I. Questions 1-10 are incomplete sentences. Four words or phrases, marked (a), (b), (c), (d) are given beneath each sentence. You are to choose the one word or phrase that best completes the sentence. 25%

1. In order to __________ your E-mail messages, you must type in your password.
   (a) access (b) accessible (c) accessed (d) accessibility

2. Health care __________ have been rising but so has the quality.
   (a) cost (b) costs (c) costing (d) costly

3. __________ spending is probably going to maintain this upward trend throughout the year.
   (a) Consume (b) Consumer (c) Consuming (d) Consumed

4. The architecture of New York __________ its importance as a center of world trade.
   (a) realizes (b) inscribes (c) remembers (d) reflects

5. I am honored to accept this award __________ our department director.
   (a) in light of (b) because of (c) on account of (d) on behalf of

6. Economists watch the business cycle as it goes through its various __________.
   (a) segments (b) phases (c) sectors (d) divisions

7. I’m sorry, but he is not __________ to his trust fund yet.
(a) authorized  (b) allowed  (c) accessed  (d) entitled
8. The banks are very willing to give loans for home _____________.
   (a) impropriety  (b) improvements  (c) improvisation  (d) impulse
9. Only ____________ families were invited to the gala event.
   (a) opulent  (b) affluent  (c) abundant  (d) expensive
10. Ms. Yen’s contribution to the company has been _____________.
    (a) industrial  (b) invaluable  (c) indigenous  (d) inclement

II. In Questions 11-22, each sentence has four words or phrases underlined. The four
underlined parts of the sentence are marked (a), (b), (c), (d). You are to identify the one
underlined word or phrase that should be corrected or rewritten. 30%
11. Those who arrange the office should concentrate (a) on creating a space that is conducive
   (b) to work, free of disrupting (c), and unhampere (d) by nonessential foot traffic.
12. Sometimes circumstantial (a) force a supervisor (b) to become locked into (c) a
    commitment that is hard to get out of (d).
13. Luckily, our car insurance establishments (a) the time period within which they provide
    assistance, determines (b) the repair shops we can use, sets a free structure for payment (c),
    and provides a forum for resolving (d) billing errors.
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    agency (c), causing a series of problems over (d) the weeks that followed.
15. Solar (a) technology is being development (b) around the world to keep pace (c) with the
    energy needs of developing countries (d).
16. Feared inflation (a), investors are not as willing (b) to make the bold moves that have
    characterized (c) the last six months (d) of stock market activity.
17. Our storeroom is full of software (a) programs that are either duplicates (b), not
    compatibility (c), or those that no one can figure out (d) how to use.
18. Chefs draw from cultural themes (a) and cooking methods (b) of many national origins,
    which they incorporation (c) into meals that expand the tastes that one is accustomed (d)
    to.
19. A plan to reduce (a) the physical (b) space allotted to each employee is a recur (c)
    idea that is usually initiated (d) by a new manager.
20. Employers recruit (a) candidacies (b) whose academic accomplishments (c) are
    commensurate (d) with the nature and demands of a job.
21. The new employee looked forward to (a) rapid promoted (b) through dedication (c) and
    high productivity (d).
22. Before boarding (a), check the valid (b) of your passport, that you have an extra copy of
    your itinerary (c), and that you are not carrying any prohibited (d) items.
Questions 23-26 refer to the following investment information.

One out of every six Americans invests in stocks and bonds. And every single one of them is trying to find out which investment is best. Ideally speaking, the best advice would come from a person who knew everything about every company: what the products are, how big the demand will be, what the overhead is, etc. The list could go on for pages.

That would be the ideal picture. The other end of the spectrum would be advice based on hearsay.

The truth is, if you’re going to take control of your financial investments, then either you have to do the research yourself, or find someone else you can rely on. Chances are you don’t really have time to do the research. You’re too busy making the money to invest. So how do you know which person or company to trust? How do you know if they are doing their homework?

Do some research. Ask some questions. You see, a good financial advisor will tell you how he comes up with his conclusions. He digs for the data. He finds out about a company’s management. He visits factories. He looks at the potential for demand, watches the local political climate, etc.

So, if you really want to take control, you can, but you have to be willing to ask the questions. A good financial advisor is more than willing to tell you why he makes the decisions he does.

23. What is the topic of this passage?
(a) Which companies to invest in
(b) How to choose a financial advisor
(c) How politics affect company profits
(d) How to research stocks and bonds

24. What is the purpose of this notice?
(a) To watch stockholders
(b) To encourage investment
(c) To advise inventors
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25. What makes a good financial advisor?
(a) Access to multiple stocks and bonds
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(c) A master’s degree in economics
(d) Knowledge of internal and external factors

26. How could someone manage their investments?
(a) Do research
(b) Get advice from another advisor
Questions 27-29 refer to the following article.

The field of engineering can be broken down into various specialties.

Civil engineering is the branch that deals with the construction of roads, bridges, railroads and waterways. Mechanical engineering deals with the models, designs and materials which are used in the construction of the various types of machinery. Electrical engineering deals with the creation and distribution of electrical energy. Other areas of engineering include chemical, aeronautical and military.

27. What type of engineer would the highway department of a town most likely hire?
   (a) A mechanical engineer
   (b) A civil engineer
   (c) A chemical engineer
   (d) An electrical engineer

28. A manufacturer of labor-saving devices and equipment would most likely hire which kind of engineer?
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29. What would an electrical engineer be familiar with?
   (a) Rock drilling equipment
   (b) The nature of various building materials
   (c) Power lines
   (d) Surveying techniques

Questions 30-33 refer to the following notice.

Please be advised of the following changes in international travel to and from Montreal. Check your airline ticket carefully or ask your ticket agent if you are returning to Montreal on or after September 20. Starting September 20, several airlines that offer scheduled international flights will start operating their services out of Dorval airport. All charter flights, both overseas and to the United States, will leave from Dorval airport. So, if you are already booked for a flight during that period, it is possible that you will be leaving from Dorval and returning to Mirabel – or vice versa. On your airline ticket, the code “VRV” designates Mirabel and “TMT” designates Dorval. If your return flight is landing at a different airport from your departing, it would be better to use public transportation rather than drive yourself. You might find yourself at one airport and your car parked at another. A convenient shuttle
bus connects Dorval and Mirabel and the city center with regular service from 4 a.m. to midnight, seven days a week.

30. Why was this notice issued?
   (a) Because of construction work at Dorval airport
   (b) Because of a change in international flight paths
   (c) Because of the additional services being offered
   (d) Because of a change in the bus schedule

31. What are customers being asked to do?
   (a) To try to book flights before September 20
   (b) To take chartered flights when possible
   (c) To use parking near the airport
   (d) To review their tickets carefully

32. How can a customer know which airport he/she is landing in?
   (a) Arrivals are at the same airport as departures
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   (c) Charter flight customers land in Dorval, others in Mirabel
   (d) Airport ticket agents will provide updated reports

33. What advice is given regarding transportation to and from the airports?
   (a) To wait for arriving passengers at the airport of departure
   (b) To take advantages of the shuttle bus service
   (c) To leave the car at the airport you depart from
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Questions 34-37 refer to the following notice.

