招 生 學 年 度	九十八	招 生 類 別	碩士班
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科　　　　目	微積分		
注 意 事 項	本考科可使用掌上型計算機		

1　(30%)　Determine the value of the following questions.

(a) $\int_0^\infty xe^{-x^2}\,dx$　　　　(b) $\lim_{x\to 0}\dfrac{\cos x-1}{x^2}$　　　　(c) $\int_0^1 \ln x\,dx$

2　(10%)　For which x does the series $\sum_{n=0}^{\infty}\dfrac{4^n}{\sqrt{2n+5}}(x+5)^n$ converge?

3　(10%)　Compute the volume of the solid in space bounded by the four planes $x=0$, $y=0$, $z=0$, and $3x+4y=10$, and the graph $z=x^2+y^2$.

4　(10%)　The disk with radius 1 and center $(4,0)$ is revolved around the y axis.　Sketch the resulting solid and find its volume.

5　(10%)　Sketch the graph $y=x^2e^{-x}$.

6　(10%)　Given a number $a>0$, find the minimum value of $\dfrac{a+x}{\sqrt{ax}}$ where $x>0$.

7　(10%)　Calculate an approximate value for $\dfrac{2}{\sqrt{0.99}+(0.99)^2}$.

8　(10%)　Let $f(x,y)=x^2+xy+y^2$.　Find the maximum and minimum points and values of f along the circle $x^2+y^2=1$.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　目	專業英文		
注 意 事 項	本考科滿分為 100 分		

Notes:
- There are 3 questions in this examination paper.　Each question consists of several parts.
- The whole paper is of 100 points.　The number of points is shown for each part.
- Answer the questions in English unless you are asked to do otherwise.

#1.　Read the following paragraphs and then answer parts (a) to (c).

"Two nearby towns are considering whether to build a joint water distribution system.　Town A could build its own facility for $11 million without any assistance from B.　Town B could build a separate facility for $7 million without any co-operation from A.　A facility that jointly serves both communities would cost $15 million.　Clearly it makes economic sense for them to cooperate, since they can jointly save $3 million.　These cost-saving represent the common property created by their joint activity, but for cooperation to occur they must agree on how to divide it.　What equity principles might guide their discussions?

One obvious solution is that each town is a corporate entity with power to enter into a contract.　Since they are equal partners in the enterprise, they should shoulder an equal burden.　This argument ignores the possibility that the towns are unequal in other relevant respects however.　Suppose, for instance, that town A has 36,000 residents and town B has 12,000 residents.　Equal division between the towns implies that each resident of A pays only one-third as much as each resident of B, even though they are served by the same system.　This might be considered unfair.　An alternate solution would be to spread the costs equally among the persons rather than the towns.　Divide the total cost of $15 million by the 48,000 persons served by the system, and assess each individual $312.50.　Under this arrangement, town A would pay $11.25 million and town B pay $3.75 million."

(Extracted from *Equity – In Theory and Practice* by H. Peyton Young)

There are two possible schemes to share the cost, equal division between the two towns or equal division per capita.

(a).　(8 points)　Which town would more likely object the scheme to divide cost equally between the two towns?　Why does the town object such a scheme?

(b).　(8 points)　Which town would more likely object the scheme to divide cost equally among all residents?　Why does the town object such a scheme?

(c).　(12 points)　Comment in no less than 100 words – your own words – on the above cost-sharing problem between the two towns.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　　目	專業英文		
注 意 事 項	本考科滿分為 100 分		

#2. Read the following paragraphs about the impacts and implications of the finance strength of Britain in the nineteenth century. Then answer parts (a) to (c).

"The consequences of this vast export of capital were several, and important. The first was that the returns on overseas investments significantly reduced the annual trade gap on visible goods which Britain always incurred. In this respect, investment income added to the already considerable invisible earnings which came from shipping, insurance, bankers' fees, commodity dealing, and so on. Together, they ensured that not only was there never a balance-of-payments crisis, but Britain became steadily richer, at home and abroad. The second point was that the British economy acted as a vast bellows, sucking in enormous amounts of raw materials and foodstuffs and sending out vast quantities of textiles, iron goods, and other manufactures; and this pattern of visible trade was paralleled, and complemented, by the network of shipping lines, insurance arrangements, and banking links which spread outward from London (especially), Liverpool, Glasgow, and most other cities in the course of the nineteenth century.

