FINAL EXAMINATION
SECOND SEMESTER 2011/2012 SESSION

COURSE CODE / NAME : BWFF2013 / FINANCIAL MANAGEMENT I
DATE : 7 JUNE 2012 (THURSDAY)
TIME : 9:00 AM – 11:30 AM (2.5 HOURS)
VENUE : DMS, DTSO, KYM, PMI, IKIP, KTB, KIA & MKM

INSTRUCTIONS :
1. This paper contains TWO (2) parts in SEVENTEEN (17) printed pages excluding cover page and appendices.
2. Part A contains 40 QUESTIONS and Part B contains 3 QUESTIONS.
3. Answer ALL questions in Part A in the OMR sheet and Part B in the spaces provided.
4. Candidates are NOT ALLOWED to take both exam question and exam sheet out of the exam hall.
5. Candidates are bound by the UUM’s RULES AND PROCEDURES ON ACADEMIC FRAUD.

MATRIC NO : ________________________________ ( in word )

( in number )

IDENTIFICATION CARD NO. :

LECTURER :

GROUP : TABLE NO. :

DO NOT OPEN THIS EXAMINATION PAPER UNTIL INSTRUCTED
PART A (40 MARKS)

1. The primary goal of a publicly-owned corporation should be to _________.
   A. maximize earnings per share
   B. maximize the price per share
   C. minimize the chance of losses
   D. maximize total corporate revenue

2. The treasurer is commonly responsible for _________.
   A. taxes
   B. data processing
   C. cost accounting
   D. capital expenditures

3. Which of the following investments represents ownership of a corporation?
   A. Bonds
   B. Mutual funds
   C. Common stocks
   D. Commercial papers

4. Which of the following statements is TRUE?
   A. A disadvantage of a corporation is double taxation.
   B. An advantage of a sole proprietorship is unlimited life.
   C. It is easier to transfer ownership interest in a partnership.
   D. Ultimate control in a corporation is vested in the board of directors (BOD).

5. Stocks and bonds are traded in _________.
   A. money markets
   B. capital markets
   C. investment banks
   D. securities commissions

6. A delivery company is creating a balance sheet. Which of the following would MOST likely be considered a short-term liability on this balance sheet?
   A. A loan which must be paid back in two years time.
   B. Prepaid rent on the offices occupied by the company.
   C. Salaries for company’s staffs that have not yet been paid.
   D. The depreciation over the last year in the value of the vehicles.
7. The statement of retained earnings reports all of the following EXCEPT _________.

A. net income  
B. interest expense  
C. common stock dividends  
D. retained earning’s beginning balance

8. The ________ provides a snapshot of the firm’s financial position at a given point in time.

A. balance sheet  
B. income statement  
C. statement of cash flow  
D. statement of retained earnings

*Use the following information to answer questions 9 and 10.*

Aloha Porcelain Bhd. had a great year. Sales reached an all-time high of RM5 million, with a gross profit margin of RM3 million. Depreciation was recorded at RM150,000 and operating expenses were RM50,000. Earnings before interest and taxes (EBIT) were RM2.8 million, interest was RM200,000 and taxes were 28 percent.

9. What was the firm’s net income?

A. RM728,000  
B. RM1,152,000  
C. RM1,872,000  
D. RM2,600,800

10. What was the firm’s operating cash flow?

A. RM1,922,000  
B. RM2,222,000  
C. RM3,378,000  
D. RM3,678,000

11. The three parts of the Du Pont identity can be generally described as:

I. operating efficiency, asset use efficiency and firm profitability.  
II. financial leverage, operating efficiency and asset use efficiency.  
III. the equity multiplier, the profit margin and the total asset turnover.  
IV. the debt-equity ratio, the capital intensity ratio and the profit margin.
12. Which of the below is the best indicator of management’s effectiveness at managing the firm’s balance sheet?

A. Debt ratio  
B. Total asset turnover  
C. Times interest earned  
D. Operating profit margin

13. If a company’s average collection period is higher than the industry average, then the company may be

A. too liquid.  
B. too tough in collecting its accounts.  
C. allowing its customers too much time to pay their bills.  
D. enforcing credit conditions upon its customers which are too stringent.

14. Which of the following represent problems encountered when comparing the financial statements of one firm with those of another firm?

I. The operations of the two firms may vary geographically.  
II. The firms may use differing accounting methods for inventory purposes.  
III. The two firms may be seasonal in nature and have different fiscal year ends.  
IV. Either one, or both, of the firms may be conglomerates and thus have unrelated lines of business.

