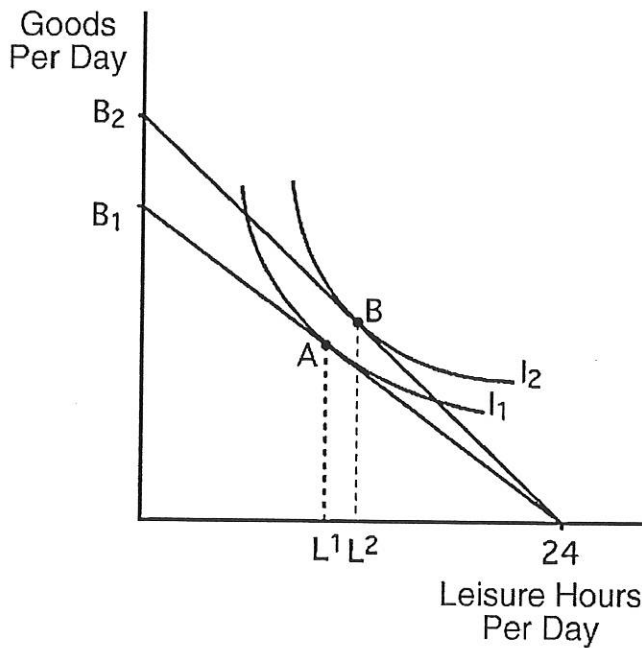
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conclude

- A) leisure is a normal good.
- B) leisure is an inferior good.
- C) George will increase his working time with a higher wage.
- D) the substitution effect is greater than the income effect.

27. The steeper the labor supply curve,

- A) the higher the wage the monopsonist pays.
- B) the lower the wage the monopsonist pays.
- C) the smaller the difference between the wage and the marginal expenditure on labor.
- D) the better off workers are.

Payoff Matrix

		Firm B	
		Low Price	High Price
Firm A	Low Price	10, 10	5, 25
	High Price	25, 5	20, 20

28. The above figure shows a payoff matrix for two firms, A and B, that must choose between a high-price strategy and a low-price strategy. For firm B,

- A) setting a high price is the dominant strategy.
- B) setting a low price is the dominant strategy.
- C) there is no dominant strategy.
- D) doing the opposite of firm A is always the best strategy.

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29. Suppose in the ice-cream market with 10 firms, the elasticity of market demand is -1, and each firm has a constant marginal cost at \$2. The Nash-Cournot equilibrium price is
- A) \$2.
  - B) \$2.2.
  - C) \$2.4.
  - D) \$2.5.
30. The benefits from cartelizing are greater if
- A) the market demand elasticity is higher.
  - B) the market demand elasticity is lower.
  - C) the market price is higher.
  - D) each firm cuts its output more.
31. Which of the following changes shifts the  $AD$  curve down and to the left?
- A) A decline in the nominal money supply
  - B) A decrease in income taxes
  - C) A decrease in the risk on nonmonetary assets
  - D) An increase in the future marginal productivity of capital
32. A decrease in the money supply would cause the  $IS$  curve to \_\_\_\_\_ and the  $LM$  curve to \_\_\_\_\_.
- A) shift down and to the left; be unchanged
  - B) shift down and to the left; shift up and to the left
  - C) be unchanged; shift up and to the left
  - D) be unchanged; shift down and to the right
33. When actual inflation is greater than expected inflation,
- A) the natural rate of unemployment rises, according to Phillips-curve analysis.
  - B) cyclical unemployment rises, according to Phillips-curve analysis.
  - C) there are transfers from borrowers to lenders.
  - D) there are transfers from lenders to borrowers.
34. According to the efficiency wage model, firms will pay the real wage that
- A) maximizes workers' marginal productivity.
  - B) maximizes the marginal productivity of capital and the marginal productivity of labor together.
  - C) maximizes effort per dollar of real wage.
  - D) minimizes hiring and training costs to the firm.
35. In classical  $IS-LM$  analysis, the effects of a decline in desired investment include
- A) a decline in output.
  - B) an increase in the price level.
  - C) a decline in the real interest rate.
  - D) an increase in unemployment.
36. Suppose real money demand is 1000, real output is 6000, and the price level is 200. What is the level of velocity in this economy?
- A) 2
  - B) 3
  - C) 6
  - D) 12

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37. Desired national saving would decrease unambiguously if there were
- A) a decrease in current output and a decrease in taxes.
  - B) an increase in expected future output and a decrease in government purchases.
  - C) an increase in both expected future output and the expected real interest rate.
  - D) a fall in both government purchases and expected future output.
38. The classical approach to macroeconomics assumes that
- A) wages, but not prices, adjust quickly to balance quantities supplied and demanded in markets.
  - B) wages and prices adjust quickly to balance quantities supplied and demanded in markets.
  - C) prices, but not wages, adjust quickly to balance quantities supplied and demanded in markets.
  - D) neither wages nor prices adjust quickly to balance quantities supplied and demanded in markets.
39. Suppose purchasing power parity holds. If the price level in the United States is 100 dollars per good and the price level in Japan is 250 yen per good, then the nominal exchange rate is \_\_\_yen per dollar.
- A) 0.25
  - B) 0.4
  - C) 2.5
  - D) 4.0
40. The Bretton Woods system relied on
- A) a flexible exchange-rate system.
  - B) a floating exchange-rate system.
  - C) a fixed exchange-rate system.
  - D) an exchange-rate union.