Given the openness of the British home market and London's willingness to reinvest overseas income in new railways, ports, utilities, and agricultural enterprises from Georgia to Queensland, there was a general complementarity between visible trade flows and investment patterns. Add to this the growing acceptance of gold standard and the development of an international exchange and payments mechanism based upon bills drawn on London, and it was scarcely surprising that the mid-Victorians were convinced that by following the principles of classical political economy, they had discovered the secret which guaranteed both increasing prosperity and world harmony. Although many individuals — Troy protectionists, oriental despots, newfangled socialists — still seemed too purblind to admit this truth, over time everyone would surely recognize the fundamental validity of laissez-faire economics and utilitarian codes of government.

While all this made Britons wealthier than ever in the short term, did it not also contain elements of strategic danger in the longer term? With the wisdom of retrospect, one can detect at least two consequences of these structural economic changes which would later affect Britain's relative power in the world. The first was the way in which the country was contributing to the long-term expansion of other nations, both by establishing and developing foreign industries and agriculture with repeated financial injections and by building railways, harbors, and steamships which would enable overseas producers to rival its own production in future decades. In this connection, it is worth noting that while the coming of steam power, the factory system, railways, and later electricity enabled the British to overcome natural, physical obstacles to higher productivity, and thus increased the nation's wealth and strength, such inventions helped the United States, Russia, and central Europe even more, because the natural, physical obstacles to the development of their landlocked potential were much greater. Put crudely, what industrialization did was to equalize the

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　　目	專業英文		
注 意 事 項	本考科滿分為 100 分		

chances to exploit one's own indigenous resources and thus to take away some of the advantages hitherto enjoyed by smaller, peripheral, naval-cum0commercial states and to give them to the great land-based states.

The second potential strategical weakness lay weakness lay in the increasing dependence of British economy upon international trade and, more important, international finance. By the middle decades of the nineteenth century, exports composed as much as one-fifth of total national income, a far higher proportion than in Walpole's or Pitt's time; for the enormous cotton-textile industry in particular, overseas markets were vital. But foreign imports, both of raw materials and (increasingly) of foodstuffs, were also becoming vital as Britain moved from being a predominantly agricultural to being a predominantly urban/industrial society. And in the fastest-growing sector of all, the "invisible" services of banking, insurance, commodity-dealing, and overseas investment, the reliance upon a world market was even more critical. The world was the City of London's oyster, which was all very well in peacetime; but what would the situation be if ever it came to another Great Power War? Would Britain's export markets be even more badly affected than in 1809 and 1811-1812? Was not the entire economy, and domestic population, becoming too dependent upon imported goods, which might easily be cut off or suspended in periods of conflict? And would not the London-based global banking and financial system collapse at the onset of another world war, since the markets might be closed, insurances suspended, international capital transfers retarded, and credit ruined? In such circumstances, ironically, the advanced British economy might be more severely hurt than a state which was less "mature" but also less dependent upon international trade and finance."

(Extracted from *The Rise and Fall of the Great Powers* by Paul Kennedy)

(a). (12 points) Summarize the two consequences of the vast export of capital of Britain in 50 words.

(b). (8 points) Name the two principles of classical political economy that mid-Victorians believed for increasing prosperity and world harmony. Who objected these principles?

(c). (12 points) The paragraphs discuss two ways in which the finance and trade pattern of Britain in the nineteenth century later reduces her relative power in the world. Summarize each of these two ways in 25 words.

招 生 學 年 度	九十八		招 生 類 別	碩士班
系 所 班 別	國際企業學系			
科　　　目	專業英文			
注 意 事 項	本考科滿分為 100 分			

#3. Read the following paragraphs about the economic situation of the United States (US) in 1990's and then answer parts (a) to (d).

"With the exception of one year, 1990, inflation was no longer the dominant economic motif – disinflation was. This was partly due to the recession that took hold in 1992; facing hard times, people weren't willing to pay ever-higher prices, and undertook to find less expensive alternatives. But it was also due to trends that were in evidence even after the recession had ended. The new global economy, the enormous economic power of discounters such as Wal-Mart, the move away from "name" brands and toward generic products – these were all factors that exerted a downward pressure on prices. Fast food restaurants, having saturated the country, were forced to compete with each other by lowering prices. Cheap generic cigarettes began cutting deeply into the market share of the big, established brands, forcing companies like RJR Nabisco and Philip Morris to lower prices on well-known brands such as Winston and Marlboro. A vicious price war broke out among computer manufacturers. The price of gasoline at the pump in 1993 approached prices not seen since the late 1970s. There were dozens of similar examples. Even the price of a house was not immune from this trend. After almost twenty years of spiraling upward, housing prices finally stopped rising in many sections of the country. In some sections, they actually went down.

