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4. According to the neoclassical growth model, which statement below is **wrong**?
   a. The GDP growth rate for poor countries will be larger than the growth rate for rich countries.
   b. Finally, the GDP growth rate for developed countries will converge.
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6. The government has removed many restrictions on the direct investment from Taiwan to China in the last decades. Which one is **not** the effect of this de-regulation?
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1. Consider an open economy described by

   $Y = C + I + G + (X — M)$
   $C = 140 + 0.8 (Y – T), I = 600, G = 300, X = 600, M = 200 + 0.2Y$

   This economy adopts a proportional taxation system, i.e. $T = tY$. Moreover, the government in this economy always tries to have a balanced budget, i.e. $T = G$.
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3. 日前有團體發起反旺旺中時壟斷媒體的活動，認為政府應介入管制；而經濟學強調放任市場自由運作的重要性，試以經濟學相關理論，從廠商、消費者、社會的角度來論述此一事件。（20 分）

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所有的答案請不要寫在試題紙上，而要寫在答案卷上。在計算中，您可能會用到的機率分布數值如下：

$Z_{0.1401}$=1.08　$Z_{0.025}$=1.96　$Z_{0.0228}$=2　$Z_{0.02}$=2.05　$Z_{0.01}$=2.323　$Z_{0.001}$=3.09

$t_{16;0.025}$ =2.12　$t_{3;0.025}$ =3.182　$t_{21;0.025}$ =2.08　$t_{18;0.05}$ =1.734　$t_{4;0.025}$ =2.776

$F_{3,16;0.05}$ = 3.24　$F_{3,16;0.025}$ = 4.08　$F_{4,17;0.05}$ = 2.96　$F_{2,21;0.05}$ = 3.47

$\chi^2_{15;0.025}$=27.48　$\chi^2_{16;0.025}$=28.84　$\chi^2_{16;0.05}$=26.29　$\chi^2_{15;0.05}$=24.99

一、　單選題（每題 2 分，共有 25 題，合計 50 分）

(1) A graph showing the probability of accepting the lot as a function of the percent of defective in the lot is called
a.　a power curve
b.　a control chart
c.　an operating characteristic curve
d.　None of these alternatives is correct.

（2）Normal or natural variations in process outputs that are due purely to chance are
a.　common causes
b.　assignable causes
c.　control causes
d.　None of these alternatives is correct.

（3）In multiple regression analysis,
a.　there can be any number of dependent variables but only one independent variable
b.　there must be only one independent variable
c.　the coefficient of determination must be larger than 1
d.　there can be several independent variables, but only one dependent variable

（4）A measure of the effect of an unusual x value on the regression results is called
a.　Cook's D
b.　Leverage
c.　odd ratio
d.　unusual regression

（5）The adjusted multiple coefficient of determination is adjusted for
a.　the number of dependent variables
b.　the number of independent variables
c.　the number of equations
d.　detrimental situations

（6）An ANOVA procedure is applied to data obtained from 6 samples where each sample contains 20 observations. The degrees of freedom for the critical value of F are
a.　6 numerator and 20 denominator degrees of freedom
b.　5 numerator and 20 denominator degrees of freedom
c.　5 numerator and 114 denominator degrees of freedom
d.　6 numerator and 20 denominator degrees of freedom

（7）In hypothesis testing,
a. the smaller the Type I error, the smaller the Type II error will be
b. the smaller the Type I error, the larger the Type II error will be
c. Type II error will not be effected by Type I error
d. the sum of Type I and Ttype II errors must equal to 1

（8）For a two-tail test, the p-value is the probability of obtaining a value for the test statistic as
a. likely as that provided by the sample
b. unlikely as that provided by the sample
c. likely as that provided by the population
d. unlikely as that provided by the population

（9）For a lower tail test, the p-value is the probability of obtaining a value for the test statistic
a. at least as small as that provided by the sample
b. at least as large as that provided by the sample
c. at least as small as that provided by the population
d. at least as large as that provided by the population.

（10）The p-value is a probability that measures the support (or lack of support) for the
a. null hypothesis
b. alternative hypothesis
c. either the null or the alternative hypothesis
d. sample statistic

（11）If a hypothesis is rejected at the 5% level of significance, it
a. will always be rejected at the 1% level
b. will always be accepted at the 1% level
c. will never be tested at the 1% level
d. may be rejected or not rejected at the 1% level

（12）The degrees of freedom for a contingency table with 10 rows and 11 columns is
a. 100
b. 110
c. 21
d. 90

（13）Given an actual demand of 61, forecast of 58, and an α of .3, what would the forecast for the next period be using simple exponential smoothing?
a. 57.1
b. 58.9
c. 61.0
d. 65.5

（14）For the following time series, you are given the moving average forecast.