**Part II: Fill in the following blanks (20%, Each blank 5%)**

Desired consumption is  $C^d = 2000 + 0.9Y - 100,000r - G$ , and desired investment is  $I^d = 1000 - 45,000r$ . Real money demand is  $M^d/P = Y - 6000i$ . Other variables are  $\pi^e = 0.03$  (expected inflation rate),  $G = 500$  (government spending),  $\bar{Y} = 1000$  (output), and  $M = 2100$ .

- 41. Find the equilibrium values of the real interest rate\_\_\_\_\_.
- 42. Find the equilibrium values of consumption\_\_\_\_\_.
- 43. Find the equilibrium values of investment\_\_\_\_\_.

Suppose the current level of output is 5000 and the elasticity of output with respect to capital is 0.4.

- 44. A 10% increase in capital would increase the current level of output to \_\_\_\_\_.

# 國立中山大學 112 學年度

## 碩士班暨碩士在職專班招生考試試題

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一、複選題(共 20 題，每題五分，合計 100 分。每題有五選項，答錯 k 個選項者，得該題全部分數的 $(5-2k)/5$ ，得分低於零分或所有選項均未作答者，該題以零分計)

Use the tables of probability distributions in Appendix as needed (page 6-9).

1. Which of the following descriptions is/are correct? (A) "Age group" is a categorical variable; (B) "Temperature in Celsius" is a ratio variable; (C) Responding to "How likely do you recommend EVA Airline to others?" after a flight contains the following options in a questionnaire "Definitely Will, Probably Will, May or May Not, Probably Will Not, Definitely Will Not." This is a numerical data; (D) "Descriptive Statistics" is the process of using data obtained from a sample to make estimates or test hypotheses about the characteristics of a population.; (E) "Data Collection" does not belong to the field of statistics.
2. Which of the following is/are correct? (A) Stem-and-Leaf plot can be used to summarize one categorical variable with multiple categories; (B) Scatter diagram is used to visualize the potential association between two numerical variables; (C) A "pie chart" is good for comparing the means of a numerical variable between two independent groups; (D) To visualize a distribution for a numerical variable, we can use "histogram"; (E) In a "Box-plot", the line drawn in the box indicates the location of the mean.
3. Which of the following is/are used to measure variability? (A) Geometric mean; (B) Interquartile range; (C) Coefficient of variation; (D) Standard deviation; (E) Midrange.
4. Assume  $P(X)$  is the probability of event X and  $P(Y)$  is the probability of event Y. Which of the following descriptions is/are correct? (A)  $P(X \cap Y) = P(X) \cdot P(Y)$  if X and Y are mutually exclusive; (B)  $P(Y|X) = P(X)$  if X and Y are independent events; (C) If X and Y are mutually exclusive, Y is the complement of X; (D) If X and Y are independent,  $P(X \cup Y) = P(X) \cdot P(Y)$ ; (E) None of above.
5. A personal care company ran two television advertisements for one of its new shampoo product. On the basis of a survey that was conducted, probabilities were assigned to the following events:  
M = individual purchased the product  
 $S_1$  = individual recalls seeing the advertisement 1  
 $S_2$  = individual recalls seeing the advertisement 2  
 $M \cap S_k$  = individual purchased the product and recalls seeing the advertisement k

The probabilities assigned were  $P(M) = 0.2$ ,  $P(S_1) = 0.4$ ,  $P(S_2) = 0.3$ ,  $P(M \cap S_1) = 0.12$ , and  $P(M \cap S_2) = 0.1$ . Which of the following is/are correct? (A) The probability of an individual's purchasing the product given that the individual recalls seeing the advertisement 1 is 0.3; (B) The probability of an individual's purchasing the product given that the individual recalls seeing the advertisement 2 is 0.1; (C) Seeing the advertisement 2 does not increase the probability that the individual will purchase the product; (D) Assume that individuals who do not purchase the company's shampoo product buy from its competitors. Based on the calculation, continuing the advertisement 1 should increase the market share; (E) The advertisement 2 has a bigger effect on consumer purchases.