The main topic of last week’s meeting was suggestion boxes. All departments in the factory are to have conspicuously labeled suggestion boxes. At the meeting, it was obvious that the employees’ suggestions would not only save the company money, but would do much to lift morale and streamline production. To further this process, the suggestion box idea was adopted.

Forms for the suggestions are to be kept inside the box. When employees fill out a form, they should clearly state which situation they are trying to improve, list all pertinent data, and then offer a solution, stating how the company would benefit. Forms will then be collected each month by the department heads, who will then pass them on to the plant manager. Where necessary, the plant manager will consult with the respective departments to gather any relevant data. If applicable, the matter will then be passed on to the finance department for approval.

A bonus will be paid to employees for any suggestions that are adopted. The amount of the bonus will be commensurate with the savings to the company.
34. What is the topic of the report?
   (a) A meeting
   (b) Morale
   (c) Production
   (d) A new system

35. Why has the company decided to use suggestion boxes?
   (a) To take advantage of the employees' ideas
   (b) To minimize complaints
   (c) To take some of the burden off department heads
   (d) To appease the finance department

36. What is the plant manager supposed to do?
   (a) Review each suggestion with the employee
   (b) Issue bonus checks
   (c) Route all suggestions through the finance department
   (d) Compile data from other areas

37. What, specifically, should employees include in their suggestions?
   (a) The names of troublesome coworkers
   (b) The duration of the problem
   (c) What they would consider to be an appropriate bonus
   (d) A description of the point they are trying to remedy

**Questions 38-40 refer to the following announcement.**

Part of the water treatment facilities on the Yangtze River will be undergoing modernization. This will not affect the potability of your water, but you may notice a slight rust discoloration. There is simply a result of minute amounts of residue in the pipes. In addition, you may notice that the water pressure is diminished. This is a result of shutting down half of the facility. This was necessary for the installation of the latest, state-of-the-art equipment, which will filter out 99% of all foreign and toxic substances.

The new system will increase filtration threefold and produce the cleanest water of any city in Asia. Installation should be complete within two weeks time. Should you have any questions or concerns, please feel free to contact the Yushu Water Department. Brochures explaining the process and the new technology being applied are available to all citizens affected by the change. We thank you for your patience.

38. What is happening at the water treatment facility?
   (a) Water is getting polluted.
   (b) Equipment is being updated.
   (c) A dam is being built.
   (d) A new alarm system is being installed.
39. What changes will customers notice in this two-week period?
   (a) There will be intermittent changes in water pressure.
   (b) The water will have a rusty taste.
   (c) The color will change.
   (d) The odor will diminish.

40. How is the Yushu Water Department helping?
   (a) It is undertaking an educational program.
   (b) Its crew is working overtime to shorten installation time.
   (c) It is providing free potable water until the work is complete.
   (d) It is conducting tours to show off the new technology.
1. Find mean and moment generating function of following distributions. (20%)

(a) \( f(x) = \frac{x^k e^{-\lambda}}{k!} \quad x = 0, 1, 2, \ldots \).

(b) \( f(x) = \frac{1}{\sqrt{16\pi}} x^{1/2} \exp\{-x/2\}, \quad x \geq 0 \).

2. Suppose that the conditional distribution of \( Y \) given \( X = x \) is Poisson with mean \( E(Y|x) = x \), \( Y|x \sim \text{Poisson}(x) \). However, \( x \) itself is a random variable with probability density function given by

\[
    f(x) = \begin{cases} 
    e^{-x}, & x \geq 0 \\
    0, & \text{elsewhere}. 
    \end{cases}
\]

Find \( E(Y) \) and \( Var(Y) \). (20%)

3. Suppose that two events \( A \) and \( B \) are independent. Show that \( A^c \) and \( B^c \) are independent where \( A^c \) is the complement of \( A \). (10%)

4. Customers arrive in a certain shop according to an approximate Poisson process at a mean rate of 20 per hour. (20%)

(a) What is the probability that the shopkeeper will have to wait more than 5 minutes for the arrival of the first customer?

(b) What are the mean and variance of the waiting time for the first three customers arrivals?

5. Let \( X_1, X_2, \ldots, X_n \) be a random sample from a distribution with p.d.f.

\[
    f(x; \theta) = \left( 1/\theta \right) \exp\{-x/\theta\}, \quad 0 < x < \infty, \quad 0 < \theta < \infty.
\]

(a) Find the maximum likelihood estimator \( \hat{\theta} \) of \( \theta \).

(b) Is \( \hat{\theta} \) a consistent estimator of \( \theta \)?

(c) Derive the most powerful test for \( H_0 : \theta = \theta_0 \) versus \( H_a : \theta = \theta_a \) where \( \theta_a < \theta_0 \).
You can use Chinese or English to answer the following questions.

1. What are the purposes of the job enlargement and job enrichment? Contrast the meanings of the terms job enlargement and job enrichment. (15%)

2. What are the elements of supply chain management? What is the need to manage a supply chain? And what are some potential benefits of doing so? (15%)

3. Use Johnson’s rule to obtain the optimum sequence for processing the jobs shown through the following work centers A and B. (15%)

<table>
<thead>
<tr>
<th>Job</th>
<th>Job Time (hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Work center A</td>
</tr>
<tr>
<td>I</td>
<td>2.6</td>
</tr>
<tr>
<td>II</td>
<td>3.7</td>
</tr>
<tr>
<td>III</td>
<td>2.3</td>
</tr>
<tr>
<td>IV</td>
<td>5.6</td>
</tr>
<tr>
<td>V</td>
<td>4.4</td>
</tr>
</tbody>
</table>

4. A small manufacturing firm uses roughly powder 4900 pounds a year. Currently the firm purchases 300 pounds per order and pays $3 per pound. The supplier has just announced that orders of 900 pounds or more will be filled at a price of $2 per pound. The manufacturing firm incurs a cost of $30 each time it submits an order and assigns an annual holding cost of 10 percent of the purchase price per pound. If the supplier offered the discount at 1,500 pounds instead of 1,000 pounds, what order size would minimize total cost? (15%)
5. You must decide whether to make or buy a certain item in the production of machines cost and volume estimates are as follows: (20%)

<table>
<thead>
<tr>
<th></th>
<th>make</th>
<th>buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual fixed cost</td>
<td>1800000</td>
<td>None</td>
</tr>
<tr>
<td>Variable cost / unit</td>
<td>100</td>
<td>140</td>
</tr>
<tr>
<td>Annual volume (unit)</td>
<td>16000</td>
<td>16000</td>
</tr>
</tbody>
</table>

a. Should your firm buy or make this item?
b. There is a possibility that volume could change in future. At what volume would the manager be indifferent between making and buying?