Time Period	Time Series Value	Moving Average Forecast
1	23	
2	17	
3	17	
4	26	19
5	11	20
6	23	18
7	17	20

The mean squared error equals
a. 0
b. 6
c. 41
d. 164

（15）Consider the following time series.

t	1	2	3	4
Y_i	4	7	9	10

What is the slope of the linear trend equation ?
a. 2.5
b. 2.0
c. 1.0
d. 1.25

（16）Referring to the time series in problem （15）, the forecast for period 5 is
a. 10.0
b. 2.5
c. 12.5
d. 4.5

（17）The sales of a grocery store had an average of $8,000 per day. The store introduced several advertising campaigns in order to *increase* sales. To determine whether or not the advertising campaigns have been effective in increasing sales, a sample of 64 days of sales was selected. It was found that the average was $8,300 per day. From past information, it is known that the standard deviation of the *population* is $1,200.
The correct null hypothesis for this problem is
a. $\mu \leqq 8000$
b. $\mu \geqq 8000$
c. $\mu = 8000$
d. $\mu \geqq 8250$

（18）Referring to problem (17), the p-value is closest to
a. 0.025
b. 0.01
c. 0.0228
d. 0.05

（19）Approximate the binomial probabilities $P(12 \leq X \leq 18, n = 50, p = 0.3)$ by the use of normal approximation.
a. 0.7805
b. 0.7596
c. 0.7206
d. 0.7198

（20）$H_0: \mu = 120$ and $H_1: \mu \neq 120$ are used to test whether a bath soap production process is meeting the standard output of 120 bars per batch. Use a 0.05 level of significance for the test and a planning value of 5 for the standard deviation. Now, if the mean output drops to 117 bars per batch, the firm wants to have a 98% chance of concluding that the standard production output is not being met. How large a sample should be selected?
a. 47
b. 48
c. 45
d. 44

（21）An insurance company selected samples of clients under 18 years of age and over 18 and recorded the number of accidents they had in the previous year. The results are shown below.

Under Age of 18
$n_1 = 500$
Number of accidents = 180

Over Age of 18
$n_2 = 600$
Number of accidents = 150

We are interested in determining if the accident proportions differ between the two age groups. Let p_u represent the proportion under and po the proportion over the age of 18. The null hypothesis is
a. $p_u - p_o \leqq 0$
b. $p_u - p_o \geqq 0$
c. $p_u - p_o \neq 0$
d. $p_u - p_o = 0$

（22）Continuing with problem （21）, the pooled proportion is
a. 0.305
b. 0.300
c. 0.027
d. 0.450

（23）Continued, what is the test statistic
a. 0.96
b. 1.96
c. 2.96
d. 3.96

（24）Having the results of problem （21）to （23）, the p-value is
a. less than 0.001
b. more than 0.10
c. 0.0228
d. 0.3

（25）The range of the Durbin-Watson statistic is between
a. -1 to 1
b. 0 to 1
c. -infinity to + infinity
d. 0 to 4

二、 計算題（共四題，合計 50 分）

（1）Shown below is a partial computer output from a regression analysis. 〔20分〕

	Coefficient	Standard Error
Constant	10.00	2.00
X_1	-2.00	1.50
X_2	6.00	2.00
X_3	-4.00	1.00

ANOVA

Source of Variation	Degrees of Freedom	Sum of Squares	Mean Square	F
Regression		60		
Error				
Total	19	140		

a. Use the above results and write the regression equation.
b. Compute the coefficient of determination and fully interpret its meaning.
c. At $\alpha = 0.05$, test to see if there is a relation between X_1 and Y.
d. At $\alpha = 0.05$, test to see if there is a relation between X_3 and Y.
e. Is the regression model significant? Perform an F test and let $\alpha = 0.05$.

（2）The following is the incomplete ANOVA table from a completely randomized design consisting of 3 treatments. 〔8分〕

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F
Between Treatments	390.58			
Within Treatments (Error)	158.4			
Total	548.98	23		

a. Using $\alpha = .05$, test to see if there is a significant difference among the means of the three populations. The sample sizes for the three treatments are equal.
b. If in Part a you concluded that at least one mean is different from the others, determine which means are different. The sample means are $\bar{x}_1 = 17.000$, $\bar{x}_2 = 21.625$, and $\bar{x}_3 = 26.875$. Use Fisher's LSD procedure and let $\alpha = .05$.