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：商用統計學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】題號：441002  
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6. A consulting firm submitted a bid for a large research project. The firm's management initially felt they had a 50% chance of getting the project. However, the agency to which the bid was submitted subsequently requested additional information on the bid. Past experience indicates that for 75% of the successful bids and 40% of the unsuccessful bids the agency requested additional information. Which of the following is/are correct? (A) The prior probability of the bid being successful is 0.5; (B) The conditional probability of a request for additional information given that the bid will ultimately be successful is 0.25; (C) The posterior probability that the bid will be successful given a request for additional information is 0.65; (D) All above are correct; (E) None of the above is correct.
7. Which of the following belongs to continuous probability distributions? (A) Normal probability distribution; (B) Poisson probability distribution; (C) Binomial probability distribution; (D) Exponential probability distribution; (E) Chi-square probability distribution.
8. Customers arrive at a bank randomly and independently. The probability of an arrival is the same for any interval of equal length. The mean time interval of arrival between two customers is 100 seconds. Which of the following is/are correct? (A) The probability that less than 2 customers will arrive during any given 5 minutes of operation is 0.0199; (B) The probability that 4 or more customers will arrive during any given 5 minutes of operation is 0.3528; (C) The probability that more than 6 customers will arrive during any given 10 minutes of operation is 0.7440; (D) The probability that exact 3 customers will arrive during any given 15 minutes of operation is 0.0212; (E) The standard deviation of the arrival rate per 10 minutes is 6.
9. An experiment is conducted by rolling three fair dice simultaneously. The pips on dice are colored red on the 1 and 4 sides and colored black on the rest. Let  $P[Y=x]$  indicate the probability of a sum of  $x$  when rolling three dice. Which of the following descriptions is/are correct? (A)  $P[Y=17] = 1/72$ ; (B)  $P[Y<5] = 1/54$ ; (C)  $P[Y=3] = 1/72$ ; (D) The probability of getting at least a red side given a sum  $\geq 16$  is  $3/10$ ; (E) The probability of getting all three red sides given  $Y \leq 4$  is  $1/3$ .
10. An official institute reported that families in the United States planning to travel out of town over the Memorial Day weekend spend an average of \$749 US Dollars (USD). Assume that the amount spent is normally distributed with a standard deviation of \$225 USD. Which of the following is/are correct? (A) The probability of family expenses for the weekend being less than \$400 is 0.0606; (B) The probability of family expenses for the weekend being \$800 or more is 0.5910; (C) The probability that family expenses for the weekend will be between \$500 and \$1000 is 0.7351; (D) To be for the 5% of the families with the most expensive travel plans, a family has to spend \$857 or more during the weekend; (E) None of the above.

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

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11. Assume 30% of emails that are received are tracked using software that can tell the email sender when, where, and on what type of device the email was opened. Suppose we randomly select 8 received emails. Which of the following is/are correct? (A) The expected number of these emails that are tracked is 2.4; (B) The variance of these emails that are tracked is 1.68; (C) The probability that exactly 3 mails are tracked is 0.2541; (D) The probability that less than 3 emails are tracked is 0.8059; (E) None of the above.
12. PPP Marketing Research Company charges to a client on the assumption that telephone surveys can be completed in a mean time of 15 minutes or less. If a longer mean survey time is necessary, a premium rate is charged. Based upon past studies, the population standard deviation is assumed known with  $\sigma = 4$  minutes. The Company wants to determine whether the premium rate should apply for a new business. Thus, a sample of 35 pilot surveys was attempted with a mean survey time of 17 minutes. A hypothesis testing is conducted with the level of significance = 0.01. Which of the following is/are correct? (A) The null hypothesis is set as  $\mu_1=15$ , where  $\mu_1$  is the population mean survey time for the new business; (B) we can conduct z-test and the computed z-score = 0.5; (C) the critical value for this testing is 2.575; (D) The p-value is 0.0015; (E) We should not reject the null hypothesis.
13. Which of the following descriptions about Type I error rate ( $\alpha$ ) and Type II error rate ( $\beta$ ) is/are correct? (A) Rejecting a null hypothesis when the alternative hypothesis is true is called Type I error; (B) Rejecting a null hypothesis when the null hypothesis is false is called Type II error; (C) The power of a statistical test is measured as  $(1 - \beta)$ ; (D) Increasing  $\alpha$  will decrease  $\beta$ ; (E) For a given level of  $\alpha$ , an increase in the sample size will decrease  $\beta$ .
14. The time that married men with children spend on child care averages 6.4 hours per week. A researcher would like to determine if time married men in a specified local area spend on child care per week differs from the reported mean of 6.4 hours per week. A sample of 25 married couples was used with the data collected showing the hours per week the husband spends on child with the mean of 7.0 hours and the standard deviation of 1.5. Which of the following calculation is/are correct? (A) The null hypothesis is set as  $\mu_1=7.0$ , where  $\mu_1$  is the population mean hours spent on child care per week for married men in the specified local area; (B) The 95% confidence interval (CI) is  $7.0 \pm (2.0595)(0.3)$ ; (C) The 99% CI is  $6.4 \pm (2.7969)(0.3)$ ; (D) The p-value of the statistical testing is between 0.025~0.05; (E) At a significance level of 0.05, do not reject the null hypothesis.

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

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15. A market research firm used a sample of individuals to rate the purchase potential of a particular new product before and after the individuals saw a new TV advertisement about the product. The purchase potential ratings were based on a 0 to 10 scale, with higher values indicating a higher purchase potential. The paired two-sample test for the means was then conducted to detect whether the mean rating "after" would be different from the mean rating "before." (Difference = rating after – rating before) Eight individuals were surveyed, and the result is as follows:

Individual	Purchase Rating	
	Before	After
1	6	6
2	5	7
3	8	9
4	5	3
5	3	4
6	7	7
7	4	6
8	5	6
9	2	5

Which of the following calculation is/are correct? (A) The null hypothesis is  $\mu_1 = \mu_2$ ; where  $\mu_1 =$  the mean population rating before while  $\mu_2 =$  the mean population rating after; (B) The mean difference = 0.8889; (C) The t-statistic is 1.8353; (D) The critical value is 1.8595 at the significance level of 0.05; (E) The p-value is between 0.1 ~ 0.2.