6. Using the information contained in the following table, do each of the following: (20%)

<table>
<thead>
<tr>
<th>Task</th>
<th>Immediate Follower</th>
<th>Take Time (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>X</td>
<td>10</td>
</tr>
<tr>
<td>B</td>
<td>A</td>
<td>11</td>
</tr>
<tr>
<td>C</td>
<td>B</td>
<td>5</td>
</tr>
<tr>
<td>D</td>
<td>B</td>
<td>4</td>
</tr>
<tr>
<td>E</td>
<td>A</td>
<td>12</td>
</tr>
<tr>
<td>F</td>
<td>C, D</td>
<td>3</td>
</tr>
<tr>
<td>G</td>
<td>F</td>
<td>7</td>
</tr>
<tr>
<td>H</td>
<td>E</td>
<td>11</td>
</tr>
<tr>
<td>I</td>
<td>G, H</td>
<td>3</td>
</tr>
</tbody>
</table>

a. Draw a precedence diagram.
b. Assuming an eight-hour workday. Compute the cycle time needed to obtain an output of 240 units per day.
c. Determine the minimum number of workstations required.
d. Assign tasks to workstations according to the greatest number of following tasks rule.
I. Questions 1-10 are incomplete sentences. Four words or phrases, marked (a), (b), (c), (d) are given beneath each sentence. You are to choose the one word or phrase that best completes the sentence. 25%

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   (a) It is undertaking an educational program.
   (b) Its crew is working overtime to shorten installation time.
   (c) It is providing free potable water until the work is complete.
   (d) It is conducting tours to show off the new technology.
請將所有答案寫在答案卷上

一、簡答題 (共 52 分)
1. About the evolution of managerial roles and management history, list 6 of the 10 managerial roles developed by Mintzberg. And list 9 of Fayol's 14 principles of management. (15 分)
2. Discuss the difference between efficiency and effectiveness, and include a specific example to support each concept. (4)
3. Explain what are the processes and components of expectancy theory. (7 分)
4. List and discuss four dimensions of a learning organization. (6 分)
5. List four traits from the Traits theory associated with Leadership. (6 分)
7. 任何企業要存活一定要創造價值，換言之，企業存在的基本使命在於價值的創造。關於創造的紀律，已逝的 Peter F. Drucker (1985) 主張：「有些創新確實是源自於靈光乍現，然而絕大多數的創新，尤其是成功的創新，都是起因於意識清晰且目標明確地搜尋「只在少數情境下才找得到的」創新機會」，因此請你舉出四種創新機會的來源？(4 分)
8. 依據『選擇題』中的「刺蝟與狐狸」寓言，請顛析你自己的個性與生涯發展。 (4 分)

二、解釋名詞 (每題 5 分)
3. Collins, J. (2001) Good to Great—Why Some Companies Make the Leap...and Others Don't. 或中譯本「從 A 到 A+」中，提及「第五級領導」 (Level 5 leadership)，請解釋？
請將所有答案寫在答案卷上

三、選擇題(每題2分)
1. 根據中國時報2005/06/11 報導：「國票金控董事長林華德遭金管會解任，但國票金控子公司國際票券公司臨時董事會通過林華德可領取退休金及廿個基數功績金計約一千萬餘元，被指「自肥」。財政部昨已委由國票金控公司監察人官股代表的農銀，正式行文國票金控提出異議，對此疑點未釐清前，不準執行」，利用此例子可闡述：
   A. 高階管理者的技術能力     B. 高階管理者的衝突協調角色
   C. 高階管理者的道德與責任   D. 高階管理者的概念性能力
2. 「為何阿里山的神木這麼大？」此敘述可闡述
   A. 種子的品質       B. 人類的照護   C. 政府的政策   D. 環境的保護
3. General administrative theorists devoted their efforts to _____________.
   A. making the overall organization more effective
   B. developing mathematical models to improve management
   C. improving the productivity and efficiency of workers
   D. emphasizing the study of human behavior in organizations
4. One outcome of the Hawthorne studies could be described by which of the following statements?
   A. Social norms or group standards are the key determinants of individual work behavior.
   B. Money is more important than the group on individual productivity.
   C. Behavior and employee sentiments are inversely related.
   D. Security is relatively unimportant
5. 台灣積體電路公司在國際市場上的成功，歸功於何種經營管理模式的堅持？
   A. 設立海外子公司   B. 合資   C. 專業代工   D. 購併
6. The three essential managerial skills put forth by Katz include ____________.
   A. technical, human, and empirical                B. human, empirical, and conceptual
   C. technical, interpersonal, and controlling   D. technical, human, and conceptual
7. Which of the following is not true concerning the difference between managers and leaders?
   A. managers are appointed
   B. managers influence through informal means
   C. leaders may be appointed
   D. leaders can influence beyond formal authority
8. Mintzberg's 10 management roles can be grouped into ____________.
   A. interpersonal relationships, information transfer, and decision making
   B. interpersonal relationships, leadership, and decision making
   C. leadership, decision making, and planning
   D. information transfer, decision making, and resource allocation
9. 台塑集團的管理哲學是合理化地追求成本的降低，下列何種不是台塑堅持的管理模式？
   A．管理靠制度
   B．制度靠員工
   C．制度靠表單
   D．管理靠最佳實務

10. An organization's culture is ____________.
   A．represented in organizational meetings by the top manager of the organization
   B．represented by a common perception held by interest groups that watch the organization
   C．represented by a common perception held by the organization's members
   D．changed when the organization is purchased by new owners

11. Which of the following is a fundamental contribution of scientific management?
   A．It could raise a country's standard of living.
   B．It provided for management control, a basic management function.
   C．It provided the basis for the coming rise of unionization.
   D．It led to lower overall wages, thereby increasing organizational profitability.

12. Transnational corporations ____________.
   A．maintain operations in multiple counties, but do not allow managers in each country to make their own decisions
   B．utilize ethnocentric attitudes in financial decisions, but favor polycentric views in human resources issues
   C．utilize decentralization to make decisions in management in local countries
   D．follow the tastes, preferences, and values of the home country

13. Which of the following is the basic difference between multinational corporations and transnational corporations?
   A．Multinational corporations typically do business with more countries than transnational corporations do.
   B．Transnational corporations are run by the parent company but must be owned by a local, national company.
   C．Decision making in transnational corporations takes place locally rather than from the home country.
   D．Multinational corporations pay more in taxes than transnational corporations do

14. 柏林(Isaiah Berlin)在名著『刺蝟與狐狸』中，根據古希臘寓言：「狐狸知道很多事情，但刺蝟只知道一件大事」。因此下列何種不是『刺蝟原則』的解釋？
   A．儘管狐狸比較詭計多端，能想出無數複雜的策略來偷襲刺蝟，但刺蝟卻總是獲勝或全身而退。
   B．刺蝟型的人不管外面的世界多麼複雜，都能把所有的挑戰和難題單純化。
   C．刺蝟型的人一旦掌握了單純的指導原則，就始終如一，徹底執行。
   D．刺蝟型的人頭腦簡單，因此讓一心多用、詭計多端的狐狸佔了上風而贏得了勝利。
1. Find mean and moment generating function of following distributions. (20%)  
(a) \( f(x) = \frac{x^k e^{-\lambda}}{k!} \) \( x = 0, 1, 2, \ldots \)  
(b) \( f(x) = \frac{1}{\sqrt{16\pi}} x^{1/2} \exp\{-x/2\} \), \( x \geq 0 \).