（3）A company attempts to evaluate the potential for a new bonus plan by selecting a sample of 4 salespersons to use the bonus plan for a trial period. The weekly sales volume before and after implementing the bonus plan is shown below. (For the following **matched samples**, let the difference "d" be d = after - before.) 〔12分〕

	Weekly Sales	
Salesperson	Before	After
1	48	44
2	48	40
3	38	36
4	44	50

a. State the hypotheses.
b. Compute the test statistic.
c. Use $\alpha = .05$ and test to see if the bonus plan will result in an **increase** in the mean weekly sales.

（4）Let $X_1, X_2, \ldots X_{16}$ be a random sample from a normal distribution $N(77, 5^2)$. Then, compute the probabilities below: 〔10 分〕
a. $P(77 < \overline{X} < 79.5)$
b. $P(S^2 < 45.8)$

請依題號順序作答，違者扣分。

1. Find the derivatives for the following functions. 20%

 i. $f(u) = \sqrt{u}e^{-u}$

 ii. $f(x) = \ln(x^2 + \pi)$

 iii. Find dy/dx where $x\sin y + y\cos x = 1$

 iv. Find dy/dx where $y = u(1-u)^3$ and $u = \dfrac{1}{3x-2}$

2. Sketch the function $f(x) = x^3 - 3x^2; -1 \le x \le 3$.　　　15 %
Indicate
 i.　　　the critical points,
 ii.　　the reflection point(s),
 iii.　　the global maxima and minima,
 iv.　　the increasing and decreasing and concavity of the function

3. Evaluate the following. 40 %

 i. $\int x^2 \ln x\, dx$　　ii. $\int_{1}^{\infty} \dfrac{dx}{5x+1}$　　iii. $\int x\sqrt{x+1}\, dx$　　iv. $\lim_{x \to 0} \dfrac{e^x - x - 1}{x^2}$

 v. $\int_{0}^{1} xf''(x)\, dx$ where f is twice differentiable with $f(0)=5$, $f(1)=4$, and $f'(1) = 1$.

 vi. $\int_{1}^{\infty} 5x^{-p}\, dx$, indicate the value of p so that the integral diverges.

 vii. $\int_{0}^{2}\int_{0}^{x} e^{x^2}\, dy\, dx$. and sketch the region of integration.

 viii.　Determine if the following sequences converge

 　a. $\sum_{n=1}^{\infty} \cos(\dfrac{1}{n})$　　b. $\sum_{n=1}^{\infty} \dfrac{1}{n^2+3}$　　c. $\sum_{n=1}^{\infty} \dfrac{1}{ne^n}$

4. By looking at their Taylor series, decide which of the following functions is the largest and which is the smallest, for small positive x.　15%

 i. $1 + \sin x$　　ii. $\cos x$　　iii. $\dfrac{1}{1-x^2}$

5. Find the median age in a country, using the age density function given by
$p(t) = 0.0015, 0 \le t \le 40;\ \ p(t) = 0.0262 - 0.00028t, 40 < t \le 93.3; 10\%$

(A median of a distribution density function f is a value T such that $\int_{-\infty}^{T} f(x)\, dx = 0.5$)

請於<u>答案卷</u>上作答

一、單選題 50%（每題兩分，不倒扣）

1. An employee who discovers and tries to put an end to a company's unethical, illegal, or socially irresponsible actions by publicizing them is called _____.
A) outside contractor
B) top management
C) whistle-blower
D) investor

2. Which of the following is NOT a typical part of a business plan?
A) a financial plan
B) a sales forecast
C) general description of the business concept
D) terms for credit purchases

3. In a _____, two or more organizations collaborate on a project for mutual gain, and each partner owns a share of the new enterprise.
A) vertical merger
B) professional corporation
C) joint venture
D) strategic alliance

4. In which international organization structure does a firm have greater control over foreign activities?
A) licensing arrangements
B) strategic alliances
C) exporting
D) agents

5. Statements of how organizations will achieve their purposes in the environments in which they conduct their business are called _____.
A) mission statements
B) intermediate goals
C) short-term goals
D) long-term goals

6. Departments linked to the production and sales of specific products are _____.
A) matrix departments
B) staff departments
C) line departments
D) organizational departments

7. Everyday social interactions among employees that transcend formal jobs and job interrelationships are called the _____.
A) formal organization
B) informal organization
C) production organization
D) gossip structure

8. Which of the following is a natural part of organizational growth?
A) entrepreneurship
B) retrenchment
C) job specialization
D) outsourcing

9. When a company turns out costumes in time for Halloween, it creates _____ utility.
A) ownership
B) time
C) place
D) form

10. Time-and-motion studies are associated with which theory of management?
A) two-factor theory
B) human relations theory
C) behavior theory
D) scientific management

11. Which statement is true regarding charismatic leadership?
A) Charismatic leadership ideas are unpopular among contemporary managers.
B) Taking over a leadership role from a charismatic leader is typically easier than following a leader lacking in charisma.
C) Ethical concerns about charismatic leadership trouble some people.
D) Many studies have attempted to test the impact of charismatic leadership.