16. The sample data below represent the number of late arrival and on-time flights for three airlines. You want to detect whether the variable of “airline company” is independent from the risk of late arrival. Assume the level of significance is set at 0.05.

	Airline		
Flight Status	Airline A	Airline B	Airline C
Late Arrival	39	51	60
On Time	261	249	340

Which of the following is/are correct? (A) The null hypothesis is that the variable of “airline company” is not independent from the risk of late arrival; (B) The test statistic is 1.8824; (C) The degree of freedom is 5 for the statistical testing; (D) The critical value is 7.3778; (E) The p-value is between 0.05~0.1.



# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

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17. Suppose you want to investigate the association between two numerical variables. Which of the following is/are appropriate? (A) Conduct a line chart to visualize their association; (B) Estimate a correlation coefficient, which ranges from -1 to +1; (C) Conduct a t-test to compare whether these two variables are statistically different; (D) Develop a simple linear regression model and detect whether the slope is different from 0; (E) Conduct a Chi-square test to detect whether these two variables are independent or not.
18. Which of the following is/are correct about ANOVA? (A) One assumption of ANOVA is that, for each population, the response variable is normally distributed; (B) One assumption of ANOVA is that the variance of the response variable is the same for all of the populations; (C) Suppose three groups are compared, the null hypothesis is  $\mu_1 = \mu_2 = \mu_3$ , while the alternative hypothesis is  $\mu_1 \neq \mu_2 \neq \mu_3$ ; (D) One-way ANOVA is a one-tailed test, while two-way ANOVA is a two-tailed test; (E) If the test result is not to reject the null hypothesis, we must perform a post-hoc test to confirm that any two groups are truly no different from each other.

19. The following ANOVA table was the statistical results for a completely randomized design among three treatment groups, assuming the significance level = 0.05:

ANOVA						
<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F critical value</i>
Between Groups	1488	?	①	③	?	④
Within Groups	2030	?	②			
Total	?	17				

Which of the following descriptions is/are correct? (A) ①=744; (B) ②=135.3333; (C) ③=5.4975; (D) ④=3.3439; (E) There is not enough information to complete all of the calculations.

20. Below is the estimated linear regression equation based on 10 observations, where  $x_1$  and  $x_2$  are numerical variables:

$$\hat{y} = 28 + 0.6x_1 + 0.5x_2$$

where SST (total sum of squares) = 6725, SSR (regression sum of squares) = 6215,  $s_{b1} = 0.08$ , and  $s_{b2} = 0.06$ . The  $b_1$  and  $b_2$  are the estimated values of  $\beta_1$  and  $\beta_2$  for the variable  $x_1, x_2$ , respectively;  $s_{b1}, s_{b2}$  are the standard errors of the estimated coefficients. Which of the following is/are correct? (A) R-square = 6215/6725; (B) MSR (regression mean square) = 6215/2; (C) MSE (mean square error) = 510/7; (D) Given  $\alpha = 0.05$ , t-test with the critical values of  $\pm 2.3646$  can be used to detect whether  $\beta_1$  is significantly different from zero; (E)  $\beta_2$  is not significantly different from zero given  $\alpha = 0.05$ .

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## Appendix:

### Poisson Cumulative Distribution\*

$\lambda =$	1	2	3	4	5	6	7	8	9
$x =$									
0	0.3679	0.1353	0.0498	0.0183	0.0067	0.0025	0.0009	0.0003	0.0001
1	0.7358	0.4060	0.1991	0.0916	0.0404	0.0174	0.0073	0.0030	0.0012
2	0.9197	0.6767	0.4232	0.2381	0.1247	0.0620	0.0296	0.0138	0.0062
3	0.9810	0.8571	0.6472	0.4335	0.2650	0.1512	0.0818	0.0424	0.0212
4	0.9963	0.9473	0.8153	0.6288	0.4405	0.2851	0.1730	0.0996	0.0550
5	0.9994	0.9834	0.9161	0.7851	0.6160	0.4457	0.3007	0.1912	0.1157
6	0.9999	0.9955	0.9665	0.8893	0.7622	0.6063	0.4497	0.3134	0.2068
7	1.0000	0.9989	0.9881	0.9489	0.8666	0.7440	0.5987	0.4530	0.3239
8	1.0000	0.9998	0.9962	0.9786	0.9319	0.8472	0.7291	0.5925	0.4557
9	1.0000	1.0000	0.9989	0.9919	0.9682	0.9161	0.8305	0.7166	0.5874

\* The table gives the probability of that a Poisson random variable  $X$  with mean  $= \lambda$  is less than or equal to  $x$ . That is, the table gives  $P(X \leq x) = \sum_{r=0}^x \frac{e^{-\lambda} \lambda^r}{r!}$