By all rights, Americans should have been rejoicing at this turn of events. But many weren't. Homeowners, in particular, were dismayed when they realized that their chief economic asset had stopped rising in value; many had come to view the built-in capital gain provided by a 10 or 15 percent annual rise in the price of their home as practically a God-given right. But there was no such right. Houses were commodities. They reacted to the laws of supply and demand. And, as with every other aspect of personal finance in America, buying a house meant taking some risk. To their chagrin, millions of Americans were now relearning this most basic of truths.

Even the more generalized phenomenon of disinflation was not necessarily greeted with cheers. Just as one generation of Americans continued to conjure up images of the Depression well into the late 1950s and early 1960s, so did the next generations of Americans continue to conjure up inflation fears. People seemed to be looking over their shoulders, half expecting inflation to break out again – or more likely, believing it had never left. In the summer of 1992, at a time when inflation was lower than it had been since the 1950s, *Business Week* cited a survey in which consumers said they expected inflation to grow by almost 5 percent during the next year. By the end of 1992, the Consumer Price Index had risen 1.7 percent – a negligible amount. Yet a decade after inflation had been tamed, people remained haunted by it."

(Extracted from *A Piece of the Action* by Joseph Nocera)

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科 目	專業英文		
注 意 事 項	本考科滿分為 100 分		

(a). (12 points)   Give six reasons that made inflation no longer the dominant economic motif for US in 90's.   List your answer clearly in point form from (i) to (vi).   Your points should summarize general phenomena.   Examples in different settings of the same phenomenon are only counted as one point.

(b).   The following parts ask for your understanding of the material provided in the paragraph, not your computation power.

(i). (6 points)   John bought a house in US in early 70's and kept it till early 90's.   Estimate the rate of return of his investment.   Explain your reasoning.

(ii). (6 points)   Tom bought and kept a house in US for a year in early 90's.   Estimate the rate of return of his investment.   Explain your reasoning.

(c). (6 points)   Give your best estimate of the inflation rate of US from 1973 to 1992. Explain your reasoning.

(d). (10 points)   Translate the second paragraph "By all rights, ... this most basic of truths." into Chinese.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	企業管理學系、國際企業學系、全球運籌管理研究所、會計與財務金融碩士學位學程		
科　　　目	統計學		
注 意 事 項	本考科可使用掌上型計算機		

單選選擇題 100% (每題 4 分)

Psychologists have found that people are generally reluctant to transmit bad news to their peers. This phenomenon has been termed the "MUM effect." To investigate the cause of the MUM effect, 40 undergraduates at Dong-Hwa University participated in an experiment. Each subject was asked to administer an IQ test to another student and then provide the test taker with his or her percentile score. Unknown to the subject, the test taker was a bogus student who was working with the researchers. The experimenters manipulated two factors: **subject visibility** and **success of test taker,** each at two levels. Subject visibility was either visible or not visible to the test taker. Success of the test taker was either visible or not visible to the test taker. Success of the test taker was either **top 20%** or **bottom 20%.** Ten subjects were randomly assigned to each of the 2 x 2 = 4 experimental conditions, then the time (in seconds) between the end of the test and the delivery of the percentile score from the subject to the test taker was measured. (This variable is called the **latency to feedback.**) The data were subjected to appropriate analyses with the following results.

TABLE 1

Source	df	SS	MS	F	PR > F
Subject visibility	1	1380.24	1380.24	4.26	0.043
Test taker success	1	1325.16	1325.16	4.09	0.050
Interaction	1	3385.80	3385.80	10.45	0.002
Error	36	11,664.00	324.00		
Total	39	17,755.20			

1. Referring to Table 1, what type of experimental design was employed in this study?
   (1) Randomized block design with four treatments and 10 blocks
   (2) 2 x 2 factorial design with 10 replications
   (3) Completely randomized design with 4 treatments
   (4) None of the above

2. Referring to Table 1, at the 0.01 level, what conclusions can you draw from the analyses?
   (1) At the 0.01 level, there is evidence to indicate that subject visibility and test taker success interact.
   (2) At the 0.01 level, the model is not useful for predicting latency to feedback.
   (3) At the 0.01 level, there is no evidence of interaction between subject visibility and test taker success.
   (4) At the 0.01 level, subject visibility and test taker success are significant predictors of latency feedback.