2. Suppose that the conditional distribution of \( Y \) given \( X = x \) is Poisson with mean \( E(Y|X=x) = x \), \( Y|X \sim \text{Poisson}(x) \). However, \( X \) itself is a random variable with probability density function given by  
\[ f(x) = \begin{cases} e^{-x}, & x \geq 0 \\ 0, & \text{elsewhere.} \end{cases} \]  
Find \( E(Y) \) and \( Var(Y) \). (20%)  

3. Suppose that two events \( A \) and \( B \) are independent. Show that \( A^c \) and \( B \) are independent where \( A^c \) is the complement of \( A \). (10%)  

4. Customers arrive in a certain shop according to an approximate Poisson process at a mean rate of 20 per hour. (20%)  
(a) What is the probability that the shopkeeper will have to wait more than 5 minutes for the arrival of the first customer?  
(b) What are the mean and variance of the waiting time for the first three customers arrivals?  

5. Let \( X_1, X_2, \ldots, X_n \) be a random sample from a distribution with p.d.f. \( f(x; \theta) = \frac{1}{\theta} \exp\{-x/\theta\}, \ 0 < x < \infty, \ 0 < \theta < \infty \). (30%)  
(a) Find the maximum likelihood estimator \( \hat{\theta} \) of \( \theta \).  
(b) Is \( \hat{\theta} \) a consistent estimator of \( \theta \)?  
(c) Derive the most powerful test for \( H_0: \theta = \theta_0 \) versus \( H_a: \theta = \theta_a \) where \( \theta_a < \theta_0 \).
I. Questions 1-10 are incomplete sentences. Four words or phrases, marked (a), (b), (c), (d) are given beneath each sentence. You are to choose the one word or phrase that best completes the sentence. 25%

1. In order to __________ your E-mail messages, you must type in your password.
   (a) access    (b) accessible    (c) accessed    (d) accessibility

2. Health care __________ have been rising but so has the quality.
   (a) cost    (b) costs    (c) costing    (d) costly

3. __________ spending is probably going to maintain this upward trend throughout the year.
   (a) Consume   (b) Consumer    (c) Consuming    (d) Consumed

4. The architecture of New York __________ its importance as a center of world trade.
   (a) realizes   (b) inscribes    (c) remembers    (d) reflects

5. I am honored to accept this award __________ our department director.
   (a) in light of    (b) because of    (c) on account of    (d) on behalf of

6. Economists watch the business cycle as it goes through its various __________.
   (a) segments   (b) phases   (c) sectors    (d) divisions

7. I’m sorry, but he is not __________ to his trust fund yet.
8. The banks are very willing to give loans for home _________.
   (a) authorized (b) allowed (c) accessed (d) entitled

9. Only ________ families were invited to the gala event.
   (a) opulent (b) affluent (c) abundant (d) expensive

10. Ms. Yen’s contribution to the company has been _________.
    (a) industrial (b) invaluable (c) indigenous (d) inclement

II. In Questions 11-22, each sentence has four words or phrases underlined. The four
underlined parts of the sentence are marked (a), (b), (c), (d). You are to identify the one
underlined word or phrase that should be corrected or rewritten. 30%

11. Those who arrange the office should concentrate (a) on creating a space that is conducive
    (b) to work, free of disrupting (c), and unhampred (d) by nonessential foot traffic.

12. Sometimes circumstantial (a) force a supervisor (b) to become locked into (c) a
    commitment that is hard to get out of (d).

13. Luckily, our car insurance establishments (a) the time period within which they provide
    assistance, determines (b) the repair shops we can use, sets a free structure for payment (c),
    and provides a forum for resolving (d) billing errors.

14. The new accountant had erroneously (a) filed all of the taxes reports (b) with the wrong
    agency (c), causing a series of problems over (d) the weeks that followed.

15. Solar (a) technology is being development (b) around the world to keep pace (c) with the
    energy needs of developing countries (d).

16. Feared inflation (a), investors are not as willing (b) to make the bold moves that have
    characterized (c) the last six months (d) of stock market activity.

17. Our storeroom is full of software (a) programs that are either duplicates (b), not
    compatibility (c), or those that no one can figure out (d) how to use.

18. Chefs draw from cultural themes (a) and cooking methods (b) of many national origins,
    which they incorporation (c) into meals that expand the tastes that one is accustomed (d)
    to.

19. A plan to reduce (a) the physical (b) space allotted to each employee is a recurs (c) idea
    that is usually initiated (d) by a new manager.

20. Employers recruit (a) candidacies (b) whose academic accomplishments (c) are
    commensurate (d) with the nature and demands of a job.

21. The new employee looked forward to (a) rapid promoted (b) through dedication (c) and
    high productivity (d).

22. Before boarding (a), check the valid (b) of your passport, that you have an extra copy of
    your itinerary (c), and that you are not carrying any prohibited (d) items.
Questions 23-26 refer to the following investment information.

One out of every six Americans invests in stocks and bonds. And every single one of them is trying to find out which investment is best. Ideally speaking, the best advice would come from a person who knew everything about every company: what the products are, how big the demand will be, what the overhead is, etc. The list could go on for pages.

That would be the ideal picture. The other end of the spectrum would be advice based on hearsay.

The truth is, if you’re going to take control of your financial investments, then either you have to do the research yourself, or find someone else you can rely on. Chances are you don’t really have time to do the research. You’re too busy making the money to invest. So how do you know which person or company to trust? How do you know if they are doing their homework?

Do some research. Ask some questions. You see, a good financial advisor will tell you how he comes up with his conclusions. He diggs for the data. He finds out about a company’s management. He visits factories. He looks at the potential for demand, watches the local political climate, etc.

So, if you really want to take control, you can, but you have to be willing to ask the questions. A good financial advisor is more than willing to tell you why he makes the decisions he does.

23. What is the topic of this passage?
   (a) Which companies to invest in
   (b) How to choose a financial advisor
   (c) How politics affect company profits
   (d) How to research stocks and bonds

24. What is the purpose of this notice?
   (a) To watch stockholders
   (b) To encourage investment
   (c) To advise inventors
   (d) To support independent business

25. What makes a good financial advisor?
   (a) Access to multiple stocks and bonds
   (b) A background in politics
   (c) A master’s degree in economics
   (d) Knowledge of internal and external factors

26. How could someone manage their investments?
   (a) Do research
   (b) Get advice from another advisor
Questions 27-29 refer to the following article.

Civil engineering is the branch that deals with the construction of roads, bridges, railroads and waterways. Mechanical engineering deals with the models, designs and materials which are used in the construction of the various types of machinery. Electrical engineering deals with the creation and distribution of electrical energy. Other areas of engineering include chemical, aeronautical and military.

27. What type of engineer would the highway department of a town most likely hire?
   (a) A mechanical engineer
   (b) A civil engineer
   (c) A chemical engineer
   (d) An electrical engineer

28. A manufacturer of labor-saving devices and equipment would most likely hire which kind of engineer?
   (a) A mechanical engineer
   (b) A military engineer
   (c) A chemical engineer
   (d) A civil engineer

29. What would an electrical engineer be familiar with?
   (a) Rock drilling equipment
   (b) The nature of various building materials
   (c) Power lines
   (d) Surveying techniques

Questions 30-33 refer to the following notice.