### Cumulative Chi-square Probability Distribution (Upper-Tail Areas)\*

$p =$	0.1	0.05	0.025	0.01	0.001
$df =$					
1	2.7055	3.8415	5.0239	6.6349	10.8276
2	4.6052	5.9915	7.3778	9.2103	13.8155
3	6.2514	7.8147	9.3484	11.3449	16.2662
4	7.7794	9.4877	11.1433	13.2767	18.4668
5	9.2364	11.0705	12.8325	15.0863	20.5150
6	10.6446	12.5916	14.4494	16.8119	22.4577
7	12.0170	14.0671	16.0128	18.4753	24.3219
8	13.3616	15.5073	17.5345	20.0902	26.1245
9	14.6837	16.9190	19.0228	21.6660	27.8772
10	15.9872	18.3070	20.4832	23.2093	29.5883

\*The table shows the Chi-square values given the probability ( $p$ ) as upper-tail area at the degree of freedom of 'df'.

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## Left-Tailed Cumulative Standard Normal Probability Distribution (Z)\*

z	0	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641

\* The probabilities given in this table represent the area to the left of the z-score.

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## Right-tailed Cumulative Student's t Distribution

$\alpha=$	0.1	0.05	0.025	0.01	0.005	0.001
df=						
5	1.4759	2.0150	2.5706	3.3649	4.0321	5.8934
6	1.4398	1.9432	2.4469	3.1427	3.7074	5.2076
7	1.4149	1.8946	2.3646	2.9980	3.4995	4.7853
8	1.3968	1.8595	2.3060	2.8965	3.3554	4.5008
9	1.3830	1.8331	2.2622	2.8214	3.2498	4.2968
10	1.3722	1.8125	2.2281	2.7638	3.1693	4.1437
11	1.3634	1.7959	2.2010	2.7181	3.1058	4.0247
12	1.3562	1.7823	2.1788	2.6810	3.0545	3.9296
13	1.3502	1.7709	2.1604	2.6503	3.0123	3.8520
14	1.3450	1.7613	2.1448	2.6245	2.9768	3.7874
15	1.3406	1.7531	2.1314	2.6025	2.9467	3.7328
16	1.3368	1.7459	2.1199	2.5835	2.9208	3.6862
17	1.3334	1.7396	2.1098	2.5669	2.8982	3.6458
18	1.3304	1.7341	2.1009	2.5524	2.8784	3.6105
19	1.3277	1.7291	2.0930	2.5395	2.8609	3.5794
20	1.3253	1.7247	2.0860	2.5280	2.8453	3.5518
21	1.3232	1.7207	2.0796	2.5176	2.8314	3.5272
22	1.3212	1.7171	2.0739	2.5083	2.8188	3.5050
23	1.3195	1.7139	2.0687	2.4999	2.8073	3.4850
24	1.3178	1.7109	2.0639	2.4922	2.7969	3.4668
25	1.3163	1.7081	2.0595	2.4851	2.7874	3.4502
26	1.3150	1.7056	2.0555	2.4786	2.7787	3.4350
27	1.3137	1.7033	2.0518	2.4727	2.7707	3.4210
28	1.3125	1.7011	2.0484	2.4671	2.7633	3.4082
29	1.3114	1.6991	2.0452	2.4620	2.7564	3.3962
30	1.3104	1.6973	2.0423	2.4573	2.7500	3.3852
31	1.3095	1.6955	2.0395	2.4528	2.7440	3.3749
32	1.3086	1.6939	2.0369	2.4487	2.7385	3.3653
33	1.3077	1.6924	2.0345	2.4448	2.7333	3.3563
34	1.3070	1.6909	2.0322	2.4411	2.7284	3.3479
35	1.3062	1.6896	2.0301	2.4377	2.7238	3.3400

The table gives the value of  $t(\alpha;df)$  where  $\Pr(T(df)>t(\alpha;df))=\alpha$  with  $df$  degree of freedom.

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：商用統計學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】題號：441002  
 ※本科目依簡章規定「可以」使用計算機（廠牌、功能不拘）（選擇題） 共 9 頁第 9 頁

**The Critical values for F-distributions at (df1, df2) degree of freedom, given alpha=0.05**

		Numerator degrees of freedom (df1)									
		1	2	3	4	5	6	7	8	9	10
Denominator degrees of freedom (df2)	1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54	241.88
	2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385	19.396
	3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8867	8.8452	8.8123	8.7855
	4	7.7086	6.9443	6.5914	6.3882	6.2561	6.1631	6.0942	6.0410	5.9988	5.9644
	5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725	4.7351
	6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2067	4.1468	4.0990	4.0600
	7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767	3.6365
	8	5.3177	4.4590	4.0662	3.8379	3.6875	3.5806	3.5005	3.4381	3.3881	3.3472
	9	5.1174	4.2565	3.8625	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789	3.1373
	10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204	2.9782
	11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962	2.8536
	12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964	2.7534
	13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144	2.6710
	14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458	2.6022
	15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876	2.5437
	16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377	2.4935
	17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943	2.4499
	18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563	2.4117
	19	4.3807	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227	2.3779
	20	4.3512	3.4928	3.0984	2.8661	2.7109	2.5990	2.5140	2.4471	2.3928	2.3479
	21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3660	2.3210
	22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419	2.2967
	23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201	2.2747
	24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002	2.2547
	25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821	2.2365
	26	4.2252	3.3690	2.9752	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655	2.2197
	27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501	2.2043
	28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360	2.1900
	29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2783	2.2229	2.1768