3. Referring to Table 1, in the context of this study, interpret the statement: "Subject visibility and test taker success interact."
   (1) The relationship between feedback time and subject visibility depends on the success of the test taker.
   (2) The difference between the mean feedback time for test takers scoring in the top 20% and bottom 20% depends on the visibility of the subject.
   (3) The difference between the mean feedback time for visible and nonvisible subjects depends on the success of the test taker.
   (4) All of the above are correct interpretations.

In order to comply with a new law, a large Hawaiian estate wants to use regression analysis to estimate the fair market value of the land. The following model was fit to data collected for n = 20 properties, 10 of which are located near a cove.

Model: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_1 X_2 + \beta_4 X_1^2 + \beta_5 X_2^2 + \varepsilon$

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	企業管理學系、國際企業學系、全球運籌管理研究所、會計與財務金融碩士學位學程		
科　　　　目	統計學		
注 意 事 項	本考科可使用掌上型計算機		

where　　Y = Sale price of property in thousands of dollars

X_1 = Size of property in thousands of square feet

X_2 = 1 if property located near cove, 0 if not

Using the data collected for the 20 properties, the following partial output obtained from Microsoft Excel is shown:

TABLE 2

Regression Statistics	
Multiple R	0.985
R Square	0.970
Standard Error	9.5
Observations	20

ANOVA

	df	SS	MS	F	Significance F
Regression	5	28324	5664	62.2	0.0001
Residual	14	1279	91		
Total	19	29063			

	Coeff	STd Error	t Stat	p–value
Intercept	– 32.1	35.7	– 0.90	0.3834
Size	12.2	5.9	2.05	0.0594
Cove	– 104.3	53.5	– 1.95	0.0715
Size*Cove	17.0	8.5	1.99	0.0661
SizeSq	– 0.3	0.2	– 1.28	0.2204
SizeSq*Cove	– 0.3	0.3	– 1.13	0.2749

4. Referring to Table 2, given a quadratic relationship between sale price (Y) and property size (X_1), what null hypothesis would you test to determine whether the curves differ from cove and non-cove properties?

　(1)　$H_0 : \beta_3 = \beta_5 = 0$

　(2)　$H_0 : \beta_4 = \beta_5 = 0$

　(3)　$H_0 : \beta_2 = 0$

　(4)　$H_0 : \beta_2 = \beta_3 = \beta_5 = 0$

5. Referring to Table 2, given a quadratic relationship between sale price ($\hat{Y}$) and property size (X_1), what test should be used to test whether the curves differ from cove and non-cove properties?

　(1)　F test for the entire regression model.

　(2)　Partial F test on the subset of the appropriate coefficients.

　(3)　t test on each of the coefficients in the entire regression model.

　(4)　t test on each of the subsets of the appropriate coefficients.

A regression analysis was performed to explain personal consumption (CONS) measured in dollars and ln(CRDTLIM), ln(APR), ln(ADVT), and SEX as the independent variables. ADVT measures per person advertising expenditure in dollars by manufacturers in the city where the individual lives. The estimated model was

$$\hat{y} = 2.28 - 0.29 \ln(\text{CRDTLIM}) + 5.7 \ln(\text{APR}) + 2.35 \ln(\text{ADVT}) + 0.39 \text{ SEX}$$

6. Referring to the equation above, what is the correct interpretation for the estimated coefficient for **ADVT** ?

　(1)　A 100% increase in per person advertising expenditure by the manufacturer will result in an estimated average increase of 2.35% on personal consumption, holding other variables constant.

　(2)　A 100% increase in per person advertising expenditure by the manufacturer will result in an estimated average increase of $2.35 on personal consumption, holding other variables constant.

　(3)　A $1 increase in per person advertising expenditure by the manufacturer will result in an estimated average increase of $2.35 on personal consumption, holding other variables constant.