Please be advised of the following changes in international travel to and from Montreal. Check your airline ticket carefully or ask your ticket agent if you are returning to Montreal on or after September 20. Starting September 20, several airlines that offer scheduled international flights will start operating their services out of Dorval airport. All charter flights, both overseas and to the United States, will leave from Dorval airport. So, if you are already booked for a flight during that period, it is possible that you will be leaving from Dorval and returning to Mirabel – or vice versa. On your airline ticket, the code “VRV” designates Mirabel and “TMT” designates Dorval. If your return flight is landing at a different airport from your departing, it would be better to use public transportation rather than drive yourself. You might find yourself at one airport and your car parked at another. A convenient shuttle
bus connects Dorval and Mirabel and the city center with regular service from 4 a.m. to midnight, seven days a week.

30. Why was this notice issued?
(a) Because of construction work at Dorval airport
(b) Because of a change in international flight paths
(c) Because of the additional services being offered
(d) Because of a change in the bus schedule

31. What are customers being asked to do?
(a) To try to book flights before September 20
(b) To take chartered flights when possible
(c) To use parking near the airport
(d) To review their tickets carefully

32. How can a customer know which airport he/she is landing in?
(a) Arrivals are at the same airport as departures
(b) Tickets indicate destination airport
(c) Charter flight customers land in Dorval, others in Mirabel
(d) Airport ticket agents will provide updated reports

33. What advice is given regarding transportation to and from the airports?
(a) To wait for arriving passengers at the airport of departure
(b) To take advantages of the shuttle bus service
(c) To leave the car at the airport you depart from
(d) To park only in designated areas

**Questions 34-37** refer to the following notice.

The main topic of last week's meeting was suggestion boxes. All departments in the factory are to have conspicuously labeled suggestion boxes. At the meeting, it was obvious that the employees' suggestions would not only save the company money, but would do much to lift morale and streamline production. To further this process, the suggestion box idea was adopted.

Forms for the suggestions are to be kept inside the box. When employees fill out a form, they should clearly state which situation they are trying to improve, list all pertinent data, and then offer a solution, stating how the company would benefit. Forms will then be collected each month by the department heads, who will then pass them on to the plant manager. Where necessary, the plant manager will consult with the respective departments to gather any relevant data. If applicable, the matter will then be passed on to the finance department for approval.

A bonus will be paid to employees for any suggestions that are adopted. The amount of the bonus will be commensurate with the savings to the company.
34. What is the topic of the report?
   (a) A meeting
   (b) Morale
   (c) Production
   (d) A new system

35. Why has the company decided to use suggestion boxes?
   (a) To take advantage of the employees’ ideas
   (b) To minimize complaints
   (c) To take some of the burden off department heads
   (d) To appease the finance department

36. What is the plant manager supposed to do?
   (a) Review each suggestion with the employee
   (b) Issue bonus checks
   (c) Route all suggestions through the finance department
   (d) Compile data from other areas

37. What, specifically, should employees include in their suggestions?
   (a) The names of troublesome coworkers
   (b) The duration of the problem
   (c) What they would consider to be an appropriate bonus
   (d) A description of the point they are trying to remedy

Questions 38-40 refer to the following announcement.

Part of the water treatment facilities on the Yangtze River will be undergoing modernization. This will not affect the potability of your water, but you may notice a slight rust discoloration. There is simply a result of minute amounts of residue in the pipes. In addition, you may notice that the water pressure is diminished. This is a result of shutting down half of the facility. This was necessary for the installation of the latest, state-of-the-art equipment, which will filter out 99% of all foreign and toxic substances.

The new system will increase filtration threefold and produce the cleanest water of any city in Asia. Installation should be complete within two weeks time. Should you have any questions or concerns, please feel free to contact the Yushu Water Department. Brochures explaining the process and the new technology being applied are available to all citizens affected by the change. We thank you for your patience.

38. What is happening at the water treatment facility?
   (a) Water is getting polluted.
   (b) Equipment is being updated.
   (c) A dam is being built.
   (d) A new alarm system is being installed.
39. What changes will customers notice in this two-week period?
   (a) There will be intermittent changes in water pressure.
   (b) The water will have a rusty taste.
   (c) The color will change.
   (d) The odor will diminish.

40. How is the Yushu Water Department helping?
   (a) It is undertaking an educational program.
   (b) Its crew is working overtime to shorten installation time.
   (c) It is providing free potable water until the work is complete.
   (d) It is conducting tours to show off the new technology.
1. Find mean and moment generating function of following distributions. (20%)
   \( f(x) = \frac{x^x e^{-x}}{x!} \quad x = 0, 1, 2, \ldots \)
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2. Suppose that the conditional distribution of \( Y \) given \( X = x \) is Poisson with mean \( E(Y|x) = x \), \( Y|x \sim\text{Poisson}(x) \). However, \( x \) itself is a random variable with probability density function given by
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3. Suppose that two events \( A \) and \( B \) are independent. Show that \( A^c \) and \( B \) are independent where \( A^c \) is the complement of \( A \). (10%)

4. Customers arrive in a certain shop according to an approximate Poisson process at a mean rate of 20 per hour. (20%)
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5. Let \( X_1, X_2, \ldots, X_n \) be a random sample from a distribution with p.d.f. (30%)
   \[ f(x; \theta) = \left(\frac{1}{\theta}\right) \exp\{-x/\theta\}, \quad 0 < x < \infty, \quad 0 < \theta < \infty. \]
   (a) Find the maximum likelihood estimator \( \hat{\theta} \) of \( \theta \).
   (b) Is \( \hat{\theta} \) a consistent estimator of \( \theta \)?
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1. Please describe the various types of Information Systems from Anthony’s model of organizational structure and Simon’s categorization of decision types, respectively. (25%) 

2. (a) Please explain the terminologies: ERP, SCM, CRM; (15%)  
   (b) Please propose a conceptual framework and explain the relationships among ERP, SCM, and CRM. (20%)  

3. Please describe the crucial factors to evaluate the quality of search engines sites (i.e., Google, Yahoo, etc.). (20%)  

4. Explain the following terminology in detail: (@5, 20%)  
   (a) MIS  
   (b) BPR  
   (c) KM  
   (d) RFID
I. Questions 1-10 are incomplete sentences. Four words or phrases, marked (a), (b), (c), (d) are given beneath each sentence. You are to choose the one word or phrase that best completes the sentence. 25%

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24. What is the purpose of this notice?
(a) To watch stockholders
(b) To encourage investment
(c) To advise inventors
(d) To support independent business

25. What makes a good financial advisor?
(a) Access to multiple stocks and bonds
(b) A background in politics
(c) A master’s degree in economics
(d) Knowledge of internal and external factors

26. How could someone manage their investments?
(a) Do research
(b) Get advice from another advisor
Questions 27-29 refer to the following article.

The field of engineering can be broken down into various specialties.

Civil engineering is the branch that deals with the construction of roads, bridges, railroads and waterways. Mechanical engineering deals with the models, designs and materials which are used in the construction of the various types of machinery. Electrical engineering deals with the creation and distribution of electrical energy. Other areas of engineering include chemical, aeronautical and military.

