Note: You can use non-memory financial calculator to calculate your results, or refer to the following interest factors for some questions. Other interest factors are not given here.

\[ \text{PVIF}(12\%, 5) = 0.56743 \quad \text{PVIF}(11\%, 5) = 0.59345 \quad \text{PVIF}(10\%, 5) = 0.62092 \]

\[ \text{PVIF}(9\%, 5) = 0.64993 \quad \text{PVIFA}(11\%, 5) = 3.6959 \]

Questions:

(14%) If you deposit $100 into a bank now and the nominal annual rate is 12%, please compute the future value of the deposit after 5 years under the following circumstances. If the deposit is compounded (1). annually; (2). semi-annually; (3). quarterly; (4). monthly; (5). daily; and (6). continuously.

(20%) (1). If the payout dividend for the last period for the Acer Company is \( D_0 \). The dividend is then expected to grow at a constant rate of \( g \) annually in the future until forever. The investor’s required rate of return is \( k \). Please derive the current market stock price for the Acer Company, and determine which should be larger, \( g \) or \( k \)?

(2). If the Acer Company is expected to pay $4, $5, $6 dividends for the next 1, 2, 3 years, respectively, and then the dividends are expected to grow 4% constantly per year until forever. Your required rate of return is 10%. Please calculate the current market price of Acer Company’s stock.

(20%) If the HP Company issues two kinds of bonds, A and B. Both of them have a face value of $1000 and 5-year maturity. Interests are paid annually. If bond A has a coupon rate of 10%, and B has a coupon rate of 12%. Please answer the following questions:

(1). What are these two bonds’ market prices if the market interest rate (yield) is 11%?

(2). If the market interest rate is expected to drop to 9% after issuance (i.e., the interests earned will be reinvested at a rate of 9%), what should the prices of these two bonds be at maturity (i.e., at the end of 5th year)?

(3). If you bought the bonds at the price of (1) at the beginning, and sold the bonds at the price of (2) at maturity, what should the annual yields of your investment be on these two bonds?

(4). In comparison of (3), which bond will you select to invest with limited capital?
4. (15%) Please briefly define and give examples to explain the following terminologies:
   (a). Investment; (b). Arbitrage; (c). Hedge; (d). Insurance; (e) Gamble.

5. (21%) If the investment rate of return on a risk-free T-bond is 5%, and the market risk premium (Rm-Rf) is 12.5%, please determine how should the IBM Company organize the financing structures according to the “Residual Dividend Policy” under the circumstances of IBM’s (1). $\beta = 0.4$, and (2). $\beta = 1.2$? i.e., how much dividends should be paid out, or how much more internal or external funds (equity or debt) should be raised for IBM? Supposed that IBM’s earnings after tax this year is $1,300 thousand, and the IBM will need to keep the Debt/Equity ratio at 0.8. The projects to be reviewed for budgeting for the next year are listed in the following table.

<table>
<thead>
<tr>
<th>Project</th>
<th>Investment (thousand dollars)</th>
<th>IRR</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>$500</td>
<td>25%</td>
</tr>
<tr>
<td>B</td>
<td>$300</td>
<td>21%</td>
</tr>
<tr>
<td>C</td>
<td>$600</td>
<td>18%</td>
</tr>
<tr>
<td>D</td>
<td>$600</td>
<td>16%</td>
</tr>
<tr>
<td>E</td>
<td>$400</td>
<td>13%</td>
</tr>
<tr>
<td>F</td>
<td>$500</td>
<td>9%</td>
</tr>
</tbody>
</table>
The need to manage net working capital arises because:
(A) Financial management is naturally broken into those areas.
(B) Shareholders want to ensure they receive dividend payments.
(C) There is a mismatch between the timing of cash inflows and cash outflows.
(D) The sum of current assets and current liabilities usually is zero.
(E) The capital structure pie is limited in size.

Agency costs are the sum costs of:
(A) monitoring costs of the shareholders and the residual loss of wealth due to divergent management behavior.
(B) the costs of implementing control devices and the monitoring costs of the shareholders.
(C) the costs of implementing control devices and the residual loss of wealth due to divergent management behavior.
(D) the set-of-contracts needed to structure the firm and residual wealth
(E) none of the above

Financial markets are composed of:
(A) capital markets and equity markets.
(B) capital markets and debt markets.
(C) equity markets and money markets.
(D) equity markets and debt markets.
(E) capital markets and money markets.