　(4)　A 1% increase in per person advertising expenditure by the manufacturer will result in an estimated average increase of 2.35% on personal consumption, holding other variables constant.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	企業管理學系、國際企業學系、全球運籌管理研究所、會計與財務金融碩士學位學程		
科　　　　　目	統計學		
注 意 事 項	本考科可使用掌上型計算機		

A candy bar manufacturer is interested in trying to estimate how sales are influenced by the price of their product. To do this, the company randomly chooses 6 small cities and offers the candy bar at different prices. Using candy bar sales as the dependent variable, the company will conduct a simple linear regression on the data below:

TABLE 3

City	Price ($)	Sales
River Falls	1.30	100
Hudson	1.60	90
Ellsworth	1.80	90
Prescott	2.00	40
Rock Elm	2.40	38
Stillwater	2.90	32

7. Referring to Table 3, what is the estimated slope parameter for the candy bar price and sales data?
    (1) 161.386　　(2) 0.784　　(3) -48.193　　(4) -3.810

8. Referring to Table 3, what is the coefficient of correlation for these data?
    (1) 0.8854　　(2) -0.8854　　(3) 0.7839　　(4) -0.7839

9. Referring to Table 3, what is the percentage of the total variation in candy bar sales explained by the regression model?
    (1) 48.19%　　(2) 88.54%　　(3) 100%　　(4) 78.39%

10. Referring to Table 3, if the price of the candy bar is set at $2, the estimated average sales will be:
    (1) 65　　(2) 30　　(3) 90　　(4) 100

Parents complain that children read too few storybooks and watch too much television nowadays. A survey of 1,000 children reveals the following information on average time spent watching TV and average time spent reading storybooks.

TABLE 4 Average time spent reading story books

Average time spent watching TV	Less than 1 hour	Between 1 and 2 hours	More than 2 hours
Less than 2 hours	90	85	130
More than 2 hours	655	32	8

11. Referring to Table 4, if the null hypothesis of no connection between time spent watching TV and time spent reading storybooks is true, how many children watching less than 2 hours of TV and reading no more than 2 hours of storybooks on average can we expect?
    (1) 262.91　　(2) 35.69　　(3) 227.23　　(4) 969.75

12. Referring to Table 4, to test whether there is any relationship between average time spent watching TV and average time spent reading storybooks, the value of the measured test statistic is:
    (1) 481.49　　(2) 1368.06　　(3) -1259　　(4) 1.61

13. Referring to Table 4, we want to test whether there is any relationship between average time spent watching TV and average time spent reading storybooks. Suppose the value of the test statistic was 164 (which is **not** the correct answer) and the critical value was 19.00 (which is **not** the correct answer), then we could conclude that
    (1) there is connection between time spent reading storybooks and time spent watching TV.
    (2) more time spent reading storybooks leads to less time spent watching TV.
    (3) more time spent watching TV leads to less time spent reading storybooks.
    (4) there is no connection between time spent reading storybooks and time spent watching TV.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	企業管理學系、國際企業學系、全球運籌管理研究所、會計與財務金融碩士學位學程		
科　　　　目	統計學		
注 意 事 項	本考科可使用掌上型計算機		

14. Find the probability that a face card is drawn on the first draw and an ace on the second in two consecutive draws, without replacement, from a standard deck of cards.

    (1) 3/13   (2) 4/51   (3) 10/221   (4) 4/221

15. Let x be the random variable representing the length of a telephone conversation. Let $f(x) = \lambda e^{-\lambda x}, \quad 0 \leq x < \infty$, what is $\Pr(5 < x \leq 10)$.

    (1) 5   (2) 15   (3) $e^{-5\lambda} - e^{10\lambda}$ (4) $e^{-5\lambda} - e^{-10\lambda}$

16. Use this function to answer this question.

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

Which one of the answer is the probability that $\{1 < x < 2 \text{ and } 0 < y < 2\}$:

    (1) 0.2   (2) 1.1   (3) e^y (4) 0.4

17. Let x be a random variable denoting the hours of life in an electric light bulb. Suppose x is distributed with density function

$$f(x) = (1/1000)e^{-x/1000}, \quad \text{for } x > 0.$$

Which one is the expected lifetime of such a bulb?