A. I and II only  
B. II and III only  
C. I, III, and IV only  
D. All of the above
The following balance sheet and income statement should be used for questions 15 through 20:

Make Me Think Inc.  
2005 Income Statement

<table>
<thead>
<tr>
<th></th>
<th>RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net sales</td>
<td>7,500</td>
</tr>
<tr>
<td>Less: Cost of goods sold</td>
<td>6,415</td>
</tr>
<tr>
<td>Less: Depreciation</td>
<td>200</td>
</tr>
<tr>
<td>Earnings before interest and taxes</td>
<td>885</td>
</tr>
<tr>
<td>Less: Interest paid</td>
<td>25</td>
</tr>
<tr>
<td>Taxable Income</td>
<td>860</td>
</tr>
<tr>
<td>Less: Taxes</td>
<td>300</td>
</tr>
<tr>
<td><strong>Net income</strong></td>
<td>560</td>
</tr>
</tbody>
</table>

Dividends 252  
Addition to retained earnings 308

Make Me Think Inc.  
2005 Balance Sheet

<table>
<thead>
<tr>
<th></th>
<th>RM</th>
<th>RM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>1,050</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Accounts receivables</td>
<td>850</td>
<td>Long-term debt</td>
</tr>
<tr>
<td>Inventory</td>
<td>2,100</td>
<td>Common stock</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td>4,000</td>
<td>Retained earnings</td>
</tr>
<tr>
<td>Net fixed assets</td>
<td>1,600</td>
<td></td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>5,600</td>
<td>Total liabilities &amp; equity</td>
</tr>
</tbody>
</table>

15. Make Me Think Inc. maintains a constant dividend payout ratio. What is its retention ratio?

A. 45 percent  
B. 50 percent  
C. 55 percent  
D. 60 percent
16. If Make Me Think Inc. decides to maintain a constant debt-equity ratio, what rate of growth can they maintain?
   A. 8.20 percent  
   B. 8.75 percent  
   C. 9.13 percent  
   D. 9.59 percent

17. Make Me Think Inc. is currently operating at maximum capacity. All costs, assets, and current liabilities vary directly with sales. The tax rate and the dividend payout ratio will remain constant. How much additional debt is required if no new equity is raised and sales are projected to increase by 10 percent?
   A. RM30.30  
   B. RM46.20  
   C. RM329.00  
   D. RM354.20

18. Make Me Think Inc. is currently operating at 80 percent of capacity. All costs and net working capital vary directly with sales. The tax rate, the profit margin, and the dividend payout ratio will remain constant. How much additional debt is required if no new equity is raised and sales are projected to increase by 10 percent?
   A. RM(113.80)  
   B. RM57.08  
   C. RM194.20  
   D. RM225.20

19. Assume that the profit margin and the dividend payout ratio of Make Me Think Inc. are constant. If sales increase by 12 percent, what is the projected addition to retained earnings?
   A. RM37.20  
   B. RM136.96  
   C. RM344.96  
   D. RM369.60
20. Assume that Make Me Think Inc. is currently operating at 85 percent of capacity and that sales are projected to increase to RM9,600. What is the projected addition to fixed assets?

A. RM141
B. RM367
C. RM448
D. RM660

21. All else constant, the future value of an investment will increase if ________.

A. the investment involves more risk
B. the investment is compounded for fewer years
C. the investment is compounded at a higher interest rate
D. the investment involves less risk and is compounded at a lower interest rate

22. Ahmad just purchased a parcel of land for RM10,000. If he expects a 12 percent annual rate of return on his investment, how much will he sell the land for in 10 years?

A. RM25,000
B. RM31,060
C. RM34,310
D. RM38,720

23. Bobby’s grandmother deposited RM100 in a savings account for him when he was born. The money has been earning an annual rate of 12 percent, compounded quarterly for the last 25 years. He is getting married and would like to take his new bride on a fabulous honey moon. How much does he have in this account to use?

A. RM1,700
B. RM1,922
C. RM4,165
D. RM5,051

24. Calculate the present value of a RM10,000 perpetuity at a 6 percent discount rate.

A. RM9,434
B. RM60,000
C. RM166,667
D. RM600,000
25. The beta of the market __________.
   A. is 1
   B. is less than 1
   C. is greater than 1
   D. cannot be determined

26. Combining two negatively correlated assets to reduce risk is known as __________.
   A. valuation
   B. liquidation
   C. risk aversion
   D. diversification

27. __________ is the chance of loss or the variability of returns associated with a given asset.
   A. Risk
   B. Value
   C. Return
   D. Probability

28. Which one of the following activities decreases cash?
   A. Increasing long-term debt.
   B. Decreasing current liabilities.
   C. Decreasing current assets other than cash.
   D. Decreasing fixed assets by selling some property.