12. At Ace Products, employees receive a fixed dollar amount for benefits, but they may choose between various health insurance, life insurance, disability insurance, and educational benefits through a(n) _____ plan.
A) equal employment
B) profit-sharing
C) cafeteria benefits
D) gain-sharing

13. Randy told Rob that an effective hiring process is important to value chain management because _____.
A) value chain management requires a diverse group of highly specialized employees
B) flexible job designs require flexible people to fill them
C) value chain management requires highly experienced and knowledgeable employees
D) employees need to have the knowledge and tools they need to do their jobs efficiently

14. The primary issue that motivated Taylor to create a more scientific approach to management was _____.
A) worker efficiency
B) worker absenteeism and turnover
C) worker effectiveness
D) workplace safety

15. Which of the following is <u>not</u> a reason why the division of labor enhances productivity?
A) It encourages labor-saving inventions.
B) It increases worker skill and dexterity.
C) It saves time lost in changing tasks.
D) It requires strict management control over worker time and motion.

16. The three essential managerial skills include _____.
A) technical, human, and empirical
B) human, empirical, and conceptual
C) technical, interpersonal, and controlling
D) technical, human, and conceptual

17. An innovative organizational culture is characterized by all of the following characteristics <u>except</u> _____.
A) freedom
B) conformity
C) debates
D) risk taking

18. Managers with a(n) _____ attitude view every foreign operation as different and hard to understand.
A) geocentric
B) polycentric
C) ethnocentric
D) transnational

19. The socioeconomic view is that management's social responsibility goes beyond making profits to include _____.
A) placing members of society on welfare
B) protecting and improving society's welfare
C) minimizing the welfare of society in exchange for profits
D) protecting and improving the organization's profits

20. When decision makers assess the likelihood of an event based on how closely it resembles other events or sets of events, they are using _____.
A) availability bias
B) framing bias
C) selective perception bias
D) representation bias

21. To a degree, an organization's commitment to quality and continuous improvement can differentiate it from competitors, but constant improvement and reliability of an organization's products and/or services may result in a competitive advantage that is _____.
A) weighted
B) sustainable
C) conservative
D) uncertain

22. According to the group behavior model, group size is an example of what factor of group determination of effectiveness?
A) external conditions
B) group structure
C) group processes
D) group tasks

23. Which of the following is <u>not</u> an internal force of change?
A) technology
B) strategy
C) workforce
D) employee attitudes

24. If a company is concerned with high member satisfaction, which of the following communication networks is best?
A) chain network
B) horizontal network
C) wheel network
D) all-channel network

25. Which of the following leadership styles describes a leader who provides little direction or support?
A) telling
B) selling
C) participating
D) delegating

二、簡答題 50%

1. 何謂企業永續能力 (sustainability)? (6%)
2. 20 世紀 80 年代以來, 全球化已成為一種現象和基本特徵。請問企業走向全球化的方式有哪 7 種? (21%)
3. 企業倫理 (business ethics)在組織中常被忽略,但卻是相當重要的議題.請問企業組織經理人該如何建立重視倫理的企業文化? (5%)
4. 請問企業經理人需要哪些技能? (9%)
5. 世界各國,各行各業都在強調 "創新" 的重要性.請問企業可從哪三方面著手激勵創新? (9%)

請於<u>答案卷</u>上作答
一、單選題 50%（每題 2 分，不倒扣）

1. Green Marketing encompasses a wide variety of business strategies and practices such as production process, product modification and

A) consumers have right to save products
B) packaging reduction
C) painting products the color green for better advertising
D) none of the above

2. Which of the following is the most significant disadvantage of franchising?
A) high startup costs
B) lengthy contracts
C) difficulty in obtaining financing
D) increased chance of failure

3. The roles of shareholders, directors, and other managers in corporate decision-making are called _____.
A) bylaws
B) corporate governance
C) articles of incorporation
D) partnership agreements

4. Which of the following types of payments are usually received by an exporter as an ongoing payment calculated as a percentage of the license holder's sales?
A) flat fees
B) royalties
C) direct investments
D) agent fees