    (1) 400 hours   (2) 1,000 hours   (3) e^x hours   (4) 100 hours

18. Let x be a random variable with probability density given by

$$f(x) = \lambda e^{-\lambda x}, \quad 0 < x < \infty.$$

What is the variance of x?

    (1) $1/(\lambda^2)$ (2) λ^2 (3) $5/(\lambda^3)$ (4) $e^{-\lambda x}$

19. A random sample of 100 students from Dong Hwa University showed an average IQ score of 112 with a standard deviation of 10. What is the 95% confidence interval estimate of the mean IQ score of all students attending Dong Hwa University?

    (1)　$112.25 < \mu < 120.25$ (2) $112.75 < \mu < 116.83$

    (3)　$110.04 < \mu < 113.96$ (4) $114.35 < \mu < 119.36$

20. Eight trials are conducted of a given system with the following results: S, F, S, F, S, S, S, S (S = success, F = failure). What is the maximum likelihood estimate of p, the probability of successful operation?

    (1) 0   (2) 1   (3) 1/4   (4) 3/4

21. A research worker wishes to estimate the mean of a population using a sample large enough that the probability will be .95 that the sample mean will not differ from the population mean by more than 25% of the standard deviation. How large a sample should he takes?

    (1) 62   (2) 30   (3) 43   (4) 6

22. Find a 95% confidence interval for μ, the true mean of a normal population which has variance $\sigma^2 = 100$. Consider a sample of size 25 with a mean of 67.53. Which one is the correct answer?

    (1) $99.25 < \mu < 110.25$

    (2) $63.61 < \mu < 71.45$

    (3) $59.85 < \mu < 103.27$

    (4) $77.16 < \mu < 62.87$

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	企業管理學系、國際企業學系、全球運籌管理研究所、會計與財務金融碩士學位學程		
科　　　　目	統計學		
注 意 事 項	本考科可使用掌上型計算機		

23. Use Chebyshev's inequality to find what is the lower bound on Pr (- 4 < x < 20) where the random variable x has a mean $\mu = 8$ and variance $\sigma^2 = 9$.

    (1) 1/4　　　　(2) 3/4　　　　(3) 3/5　　　　(4) 15/16

24. If x and y are independent random variables with variances $\sigma_x^2 = 1$ and $\sigma_y^2 = 2$, what is the variance of the random variable z = 3x – 2y + 5?

    (1) 10　　　　(2) 24　　　　(3) 45　　　　(4) 17

25. If a bag contains three white, two black, and four red balls and four balls are drawn at random with replacement, what is the probabilities that the sample contains just on white ball given that it contains just one red ball?

    (1) 36/125　　(2) 36/110　　(3) 27/125　　(4) 3/4

Standard Normal Distribution Table
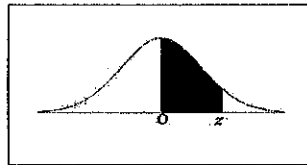
z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.0000	.0040	.0080	.0120	.0160	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2517	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4429	.4441
1.6	.4452	.4463	.4474	.4484	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4761	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4864	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4979	.4980	.4981
2.9	.4981	.4982	.4982	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998
3.5	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998	.4998

Gilles Cazelais. Typeset with LaTeX on April 20, 2006.

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　　目	管理學		
注 意 事 項			

I. Multiple-choice Questions (1.5 points per question, 51%)
Please choose the best answer.

1. Effectiveness is synonymous with _____.
   1) cost minimization
   2) resource control
   3) goal attainment
   4) efficiency

2. Bureaucracy is defined as a form of organization characterized by _____.
   1) division of labor
   2) clearly defined hierarchy
   3) detailed rules and regulations
   4) all of the above

3. One outcome of the Hawthorne Studies could be described by which of the following statements?
   1) Social norms or group standards are the key determinants of individual work behavior.
   2) Money is more important than the group on individual productivity.
   3) Behavior and employee sentiments are inversely related.
   4) Security is relatively unimportant.