# 國立中山大學 112 學年度

## 碩士班暨碩士在職專班招生考試試題

科目名稱：微積分【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】

### — 作答注意事項 —

考試時間：100 分鐘

- 考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。
- 答案卷限用藍、黑色筆(含鉛筆)書寫、繪圖或標示，可攜帶橡皮擦、無色透明無文字墊板、尺規、修正液（帶）、手錶(未附計算器者)。每人每節限使用一份答案卷，請衡酌作答(不得另攜帶紙張，亦不得使用應考證空白處作為計算紙使用)。
- 答案卡請以 2B 鉛筆劃記，不可使用修正液（帶）塗改，未使用 2B 鉛筆、劃記太輕或污損致光學閱讀機無法辨識答案者，後果由考生自負。
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- 試題及答案卷（卡）請務必繳回，未繳回者該科成績以零分計算。
- 試題採雙面列印，考生應注意試題頁數確實作答。
- 違規者依本校招生考試試場規則及違規處理辦法處理。

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：微積分【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441003  
※本科目依簡章規定「不可以」使用計算機(問答申論題) 共 2 頁第 1 頁

請依題號順序將答案寫在答案卷上，並寫出計算或推導過程，違者不予計分。

## Q1. (5 + 5 = 10%)

Calculate the following limits:

(i)

$$\lim_{x \rightarrow \infty} \frac{\sin x}{x}$$

(ii)

$$\lim_{x \rightarrow 3} \frac{5x^2 - 8x - 13}{x^2 - 5}$$

## Q2. (10%)

Evaluate the following differentiation:

$$\frac{d}{dx} \left( \frac{\ln x}{e^{\sin x}} \right)$$

## Q3. (10%)

Calculate the implicit derivative  $\frac{dy}{dx}$  of

$$(x - y)^2 = x + y - 1$$

## Q4. (10%)

Consider the following power series:

$$\sum_{n=0}^{\infty} \frac{(x - 2)^n}{n + 2}$$

Find the interval of convergence and check the endpoints of your interval.

國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：微積分【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441003  
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**Q5. (10%)**

Find the Maclaurin polynomial of degree 3 (i.e. including the  $x^3$  term) for the following function:

$$f(x) = x \ln(x + 2)$$

**Q6. (10 + 10 = 20%)**

Let  $f$  be the function defined for  $x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$  by  $f(x) = \tan(x)$ .

(i) The function  $f(x)$  has inverse  $f^{-1}(x) = y = \arctan(x)$ .

Write down the range and domain of  $y$ .

(ii) Show that  $\sec^2(y) \frac{dy}{dx} = 1$  and use this result to find  $\frac{d}{dx} f^{-1}(x)$  in terms of  $x$ .

**Q7. (10 + 10 + 10 = 30%)**

Evaluate the following integrals:

(i)

$$\int \frac{dx}{\sqrt{x^2 + 2x + 2}}$$

(ii)

$$\int \frac{x}{(x+1)(x+2)^2} dx$$

(iii)

$$\int_0^{\frac{\pi}{2}} x \sin x dx$$



# 國立中山大學 112 學年度

## 碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】

### — 作答注意事項 —

考試時間：100 分鐘

- 考試開始鈴響前不得翻閱試題，並不得書寫、劃記、作答。請先檢查答案卷（卡）之應考證號碼、桌角號碼、應試科目是否正確，如有不同立即請監試人員處理。
- 答案卷限用藍、黑色筆(含鉛筆)書寫、繪圖或標示，可攜帶橡皮擦、無色透明無文字墊板、尺規、修正液（帶）、手錶(未附計算器者)。每人每節限使用一份答案卷，請衡酌作答(不得另攜帶紙張，亦不得使用應考證空白處作為計算紙使用)。
- 答案卡請以 2B 鉛筆劃記，不可使用修正液（帶）塗改，未使用 2B 鉛筆、劃記太輕或污損致光學閱讀機無法辨識答案者，後果由考生自負。
- 答案卷（卡）應保持清潔完整，不得折疊、破壞或塗改應考證號碼及條碼，亦不得書寫考生姓名、應考證號碼或與答案無關之任何文字或符號。
- 可否使用計算機請依試題資訊內標註為準，如「可以」使用，廠牌、功能不拘，唯不得攜帶具有通訊、記憶或收發等功能或其他有礙試場安寧、考試公平之各類器材、物品（如鬧鈴、行動電話、電子字典等）入場。
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- 試題採雙面列印，考生應注意試題頁數確實作答。
- 違規者依本校招生考試試場規則及違規處理辦法處理。

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004  
※本科目依簡章規定「不可以」使用計算機(混合題) 共 6 頁第 1 頁