27. What type of engineer would the highway department of a town most likely hire?
   (a) A mechanical engineer
   (b) A civil engineer
   (c) A chemical engineer
   (d) An electrical engineer

28. A manufacturer of labor-saving devices and equipment would most likely hire which kind of engineer?
   (a) A mechanical engineer
   (b) A military engineer
   (c) A chemical engineer
   (d) A civil engineer

29. What would an electrical engineer be familiar with?
   (a) Rock drilling equipment
   (b) The nature of various building materials
   (c) Power lines
   (d) Surveying techniques

Questions 30-33 refer to the following notice.

Please be advised of the following changes in international travel to and from Montreal. Check your airline ticket carefully or ask your ticket agent if you are returning to Montreal on or after September 20. Starting September 20, several airlines that offer scheduled international flights will start operating their services out of Dorval airport. All charter flights, both overseas and to the United States, will leave from Dorval airport. So, if you are already booked for a flight during that period, it is possible that you will be leaving from Dorval and returning to Mirabel – or vice versa. On your airline ticket, the code “VRV” designates Mirabel and “TMT” designates Dorval. If your return flight is landing at a different airport from your departing, it would be better to use public transportation rather than drive yourself. You might find yourself at one airport and your car parked at another. A convenient shuttle
bus connects Dorval and Mirabel and the city center with regular service from 4 a.m. to midnight, seven days a week.

30. Why was this notice issued?
   (a) Because of construction work at Dorval airport
   (b) Because of a change in international flight paths
   (c) Because of the additional services being offered
   (d) Because of a change in the bus schedule

31. What are customers being asked to do?
   (a) To try to book flights before September 20
   (b) To take chartered flights when possible
   (c) To use parking near the airport
   (d) To review their tickets carefully

32. How can a customer know which airport he/she is landing in?
   (a) Arrivals are at the same airport as departures
   (b) Tickets indicate destination airport
   (c) Charter flight customers land in Dorval, others in Mirabel
   (d) Airport ticket agents will provide updated reports

33. What advice is given regarding transportation to and from the airports?
   (a) To wait for arriving passengers at the airport of departure
   (b) To take advantages of the shuttle bus service
   (c) To leave the car at the airport you depart from
   (d) To park only in designated areas

Questions 34-37 refer to the following notice.

The main topic of last week’s meeting was suggestion boxes. All departments in the factory are to have conspicuously labeled suggestion boxes. At the meeting, it was obvious that the employees’ suggestions would not only save the company money, but would do much to lift morale and streamline production. To further this process, the suggestion box idea was adopted.

Forms for the suggestions are to be kept inside the box. When employees fill out a form, they should clearly state which situation they are trying to improve, list all pertinent data, and then offer a solution, stating how the company would benefit. Forms will then be collected each month by the department heads, who will then pass them on to the plant manager. Where necessary, the plant manager will consult with the respective departments to gather any relevant data. If applicable, the matter will then be passed on to the finance department for approval.

A bonus will be paid to employees for any suggestions that are adopted. The amount of the bonus will be commensurate with the savings to the company.
34. What is the topic of the report?
   (a) A meeting
   (b) Morale
   (c) Production
   (d) A new system

35. Why has the company decided to use suggestion boxes?
   (a) To take advantage of the employees' ideas
   (b) To minimize complaints
   (c) To take some of the burden off department heads
   (d) To appease the finance department

36. What is the plant manager supposed to do?
   (a) Review each suggestion with the employee
   (b) Issue bonus checks
   (c) Route all suggestions through the finance department
   (d) Compile data from other areas

37. What, specifically, should employees include in their suggestions?
   (a) The names of troublesome coworkers
   (b) The duration of the problem
   (c) What they would consider to be an appropriate bonus
   (d) A description of the point they are trying to remedy

**Questions 38-40** refer to the following announcement.

Part of the water treatment facilities on the Yangtze River will be undergoing modernization. This will not affect the potability of your water, but you may notice a slight rust discoloration. There is simply a result of minute amounts of residue in the pipes. In addition, you may notice that the water pressure is diminished. This is a result of shutting down half of the facility. This was necessary for the installation of the latest, state-of-the-art equipment, which will filter out 99% of all foreign and toxic substances.

The new system will increase filtration threefold and produce the cleanest water of any city in Asia. Installation should be complete within two weeks time. Should you have any questions or concerns, please feel free to contact the Yushu Water Department. Brochures explaining the process and the new technology being applied are available to all citizens affected by the change. We thank you for your patience.

38. What is happening at the water treatment facility?
   (a) Water is getting polluted.
   (b) Equipment is being updated.
   (c) A dam is being built.
   (d) A new alarm system is being installed.
39. What changes will customers notice in this two-week period?
   (a) There will be intermittent changes in water pressure.
   (b) The water will have a rusty taste.
   (c) The color will change.
   (d) The odor will diminish.

40. How is the Yushu Water Department helping?
   (a) It is undertaking an educational program.
   (b) Its crew is working overtime to shorten installation time.
   (c) It is providing free potable water until the work is complete.
   (d) It is conducting tours to show off the new technology.
經濟學（50分）

1. Market researchers at the Lawrence Corporation estimate that the demand function for the firm’s product is

\[ Q = 50P^{-1.5}I^{0.5} \]

where \( Q \) is the quantity demanded, \( P \) is the product’s price, and \( I \) is the per capita disposable income. The marginal cost of the firm’s product is estimated to be \$10. Lawrence’s price for its product is \$20. Is this the optimal price? Explain. (15%) 

2. In 1999, there was broad concern about the Y2K computer problem. Banks and the Fed predicted that many people would want to hold additional cash in case there were financial problems on January 1, 2000. Use the money multiplier analysis to predict what would happen to deposits and the money supply if people increased their holding of cash and the Fed kept total reserves fixed. What would be the consequence for interest rate? (15%) 

3. Carefully answer the following questions. (20%)

(a) The law of diminishing marginal utility implies the diminishing marginal rate of substitution (MRS).

(b) Suppose that there are two bundles \((x_1, y_1)\) and \((x_2, y_2)\). If the consumer chooses \((x_1, y_1)\), we conclude that \((x_1, y_1)\) is preferred to \((x_2, y_2)\).
統計學（50分）

(1) Suppose that $X_n$ is a random variable with binomial distribution for some unknown $p$, where $0 \leq p \leq 1$. If we observe $X_n = x_0$, where $x_0$ is one of 0, 1, ..., $n$, then what is the maximum likelihood estimator of $p$ based on $X_n$? (10%)

(2) Let $X_1, X_2, ..., X_n$ be independent random variables distributed according to the standard uniform on [0, 1]. Let $Z_n = \max(X_1, ..., X_n)$. Then what is the probability for $P[Z_n \leq x]$? (10%)

(3) Let $X_1, X_2, ..., X_n$ be a random sample from the p.d.f.

$$f(x; \theta) = \frac{1}{2\theta} e^{-\frac{|x|}{\theta}} \cdot I_{(-\infty, \infty)}(x)$$

for some unknown $\theta > 0$.

Find a sufficient statistic for $\theta$. (10%)

(4) Given the following data of 10 pairs of (x, Y):

<table>
<thead>
<tr>
<th>x</th>
<th>2.2</th>
<th>2.4</th>
<th>2.8</th>
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<td>120</td>
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Let $Y_i$'s be independent random variables with $Y_i \sim N(\alpha + \beta x_i, \sigma^2)$ and the $x_i$'s be fixed numbers.