4. An organization is _____.
   1) the physical location where people work
   2) a collection of individuals working for the same company
   3) a deliberate arrangement of people to accomplish some specific purpose
   4) a group of individuals focused on profit making for their shareholders

5. Which of the following is not an example of an interpersonal role according to Mintzberg?
   1) figurehead
   2) leader
   3) liaison
   4) spokesperson

6. Of the approaches to pursuing international markets, developing a _____ involves the greatest commitment and risk.
   1) franchise
   2) joint venture
   3) strategic alliance
   4) foreign subsidiary

7. Parochialism is _____.
   1) acceptance of diverse points of view
   2) a desire to leave one's own culture for a foreign culture
   3) a tendency to view the world through a single perspective
   4) recognition of diverse religious beliefs

招生學年度	九十八	招生類別	碩士班
系 所 班 別	國際企業學系		
科　　　目	管理學		
注 意 事 項			

8. Which of the following is a basic definition of ethics?
   1) moral guidelines for behavior
   2) rules for acknowledging the spirit of the law
   3) rules or principles that define right and wrong conduct
   4) principles for legal and moral development

9. In the MBO system, _____.
   1) objectives are determined by management
   2) goals are only reviewed at the time of completion
   3) goals are used as controls
   4) progress toward objectives is periodically reviewed

10. As organizational environments become more uncertain, _____.
   1) organizations are having to make longer term plans
   2) organizations have to resist the uncertainties to keep the plans moving toward the objectives
   3) organizations have to request that the government pass more legislation restricting the amount of uncertainty
   4) organizations may be hindered by well-defined and precisely charted plans.

11. Benchmarking is the search for the best practices among competitors or noncompetitors that lead to their _____.
   1) ability to achieve such a large market share
   2) ability to so accurately predict the environment
   3) superior performance
   4) ability to identify new market niches

12. Expert systems enable employee and lower level managers to make high quality decisions that previously could have been made only by _____.
   1) management experts
   2) technical experts
   3) consultants
   4) senior managers

13. If organizational culture is open and supportive, the most appropriate controls would be which of the following?
   1) formal and externally imposed
   2) elaborate and comprehensive
   3) informal and self-controlled
   4) clearly defined

14. The line of authority that extends from the upper levels of management to the lowest levels of the organization is _____.
   1) authorized line of responsibility
   2) unity of command
   3) responsibility factor
   4) chain of command

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　目	管理學		
注 意 事 項			

15. Which of the following would likely be found in mechanistic organizations?
    1) wide span of control
    2) empowered employees
    3) decentralized responsibility
    4) standardized job specialties

16. Which of the following most accurately reflects the difference between strong cultures and weak cultures?
    1) Strong cultures tend to encourage employee innovation, while weak cultures do not.
    2) Weak cultures are found in most organizations, whereas strong cultures are relatively rare.
    3) Strong cultures have less of an influence on employee behavior than do weak cultures.
    4) Company values are more deeply held and widely shared in strong cultures than in weak cultures.

17. Job analysis is concerned with which of the following employment planning aspects?
    1) deciding how well someone is performing his or her job
    2) what behaviors are necessary to perform a job
    3) hiring someone to do a job
    4) estimating pay on job level in an organization

18. Which of the following is an example of selection device reliability?
    1) An applicant's score on an intelligence test predicted his or her job performance.
    2) A superior job performer was given a low interview score by all five independent interviewers.
    3) The intelligence test significantly predicted the job performance of 250 job applicants.
    4) A protected group individual was given a low selection score and was a poor job performer.

19. Which of the following statements is true of current situations in human resource management?
    1) To improve workforce diversity, managers need to narrow their approach to recruiting.
    2) Once a diverse pool of applicants is defined, a manager does not need to address discrimination as a problem.
    3) Recent research has shown that diversity makes moving into a workforce harder for women and minorities.
    4) Some organizations conduct workshops to raise diversity consciousness among current employees.

20. The unfreezing step of the change process can be thought of as _____.
    1) thawing the organization loose from the current status to the new status
    2) making the move to the new organizational condition
    3) loosening the organization from the old condition and moving it to the new condition
    4) preparing for the needed change

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　　目	管理學		
注 意 事 項			

21. Which of the following is true concerning stress?
    1) Stress is a static condition.
    2) Stress is a negative reaction to an outside force.
    3) Stress can be relieved by removing the uncertainty or importance of an outcome.
    4) Stress limits performance.

22. In the statement, "The highway is very busy at 5 P.M. and is scary to drive, so I'll wait until 7 P.M. to go home," the phrase, "so I'll wait until 7 P.M. to go home," represents which component of an attitude?
    1) cognitive
    2) behavioral
    3) emotive
    4) affective

23. What does the research evidence suggest about the statement, "Happy workers are productive workers"?
    1) It's false. Instead, productive workers are least happy.
    2) There is strong supportive evidence since the Hawthorne Studies.
    3) Job satisfaction is more easily increased by managers helping employees become more productive.
    4) Actually, there is no relationship between the two variables.