一、單選題 (50 分)：請選擇最適合的答案，每題 2 分，不倒扣

1. Aggressive pricing strategies support firms in increasing their market share. If firms sell multiple items in a product category and offer all items in certain categories at a limited number of prices, this marketing strategy is called?
  - A. Price lining
  - B. Psychological pricing
  - C. Odd-even pricing
  - D. Hunger marketing
2. Management has been practiced a long time and has attracted much scholarly attention. Which of the following scholars first identified five functions that managers perform ?
  - A. Frank Gilbreth
  - B. Henri Fayol
  - C. Max Weber
  - D. Frederick Taylor
3. Tiffany Chang is a manager of an Internet firm and her responsibility is to coach, support and guide her subordinates. According to Prof. Mintzberg's managerial role theory, Tiffany Chang has exhibited:
  - A. Practical role
  - B. Interpersonal role
  - C. Informational role
  - D. Decisional role
4. Social responsibility has become increasingly important in today's economy. Which of the following approaches to social responsibility suggests that a firm can meet only minimum legal requirements in its commitments to groups and individuals in its social environment?
  - A. Accommodative stance
  - B. Proactive stance
  - C. Defensive stance
  - D. Obstructionist stance
5. Tony Wang is a chief executive officer of a semiconductor firm. Which of the following is the most important skills that Tony Wang should have ?
  - A. Technical skills
  - B. Communication skills
  - C. Functional skills
  - D. Conceptual skills
6. Which of the following authority does a HR manager have?
  - A. Committee authority
  - B. Line authority
  - C. Team authority
  - D. Staff authority

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004

※本科目依簡章規定「不可以」使用計算機(混合題)

共 6 頁第 2 頁

7. Strategic management is what managers do to develop the organization's strategies. Such a process can determine a firm's competitive advantage. Which of the following is the first step of the strategic management process?
  - A. External analysis
  - B. Formulate strategies
  - C. Evaluate results
  - D. Identify the firm's current mission and goals
  
8. Employers could make use of power to influence employees' behaviors. There are five kinds of power in organizational settings. Which of the following power is to force compliance by means of psychological, emotional or physical threat?
  - A. Coercive power
  - B. Referent power
  - C. Reward power
  - D. Expert power
  
9. When firms do go international, they often use different approaches to build specific competitive advantage. Which of the following global strategies involves the greatest commitment of resources?
  - A. Global sourcing
  - B. Importing and exporting
  - C. Foreign subsidiary
  - D. Franchising
  
10. For the purpose of managing global business, firms should adopt suitable organizational structure. Which type of multinational corporation decentralizes management and other decisions to the local company?
  - A. Multidomestic corporation
  - B. Transnational organization
  - C. Global company
  - D. Borderless organization
  
11. Which of the following regional economic integration involves a central political apparatus coordinating the economic, social and foreign policy of the member states?
  - A. Common market
  - B. Political union
  - C. Free trade area
  - D. Economic union
  
12. In today's economy, a large number of firms focus on developing their businesses into global markets. Which of the following perspectives emphasizes using the best approaches and people from around the globe?
  - A. Ethnocentric attitude
  - B. Geocentric attitude
  - C. Polycentric attitude
  - D. Parochialism

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004

※本科目依簡章規定「不可以」使用計算機(混合題)

共 6 頁第 3 頁

13. According to the Maslow's hierarchy of human needs model, which of the following is the lowest-level need?
- A. Esteem needs
  - B. Physiological needs
  - C. Security needs
  - D. Social needs
14. For the purpose of coping with the changing environment, firms usually focus on changing their strategic behaviors. Which of the following types of change involves changing work processes, methods and equipment, etc. ?
- A. Structure
  - B. People
  - C. Strategy
  - D. Technology
15. Managers have to cope with challenges and make decisions that can influence firms' performance. Not surprisingly, the decision-making process has become a focal point of academic research. Which of the following is NOT a feature of intuitive decision making ?
- A. Based on culture
  - B. Based on ethical values
  - C. Based on evidence
  - D. Based on experience
16. Organizational behavior is the study of actions of people at work. Which of the following is a hidden aspect that could influence organizational behaviors ?
- A. Strategies
  - B. Formal authority
  - C. Attitude
  - D. Chain of command
17. Which of the following leadership pays attention to stimulating and inspiring followers or employees to achieve extraordinary outcomes?
- A. Transactional leadership
  - B. Transformational leadership
  - C. Ethical leadership
  - D. Charismatic leadership
18. Comparing centralization with decentralization, which of the following situations requires decentralization ?
- A. Lower-level managers do not want a say in decisions.
  - B. Environment is stable.
  - C. Environment is complex and/or uncertain.
  - D. Effective implementation of company strategies depends on managers retaining say over what happens

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004

※本科目依簡章規定「不可以」使用計算機(混合題)