(a) Find the least-squares estimates of $\beta$ and $\sigma^2$.

(b) Test $H_0 : \beta = 0$ versus $H_1 : \beta \neq 0$ at level of significance 1%.

$$(t_{0.05}(10) = 3.169; t_{0.05}(9) = 3.250; t_{0.05}(8) = 3.355)$$

where $p[T \leq t_{\alpha}(r)] = 1 - \alpha$. (12%)

(5) Let $x_1$ and $x_2$ be independent standard normal variables $N(0,1)$. Derive the p.d.f. of

$Y = \frac{X_1}{X_2}$. (8%)
There are 7 pages in this exam. The exam is separated in two parts. There are 25 questions in the first section and 6 questions in the second section. You should write down all your answers in the provided answer sheet. Make sure you mark the question number clearly in your provided answer sheet.

I. Multiple Choice Questions (25 questions, 2 points each, total 50 points)
Notice: Identify the letter of the choice that best completes the statement or answers the question. You should write down your answers in the provided answer sheet with clear question number.

1. Firm “TSMC” is a Taiwan based MNC with net cash inflows of euros and net cash inflows of U.S. dollars. These two currencies are highly correlated in their movements against the NT dollar. Firm “UMC” is a Taiwan based MNC that has the same level of net cash flows in these currencies as “TSMC” except that its euros represent net cash outflows. Which firm has a higher exposure to exchange rate risk?
A) firm “UMC.”
B) firm “TSMC.”
C) firms “TSMC” and “UMC” have about the same level of exposure.
D) neither firm has any exposure.

2. In Japan, 90-day securities have a 4 percent annualized return and 180-day securities have a 5 percent annualized return. In Taiwan, 90-day securities have a 4 percent annualized return and 180-day securities have an annualized return of 4.5 percent. All securities are of equal risk. Japanese securities are denominated in terms of the Japanese yen. Assuming that interest rate parity holds in all markets, which of the following statements is most correct?
A) The yen-dollar spot exchange rate equals the yen-dollar exchange rate in the 90-day forward market.
B) The yen-dollar spot exchange rate equals the yen-dollar exchange rate in the 180-day forward market.
C) The yen-dollar exchange rate in the 90-day forward market equals the yen-dollar exchange rate in the 180-day forward market.
D) Answers a and b are correct.
E) Answers b and c are correct.

3. Which of the following statements is most correct?
A) Corporations are taxed more favorably than sole proprietorships.
B) Corporations have unlimited liability.
C) Because of their size, large corporations face fewer regulations than smaller corporations and sole proprietorships.
D) Reducing the threat of corporate takeover increases the likelihood that managers will act in shareholders' interest.
E) Bond covenants are designed to reduce potential conflicts between stockholders and bondholders.

4. Which of the following is/are true regarding the balance sheet and income statement?
I. The income statement reflects a summary of activity that occurs over some period of time while the balance sheet is a snapshot taken at a single point in time.
II. Both represent a summary of activity that occurs over some time period.
III. Both represent a summary of activity that is a snapshot taken at a single point in time.
IV. The two statements, taken together, give an accurate estimate of the firm's cash flows and market value.
A) I only
B) II only
C) III only
D) III and IV only
E) II and IV only

5. Based on the balance sheet, an increase in a/an _________ account would be considered a/an _______ of funds.
   I. asset; source
   II. liability; source
   III. expense; source
   IV. asset; use
   V. equity; use
A) I and II only
B) II and IV only
C) I and III only
D) VI and V only
E) II and V only

6. Lucrative benefits given to top executives in the event that a company is taken over by another firm, resulting in the loss of their job are called _______. Benefits include items such as stock options, bonuses, severance pay, etc. It can be used as a measure to discourage an unwanted takeover attempt.
   A) shark repellents
   B) poison pills
   C) white knights
   D) golden parachutes
   E) greenmails.

7. If you know that your firm is facing relatively poor prospects but needs new capital, and you know that investors do not have this information, signaling theory would predict that you would
A) Issue debt to maintain the returns of equity holders.
B) Issue equity to share the burden of decreased equity returns between old and new shareholders.
C) Be indifferent between issuing debt and equity.
D) Postpone going into capital markets until your firm’s prospects improve.
E) Convey your inside information to investors using the media to eliminate the information asymmetry.

8. The National University of Kaohsiung is considering two mutually exclusive projects with the following characteristics:
   • The two projects have the same risk and the same cost of capital.
   • Both projects have normal cash flows. Specifically, each has an up-front cost followed by a series of positive cash flows.
   • If the cost of capital is 12 percent, Project A’s IRR is greater than its MIRR.
   • If the cost of capital is 12 percent, Project B’s IRR is less than its MIRR.
   • If the cost of capital is 10 percent, the two Project’s have the same NPV.
Which of the following statements is most correct?
9. The process of packaging and/or selling mortgages which are then used to back publicly traded debt securities is called
   A) Collateralization
   B) Securitization
   C) Market capitalization
   D) Stock diversification
   E) Mortgage globalization

10. Which of the following is/are true about callable bonds?
    I. Must always be called at par
    II. Will normally be called after interest rates drop
    III. Can be called by either the bondholder or the bond issuer
    IV. Have higher required returns than non-callable bonds
    A) I and II only
    B) II and IV only
    C) II and III only
    D) I, II and III only
    E) I, II, III and IV are true

11. The preemptive right is designed to
    A) Allow management to diffuse stock ownership any voting power
    B) Allow managers to preempt a stock offering if they do not like the terms of the deal
    C) Allow existing shareholders the right to sell their existing shares before the new offer
    D) Allow existing shareholders to buy shares of the new offering if they desire
    E) None of the above

12. A higher level of which of the following variables would make a put option on common stock more valuable, ceteris paribus?
    I. Stock price
    II. Stock price volatility
    III. Interest rates
    IV. Exercise price
    A) II only
    B) II and IV only
    C) II, III and IV only
    D) I, II and III only
    E) I, III and IV only

13. What is the relationship between an investment's rate of return and its yield to maturity for an investor that does not hold a bond until maturity?
    A) Rate of return is lower than yield to maturity.
    B) Rate of return is higher than yield to maturity.
14. Which of the following statements is correct about a stock currently selling for $50 per share that has a 16% expected return and a 10% expected capital appreciation?
   A) Its expected dividend exceeds the actual dividend.
   B) Its expected return will exceed the actual return.
   C) It is expected to pay $3 in annual dividends.
   D) It is expected to pay $8 in annual dividends.
   E) It is expected to pay $12 in annual dividends.

15. Which of the following statements best describes the theories of investors’ preferences for dividends?
   A) Modigliani and Miller argue that investors prefer dividends to capital gains.
   B) The bird-in-hand theory suggests that a company can reduce its cost of equity capital by reducing its dividend payout ratio.
   C) The tax preference theory suggests that a company can increase its stock price by increasing its dividend payout ratio.
   D) One key advantage of a residual dividend policy is that it enables a company to follow a stable dividend policy.
   E) The clientele effect suggests that companies should follow a stable dividend policy.