5. The purpose of _____ strategy is to determine what business or businesses a company will own and operate.
A) functional
B) mission
C) corporate
D) business

6. _____ is the obligation employees have to their manager for the successful completion of an assigned task.
A) Centralization
B) Authority
C) Accountability
D) Span of control

7. Creating and maintaining the innovation and flexibility of a small business environment within the confines of a large, bureaucratic structure is referred to as _____.
A) process organization
B) basic structuring
C) intrapreneuring
D) extrapolating

8. Sears can calculate the profits it generates from appliances, home furnishings, and every other department in the store if it treats each department as a _____.
A) profit center
B) economic unit
C) cost center
D) centralized unit

9. Which of the following is true regarding quality management?
A) Because it sets the tone for everything that follows, planning for quality is the most important stage in quality management
B) In controlling for quality, managers should establish specific standards and measurements.
C) TQM focuses on production to ensure that products are produced according to specifications..
D) TQM is sometimes called quality insurance.

10. _____ are industrial engineering techniques applied to each facet of a job in order to determine how to perform it most efficiently.
A) Human relations
B) Inducement exercises
C) Job analyses
D) Time-and-motion studies

11. At Nordic Enterprises, Johann Ruud is most effective in carrying out the management of daily tasks that must be performed. Which of the following approaches most likely characterizes Johann's management style?
A) situational
B) transactional
C) transformational
D) charismatic

12. Accessing a Web site in search of magazine articles about a product before its purchase is an example of what part of the consumer buying process?
A) post-purchase evaluation
B) purchasing the product
C) information seeking
D) evaluation of alternatives

13. The sales and marketing departments are planning to undertake a large departmental reorganization. This project will require hundreds of individual activities, some of which must be done simultaneously and some of which can't begin until preceding activities have been completed. How might managers schedule such a complex project?
A) load chart
B) PERT network analysis
C) Gantt chart
D) collaborative planning and forecasting

14. Fayol was interested in studying _____, whereas Taylor was interested in studying _____.
A) administrative theory; macroeconomics
B) all managers; first-line managers
C) bureaucratic structures; chains of command
D) senior managers; effective managers

15. Open organizations are those that _____.
A) interact with their environments
B) are influenced by their environments, but do not interact with them
C) consist of interdependent parts
D) operate independently of their environments

16. Many of Mintzberg's roles align with the basic functions of management. For example, the _____ role is a part of planning.
A) liaison
B) leader
C) figurehead
D) resource allocation

17. An organization's specific environment _____.
A) is unique and changes with conditions
B) is determined by the top level of management
C) is the same regardless of the organization's age
D) must be quantified to establish its existence

18. Successful global management requires an attitude that is best described as _____.
A) ethnocentric
B) polycentric
C) parochial
D) geocentric

19. According to the classical view, corporate managers should _____.
A) maximize value to shareholders
B) maximize value to stockholders
C) emphasize charitable donations
D) represent society whenever possible

20. Which of the following is not a valid assumption about rationality?
A) The problem is clear and unambiguous.
B) Preferences are clear.
C) A single, well-defined goal is to be achieved.
D) Preferences are constantly changing.

21. Using a single objective can result in unethical practices because managers _____.
A) will manipulate the outcomes reported to assure that the one objective is achieved
B) want to satisfy the stockholders of the organization
C) will ignore other important parts of their jobs in order to look good on that one measure
D) will use overtime to accomplish that single objective without reporting it

22. When the span of control _____, employee performance suffers due to a lack of time, leadership, and support.
A) remains too small
B) becomes less cost efficient
C) becomes too large
D) becomes moderate

23. Which of the following represents the relationship between organizational culture and change?
A) Culture and change are naturally compatible.
B) Culture tends to be very resistant to change.
C) Culture can never be purposely changed.
D) Culture can change in months but not weeks.

24. The cognitive dissonance theory proposed that the desire to reduce dissonance is determined by _____.
A) importance, influence, and rewards
B) awareness, status, and punishments
C) stability, position, and power
D) economics, politics, and organizational structure

25. The job characteristics model (JCM) identifies _____ as the degree to which a job has substantial impact on the lives or work of other people.
A) task identity
B) task significance
C) skill variety
D) autonomy

二、簡答題 50%

1. 請問企業經理人需要哪些技能? (9%)
2. 企業決策影響企業策略執行與成功,然而各企業之決策各不相同.請問其決策風格分為哪兩種? (6%)
3. 世界各國,各行各業都在強調 "創新" 的重要性. 請問企業可從哪三方面著手激勵創新? (9%)
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