共 6 頁第 4 頁

19. Comparing mechanistic organizations with organic organizations, which of the following features is related to organic organizations?
  - A. High specialization
  - B. Clear chain of command
  - C. Centralization
  - D. Cross-functional teams
20. Which of the following strategies is NOT used to retain competent and high-performing employees?
  - A. Performance management
  - B. Compensation and benefits
  - C. Recruitment
  - D. Career development
21. Regarding group development, which of the following stages is characterized by a period of high emotionality and tension among group members?
  - A. Performing stage
  - B. Adjourning stage
  - C. Forming stage
  - D. Storming stage
22. With regard to the direction of communication flow, which of the following refers to the flow from employees up to managers ?
  - A. Downward communication
  - B. Upward communication
  - C. Lateral communication
23. Which of the following is NOT a step of human resource planning ?
  - A. Assessing current human resources
  - B. Job analysis
  - C. Predicting the future labor supply
  - D. Performance management
24. Which of the following communication networks is informal ?
  - A. All-channel network
  - B. The grapevine
  - C. Wheel network
  - D. Chain network
25. Comparing work group with work team, which of the following features is NOT related to work team ?
  - A. Leadership role is shared.
  - B. Accountable only to self
  - C. Work is done collectively.
  - D. Can be quickly assembled, developed, refocused and disbanded

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004  
※本科目依簡章規定「不可以」使用計算機(混合題) 共 6 頁第 5 頁

二、申論題 (50 分)：請扼要切題的回答，切忌長篇大論不知所云

1. Institutional theory provides a useful analytical lens to explore organizational behaviors. This is because formal and informal institutions play a pivotal role in a firm's strategic management process. Read the following article adapted from Academy of Management Journal (Dacin et al., 2010) and answer the given questions.

*Cambridge was an excellent research site for several reasons. Being one of the world's oldest and most traditional universities, it provides an ideal setting in which to study organizational rituals and their relationship to wider social dynamics. Students come to Cambridge not only for its excellence but also because of its illustrious legacy. Moreover, Cambridge constitutes a very significant breeding ground for the British elite. As noted above, Cambridge graduates are disproportionately represented in senior positions in the U.K. establishment, and their socialization during their university days therefore takes on a special significance.*

*Once students are admitted to Cambridge, they participate in numerous rituals. For example, joining one's college tends to be a highly ceremonial affair, involving elaborate costumes, lavish dinners, and ceremonies in the Chapel. Graduation is a similarly elaborate ceremony, conducted almost entirely in Latin and again involving medieval customs, religious symbolism, and meticulous attention to attire and conduct.*

*A set of rituals that students experience daily at Cambridge revolves around dining. Although the various dining rituals vary slightly across the 31 colleges, they all involve members eating together, mostly in formal attire and gowns. Students typically sit at long refectory tables for dinner several nights a week. At the far end of the hall, usually on a raised platform above where the students are seated, is the High Table, where the Master and Fellows of the college sit. During dinner, a team of servers supervised by either the Fellow's Butler or the Hall Manager waits on those sitting at the High Table. The "low tables" also have a dedicated team of serving staff, often supervised by a "Manciple" (a steward). Participants enjoy a multicourse dinner, which can last up to two hours. Dining rituals consume not only substantial monetary resources but also time and effort on the part of all college members. The opulence reflected in these rituals makes them an obvious target for critics (e.g., Walker, 2003).*

- 1.1 Please briefly introduce the institutional theory (10%)  
1.2 Please clarify the terms "formal institutions" and "informal institutions" (6%)  
1.3 Based on the article information, please make use of the institutional perspective to analyze the role of rituals in influencing students' (organizational) behaviors (9%)

2. The organizational life cycle concept has provided a useful analytical tool to investigate firms' development patterns. Read the following article adapted from Journal of Product Innovation Management (Gawer & Cusumano, 2014) and answer the given questions.

*Again, we find it useful to return to the case of IBM, whose origins date back to the 1880s and a business based on electro-mechanical tabulating machines and time-punch devices. This company created the first global platforms in the modern computer era, beginning with the System 360 mainframe in the mid-1960s. Antitrust initiatives pressured IBM to release information to independent maintenance providers, which eventually led to an opening of the system architecture and an ecosystem of hardware "clone" makers led by Amdahl and Fujitsu as well as software product and service companies focused on IBM customers (Grad, 2002, p. 71). IBM faced more competition in the 1970s and in later years from vendors of smaller computers, and, as we discussed*

# 國立中山大學 112 學年度碩士班暨碩士在職專班招生考試試題

科目名稱：管理學【企管系企管甲班碩士班甲組選考、乙組選考、丙組選考】 題號：441004  
※本科目依簡章規定「不可以」使用計算機(混合題) 共 6 頁第 6 頁

*earlier, lost architectural control over its personal computer to Microsoft and Intel during the 1980s (Campbell-Kelly and Aspray, 1996; Fisher, McKie, and Mancke, 1983). Nonetheless, IBM remained a major player in the computer industry due to its deep expertise in data-processing solutions. It had sold primitive electronic computers since the early 1950s and for decades before that dominated in tabulating machines and other office equipment. In the 2000s, this deep customer knowledge and technical capabilities helped IBM continue to dominate the diminished mainframe market as well as move into Internet servers and do pioneering work in high-performance systems. IBM's role as an industry platform leader clearly changed as enterprise computing evolved to become a much more heterogeneous world of computer hardware and software of different shapes and sizes.*

2.1 Please briefly introduce the organizational life cycle (10%)

2.2 Based on the article information, evaluate if the organizational life cycle still apply (15%)