16. Which of the following statements is most correct?
   A) The tax preference theory states that, all else equal, investors prefer stocks that pay low dividends because retained earnings can lead to capital gains that are taxed at a lower rate.
   B) An increase in the cost of equity capital (k_e) when a company announces an increase in its dividend per share, would be consistent with the bird-in-the-hand theory.
   C) An increase in the stock price when a company decreases its dividend is consistent with the signaling theory.
   D) A dividend policy that involves paying a consistent percentage of net income is the best policy if the “clientele effect” is correct.
   E) Statements A and D are correct.

17. With respect to issues related to the cost of capital:
   A) an increase in the debt ratio will result in greater risk for debt holders but not equity holders.
   B) the cost of capital is the return a firm must earn before tax to satisfy security holders.
   C) the WACC is the correct discount rate for average-risk projects.
   D) the WACC can be applied to all firm’s projects in the different sectors as the discount rate.
   E) the expected return on equity is relevant to capital budgeting decisions.

18. You have agreed to deliver the underlying commodity in 90 days. Today the underlying commodity price rises and you get a margin call. You must have
   A) A long position in a futures contract
   B) A short position in a futures contract
   C) Sold a forward contract
   D) Purchased a forward contract
   E) Purchased a call option on a futures contract

19. Stock X has a beta of 0.6, while Stock Y has a beta of 1.4. Which of the following statements is most correct?
   A) Stock Y must have a higher expected return and a higher standard deviation than Stock X.
   B) A portfolio consisting of $50,000 invested in Stock X and $50,000 invested in Stock Y will
have a required return that exceeds that of the overall market.
C) If the market risk premium decreases (but expected inflation is unchanged), the required return on both stocks will decrease but the decrease will be greater for Stock Y.
D) If expected inflation increases (but the market risk premium is unchanged), the required return on both stocks will decrease by the same amount.
E) If expected inflation decreases (but the market risk premium is unchanged), the required return on both stocks will decrease but the decrease will be greater for Stock Y.

20. Which of the following statements is most correct?
A) If the returns from two stocks are perfectly positively correlated (that is, the correlation coefficient is +1) and the two stocks have equal variance, an equally weighted portfolio of the two stocks will have a variance that is less than that of the individual stocks.
B) If a stock has a negative beta, its expected return must be negative.
C) According to the CAPM, stocks with higher standard deviations of returns will have higher expected returns.
D) A portfolio with a large number of randomly selected stocks will have less market risk than a single stock that has a beta equal to 0.5.
E) None of the statements above is correct.

21. What is the relationship between an ordinary annuity and an annuity due if both annuities have the same coupon rates, time to maturity, and discount rates, ceteris paribus?
A) Future value of an ordinary annuity is equal to the future value of an annuity due timing (1+periodic discount rate).
B) Future value of an ordinary annuity is equal to the future value of an annuity due divided by (1+ periodic discount rate).
C) Present value of an ordinary annuity is equal to the present value of an annuity due timing (1+periodic discount rate).
D) Present value of an ordinary annuity is equal to the present value of an annuity due divided by the periodic discount rate.
E) Both B and D are correct.

22. In the empirical research, an event study is usually used for the event announcement. The objective of the event study is to
A) Whether it is possible to predict stock prices.
B) How fast stock prices adjust to news.
C) Examine the cross-sectional distributions of returns.
D) Conduct a time series analysis of returns.
E) Determine normal P/E ratios.

23. Assume that investors become increasingly risk averse, so that the market risk premium increases. Also, assume that the risk-free rate and expected inflation remain the same. Which of the following is most likely to occur?
A) The required rate of return will decline for stocks that have betas less than 1.0.
B) The required rate of return on the market (Rm) will remain the same.
C) The required rate of return for each stock in the market will increase by an amount equal to the increase in the market risk premium.
D) Answers A and B are correct.
E) None of the statements above is correct.
24. Which of the following statements is most correct?
   A) Tests have shown that the betas of individual stocks are unstable over time, but that the betas of large portfolios are reasonably stable over time.
   B) Richard Roll has argued that it is not even possible to test the CAPM to see if it is correct.
   C) Tests have shown that the risk/return relationship appears to be linear, but the slope of the relationship is less than that predicted by the CAPM.
   D) Statements A and B are correct.
   E) Statements A, B, and C are correct.

25. Which of the following statements is most correct?
   A) Shorter-term cash budgets, in general, are used primarily for planning purposes, while longer-term budgets are used for actual cash control.
   B) The cash budget and the capital budget are planned separately and although they are both important to the firm, they are independent of each other.
   C) Since depreciation is a non-cash charge, it does not appear on nor have an effect on the cash budget.
   D) The target cash balance is set optimally such that it need not be adjusted for seasonal patterns and unanticipated fluctuations in receipts, although it is changed to reflect long-term changes in the firm’s operations.
   E) The typical actual cash budget will reflect interest on loans and income from investment of surplus cash. These numbers are expected values and actual results might vary from budgeted results.

II. Short Essay and Problem Solving Questions (total 50 points)

Notice: The calculation procedures are required to show in the provided answer sheet. No calculation, no points for the answer.

1. Explain the reason that adding more assets in a portfolio can reduce the risk of the portfolio. (5 points) (Briefly describe your answer with less than 2 rows in your answer sheet)

2. Define Economic Value Added (EVA) and Market Value Added (MVA) respectively. Which is the more appropriate measure that is typically used for evaluating management performance as part of an incentive compensation program? Why? (10 points) (Briefly describe your answer with less than 5 rows in your answer sheet)

3. A. What is “share repurchase?” Define it. (5 points)
   B. Recently, many Taiwan companies announce for the share repurchase program. What are the incentives for the firm to implement the program? List at least 4 incentives. (5 points)

4. Since 2002, lots of bank holding companies have been formed in Taiwan. What are “holding companies?” What are their advantages and disadvantages? (10 points)

5. NUK Co. is a new company. It is presently in a stage of abnormally high growth because of a surge in the demand in the education industry. It just paid a dividend of $1.00 per share. Analysts expect the company’s dividend to grow 10% this year and 20% next year. After two years the dividend is expected to grow at a constant rate of 5%. The beta of the NUK Co. is 1.5, the market risk premium is 6%, and the return on the market is currently 7%. What should be the current price per share of the company’s common stock? (10 points)
6. Duration can be regarded as an estimate of a bond's price change as the interest rate changes from its current level. However, the greater the interest rate change, the greater the error in using duration to estimate the bond's price change. Why? (5 points)
Table A-3: Future Value of $1 at the End of n Periods:

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<th>3%</th>
<th>4%</th>
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Table A-4: Future Value of an Annuity of $1 per Period for a Periods:

<table>
<thead>
<tr>
<th>Number of Periods</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>9%</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
<td>1.0000</td>
</tr>
<tr>
<td>2</td>
<td>2.0000</td>
<td>2.0400</td>
<td>2.0816</td>
<td>2.1236</td>
<td>2.1664</td>
<td>2.2100</td>
<td>2.2544</td>
<td>2.2996</td>
<td>2.3456</td>
<td>2.3920</td>
</tr>
</tbody>
</table>

PVT = \frac{1 - (1 + r)^{-n}}{r}

where:
- PVT = Present Value
- r = Interest Rate
- n = Number of Periods