Brother Co. had a profit margin on sales of 4% and a ROE of 18%. If Brother's debt-to-equity ratio is 0.8, what is the total asset turnover ratio?
(A) 2.500  (B) 5.625  (C) 2.000  (D) 10.125  (E) none of the above

Abby Co. had a 5 days in inventory (on a 365-day basis). Cost of goods sold was $4,526. Net working capital was $70 and total current assets were $400. What is Abby's quick ratio?
(A) 11.315  (B) 1.024  (C) 4.829  (D) 14.000  (E) none of the above

You have deposited $1,500 in an account that promises to pay 8% compounded quarterly for the next five years. How much will you have in the account at the end?
(A) $1,598  (B) $2,204  (C) $2,229  (D) 6,991  (E) None of the above

What is the present value of 10 payments of $500 each received every 24 month ends, at a annual discount rate of 12%?
(A)$1,841  (B) $1,333  (C) $2,825  (D) $1,762  (E) None of the above
8. ( ) The Rug company is considering investing in a new loom that will cost $12,000. The new loom will create positive end of year cash flow of $5,000 for the next 3 years. The internal rate of return for this project is:
   (A) less than 9%   (B) between 9% and 11%  (C) between 11% and 13%
   (D) between 13% and 15%  (E) more than 15%

9. ( ) The Maxwell company has the following cost information on their new prospective project.

<table>
<thead>
<tr>
<th>Cost Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial investment</td>
<td>$700</td>
</tr>
<tr>
<td>Fixed costs</td>
<td>$200 per year</td>
</tr>
<tr>
<td>Variable costs</td>
<td>$3 per unit</td>
</tr>
<tr>
<td>Depreciation</td>
<td>$140 per year</td>
</tr>
<tr>
<td>Price</td>
<td>$8 per unit</td>
</tr>
<tr>
<td>Discount rate</td>
<td>12% annual</td>
</tr>
<tr>
<td>Project life</td>
<td>3 years</td>
</tr>
<tr>
<td>Tax rate</td>
<td>34%</td>
</tr>
</tbody>
</table>

Calculate the present value break-even point (units/year).
   (A) 68   (B) 75   (C) 84   (D) 113   (E) None of the above.

10. ( ) Aunt Clarisse has promised to leave you $60 a year starting today of the next year, and have it increase at 4% a year thereafter. The payments are expected to go on indefinitely. How much has Aunt Clarisse left you if your opportunity costs is 9%.
   (A) $693   (B) $1200   (C) $1,248   (D) $667   (E) None of the above

11. ( ) The position of dominant portfolio has to locate in
   (A) Capital Market Line   (B) The Efficient Frontier   (C) Market proxy
   (D) The upper tail of the efficient set only   (E) The lower tail of the efficient set only.

12. ( ) While a equally weighted market index is used as a proxy to compute the beta of every company, then the average of all shares' beta is
   (A) larger than one   (B) smaller than one   (C) exactly one
   (D) the number of company   (E) None of the above.

13. ( ) The best fit line of pair-wise plot of the returns of the security against the market index returns is called the:
   (A) the SML   (B) the CML   (C) the characteristic line
   (D) the risk line   (E) None of the above.

14. ( ) The abnormal return, AR, on a security i for a particular day t can be estimated by the equation:
   (A) \( AR_{it} = R_{it} - R_{mt} \)   (B) \( AR_{it} = R_{mt} - R_{it} \)   (C) \( AR_{it} = R_{mt} - R_f \)
   (D) \( AR_{it} = R_{it} - R_f \)   (E) \( AR_{it} = R_f - R_{it} \)

15. ( ) Which of the following statements is not true about serial correlation?
   (A) It involves only one security.
   (B) It measures the correlation between the current return on a security and the current return on another security.
6. The effect of financial leverage depends on the operating earnings of the company. Which of the following statements is not true?
   (A) The rate of return on operating assets is unaffected by leverage.
   (B) Below the indifference or break-even point in EBIT the non-levered structure is superior.
   (C) Financial leverage increases the slope of the EPS line.
   (D) Above the indifference or break-even point the increase in EPS for all equity plans is less than debt-equity plans.
   (E) Above the indifference or break-even point the increase in EPS for all equity plans is greater than debt-equity plans.

7. When firms issue more debt, the tax shield on debt______, the agency costs on debt (i.e., costs of financial distress)______, and the agency costs on equity______.
   (A) increases; increases; increase.
   (B) decreases; decreases; decreases.
   (C) increases; increases; decreases
   (D) decreases; decreases; increases.
   (E) increases; decreases; decreases.

8. The “pecking order” states how financing should be raised. In order to avoid asymmetric information problems and misinterpretation of whether the management is sending a signal on security overvaluation. The firm’s first rule is:
   (A) Always issue debt because of the benefit from tax shield.
   (B) Always issue new equity to force managers to minimize wasting resources and to work harder.
   (C) Always issue debt then the market won’t know when the management thinks the security is overvalued.
   (D) Always finance with externally funds in order to retain earnings.
   (E) Always finance with internally funds as there is no market interaction.

9. In the presence of personal taxes, the MM irrelevance proposition does not hold because:
   (A) Managers have an incentive to seek alternative uses for these funds.
   (B) Personal taxes always increase the value of dividends.
   (C) Personal taxes reduce the value of dividends but are not sufficient to eliminate all dividends.
   (D) Both A and B are correct.
   (E) Both A and C are correct.