24. A person who believes that "the ends justify the means" would describe a person who has a high level of what personality trait?
    1) self-confidence
    2) Machiavellianism
    3) locus of control
    4) self-monitoring

25. Which of the following statements about groups is true?
    1) You need five or more people to be considered a work group.
    2) The definition of groups suggests that a group is two or more people together for any reason.
    3) Groups can be either formal or informal.
    4) Formal groups are aimed at specific social agendas.

26. Of the following, which is not an advantage of teams within an organization?
    1) stability in response to a chaotic environment
    2) employee job satisfaction
    3) increased workforce diversity
    4) empowered employees

27. Which of the following is a substantial barrier to using work teams?
    1) lack of creativity
    2) lack of diversity
    3) individual resistance
    4) open communication

招 生 學 年 度	九十八	招 生 類 別	碩士班
系 所 班 別	國際企業學系		
科　　　　目	管理學		
注 意 事 項			

28. Growth, achieving one's potential, self-fulfillment, and the drive to become what one is capable of becoming are characteristics of which need according to Maslow's hierarchy?
   1) physiological
   2) esteem
   3) social
   4) self-actualization

29. Which of the following identifies the chief difference among the three early theories of motivation?
   1) Only Herzberg's theory has been substantiated by additional research.
   2) Maslow's hierarchy of needs and McGregor's Theory X and Theory Y make sense intuitively, while Herzberg's motivation-hygiene theory does not.
   3) Only Maslow's theory affects today's managerial practices.
   4) Maslow focused on the individual, McGregor focused on the manager's perception of the individual, and Herzberg focused on the organization's effect on the individual.

30. Which expectancy theory linkage explains the belief that having a high grade point average is critical in obtaining a good job?
   1) Effort-performance
   2) expectancy
   3) performance-reward
   4) attractiveness

31. Which of the following describes the leadership style in which a leader tends to centralize authority, dictate work methods, make unilateral decisions, and limit employee participation?
   1) cultural style
   2) autocratic style
   3) democratic style
   4) laissez-faire style

32. Which of the following is an accurate statement about the differences between gender and leadership style?
   1) Males and females do not use different styles.
   2) Men are more democratic than women.
   3) Women encourage more participation.
   4) Men share power more than women.

33. What should today's managers do with an organization's knowledge resources?
   1) learn from employees
   2) make it easy for employees to communicate and share their knowledge
   3) protect it from employees
   4) share their knowledge with employees

34. Which of the following is not a scheduling device used by managers?
   1) benchmarking
   2) Gantt charts
   3) load charts
   4) PERT network analysis

招 生 學 年 度	九十八		招 生 類 別	碩士班
系 所 班 別	國際企業學系			
科　　　目	管理學			
注 意 事 項				

II. Essay Questions (49%)

Question 1: This is a short article from *The Economist*. Please make a brief translation in Chinese (14%) and comment on it (15 %).

Brainstorming is said to have been popularised as a management technique in the early 1940s by Alex Osborn, an American advertising executive. He defined brainstorming as "a conference technique by which a group attempts to find a solution for a specific problem by amassing all the ideas spontaneously thought of by its members". He had four rules: no criticism of ideas; go for a large number of ideas; build on each other's ideas; encourage wild and exaggerated ideas.

At one time the technique was widely used within corporations to help come up with new product ideas or to devise radically new manufacturing processes. The results of brainstorming, however, have frequently been deemed inadequate. Totally unstructured sessions rarely work. But even when basic rules are followed, the results are often disappointing.

Research has suggested that individuals working on their own generally come up with more original and higher-quality ideas. But groups come up with more ideas as such, even though they may be of inferior quality. Groups also go on being productive for much longer; individuals on their own tire easily and dry up. Open-ended group discussions have been found to be particularly helpful in evaluating ideas rather than in generating them. Group feedback seems to be especially useful in this process.

Question 2: 請說明何謂「變革」?（5%）為何人們會抗拒變革?（5%）有哪些技術或方法可以降低人們對組織變革的抗拒?（10%）