10. The put option on a dividend paying stock (without protection) compared to a non-dividend paying stock is:
    (A) more valuable if in-the-money, and less valuable if out-of-the-money.
    (B) less valuable if out-of-the-money, and more valuable if in-the-money.
    (C) less valuable because of the extra dividend payment.
二、計算及簡答題 (40%，每題十分)

1. 李四目前握有三支股票且李四將資金平均投資在此三支股票中，已知此三支股票報酬之變異數共變異數矩陣如下。若以標準差來衡量風險，試求李四持有此投資組合的總風險為若干？

\[
\begin{bmatrix}
0.18 & 0.12 & 0.16 \\
0.12 & 0.16 & 0.11 \\
0.16 & 0.11 & 0.26 \\
\end{bmatrix}
\]

2. 請為下列各國際股市的股價指數，在表 1 中找出其所代表的國家，寫出國家前的代號即可。

(a) CAC 40  
(b) DAX  
(c) AOI  
(d) TOPIX  
(e) FTSE 100  
(f) FOX  
(g) Russell 2000  

(A) Australia, (B) Belgium, (C) Canada, (D) China, 
(E) Finland, (F) France, (G) Germany, (H) Indonesia, 
(I) Italy, (J) Japan, (K) Korea, (L) Macau, (M) Norway, 
(N) Netherlands, (O) New Zealand, (P) Portugal, 
(Q) Singapore, (R) Spain, (S) Switzerland, (T) U.K., 
(U) U.S.

3. [已知：表 1 所示為今天富邦銀行的外匯牌告報價表]
   Bayer 是設於台中市的一家德國公司，目前 Bayer 所持有的現金皆是以多種貨幣的型態，存放於往來銀行-富邦銀行該公司的外幣存款帳戶中。Bayer 的財務經理每天都會檢視公司持有的現金部位，並且隨時在不同貨幣之間作轉換，以規避匯率漲跌的風險。
   今天早上 Bayer 的財務經理在分析近期國際經濟情勢之後，決定將手中所持有全部的英鎊部位，轉換為瑞士法郎。若依照表 1 所示的外匯報價計算，Bayer 的財務經理非常想知道他的英鎊能轉換成多少瑞士法郎，以及在未來可能發生的--瑞士法郎能轉換回多少英鎊。
   在此請你/妳為他計算：以瑞士法郎為被報價幣 (Reference Currency) 的瑞士法郎/英鎊雙向交叉匯率，即賣價/買價 (bid/ask) 為若干？（需列出算式及答案）

<table>
<thead>
<tr>
<th>Currency</th>
<th>Exchange rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD</td>
<td>34.94 / 35.04</td>
</tr>
<tr>
<td>GAD</td>
<td>21.83 / 22.03</td>
</tr>
<tr>
<td>JPY</td>
<td>0.2688 / 0.2728</td>
</tr>
<tr>
<td>HKD</td>
<td>4.46 / 4.52</td>
</tr>
<tr>
<td>SGD</td>
<td>19.09 / 19.29</td>
</tr>
<tr>
<td>THB</td>
<td>0.80 / 0.82</td>
</tr>
<tr>
<td>ZAR</td>
<td>2.92 / 3.12</td>
</tr>
<tr>
<td>NZD</td>
<td>14.92 / 15.12</td>
</tr>
<tr>
<td>AUD</td>
<td>18.13 / 18.33</td>
</tr>
<tr>
<td>CHF</td>
<td>20.79 / 20.99</td>
</tr>
<tr>
<td>EUR</td>
<td>30.47 / 30.87</td>
</tr>
<tr>
<td>GBP</td>
<td>49.36 / 49.76</td>
</tr>
</tbody>
</table>
4. 已知：圖1及表2所示為今天台灣AA級公司債的收益率曲線，其中YTM(年利率)是以連續複利計算的。

表2. 到期收益率

<table>
<thead>
<tr>
<th>t(年)</th>
<th>YTM(年利率)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>1.3%</td>
</tr>
<tr>
<td>1.0</td>
<td>0.8%</td>
</tr>
<tr>
<td>1.5</td>
<td>1.0%</td>
</tr>
<tr>
<td>2.0</td>
<td>1.4%</td>
</tr>
<tr>
<td>2.5</td>
<td>1.8%</td>
</tr>
<tr>
<td>3.0</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

圖1. 到期收益率曲線

若台塑公司的債信評等為AA級。台塑公司恰好在半年以前發行過一次債券，在發行日當天其尚餘到期日為三年，每張面額為新台幣十萬元，票面利率為2%，每年付息一次。目前該筆債券仍在交易市場中流通，尚餘二年六個月到期。

(a) 試求此債券在今天的每張現值應為多少錢？

(b) 根據表2，試求t = 1年至t = 3年的遠期利率(forward rate)應為若干？

[上述兩項請一律以連續複利計算，你/她可能沒有適當的電算機在手，沒關係！只要列出計算式，正確就給分]

5. [通訊欄] 請談談你/她參加此次考試，或解答這份題目的心得或意見，以作為本所未來改進的參考，不計分。