29. The time it takes to acquire and sell inventory is referred to as __________.
   A. operating cycle.
   B. inventory period.
   C. accounts payable period.
   D. accounts receivable period.

30. A flexible short-term financial policy is characterized by
   A. low cash balances.
   B. limited credit sales.
   C. large investments in inventory.
   D. small investments in marketable securities.
31. The primary purpose of a cash budget is to
   A. determine financing needs.
   B. determine the future cash needs of a firm.
   C. determine the estimated income tax for the year.
   D. determine the level of investment in current and fixed assets.

32. Which of the following information regarding secured and unsecured loans are TRUE?

   I. An inventory loan is an unsecured short-term loan to purchase inventory.
   II. A commercial paper is a short-term, unsecured promissory note issued by a corporation with a very high credit standing.
   III. In a field warehouse financing, inventories may be held in public warehouses and in controlled by an independent third party.
   IV. A conventional factoring accounts receivable permits the borrower pledges accounts receivable as a collateral for a loan obtained from a bank.

   A. I and II only
   B. I and IV only
   C. II and III only
   D. III and IV only

33. An analyst has calculated the following ratios for a company:

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of days of receivables</td>
<td>48</td>
</tr>
<tr>
<td>Number of days of inventory</td>
<td>37</td>
</tr>
<tr>
<td>Number of days of payables</td>
<td>28</td>
</tr>
</tbody>
</table>

   The cash conversion cycle for the company is

   A. 39 days.
   B. 57 days.
   C. 85 days.
   D. 113 days.
Use the following information to answer questions 34 to 36.

Julia Coffecup is a start-up coffee shop and bakery. The company has projected sales and expenses as follows:

<table>
<thead>
<tr>
<th>Expected Sales (RM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>July</td>
</tr>
<tr>
<td>35,000</td>
</tr>
</tbody>
</table>

I. Sales collection is projected as follow:
   • 30 percent of sales are for cash.
   • 70 percent of sales will be collected the second month following the sale.

II. Julia Coffecup’s purchases are equal to 70 percent of the following month's sales. The accounts payable period for purchases is 30 days from the month of purchases.

III. Wages and salaries are estimated to be RM9,000 a month and leasing expense is RM2,500 per month.

IV. Depreciation is estimated at RM11,000 per month.

V. All expenses are paid when incurred.

34. What is Julia Coffecup’s total cash collection in August?
   
   A. RM39,205
   B. RM40,100
   C. RM42,050
   D. RM64,650

35. What is Julia Coffecup’s total cash disbursement in September?

   A. RM52,450
   B. RM64,650
   C. RM66,800
   D. RM67,500

36. What is Julia Coffecup’s net cash inflow in October?

   A. RM(2,150)
   B. RM(10,400)
   C. RM10,855
   D. RM11,800
37. You are applying a one-year loan of RM37,800 at 12 percent of interest. The bank requires that you maintain a 10 percent compensating balance. Calculate the effective interest rate.

A. 8.88 percent
B. 12.00 percent
C. 13.33 percent
D. 15.55 percent

38. The need to hold cash to take advantage of additional investment opportunities is called the ________ motive.

A. transaction
B. speculative
C. precautionary
D. compensating balances

39. Which of the following is the primary concern in the management of cash and marketable securities for an operating company?

A. The primary concern is profitability.
B. The primary concern is to balance liquidity needs against investment opportunities.
C. The primary concern is to keep enough cash on hand to buy a competitor if it becomes available.
D. The primary concern is to make certain that the very next loan interest payment due to the bank can be made.

40. A company that has an unpredictable cash flow, and is holding cash because of things that might happen due to this uncertainty, is holding a larger minimum cash balance due to which type of motive?

A. Transaction
B. Speculative
C. Precautionary
D. Common sense
PART B (60 MARKS)

QUESTION ONE (20 MARKS)

A. Define the following terms:

i. Amortized loan

(1 mark)

ii. Compounding

(1 mark)

iii. Discounting

(1 mark)

B. Compare and contrast between an ordinary annuity, an annuity due and a perpetuity.

(4 marks)
C. Your life-long dream is to climb Mount Kinabalu. The expedition will cost RM72,000, which you plan to save over the next 6 years. How much must you save each month to accumulate sufficient funds if your deposits earn a stated interest rate of 6 percent per annum compounded monthly?

(6 marks)
D. You are given two investment alternatives to choose, A and B. The cash inflows from these investments are as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>690</td>
<td>1500</td>
</tr>
<tr>
<td>2</td>
<td>2500</td>
<td>1500</td>
</tr>
<tr>
<td>3</td>
<td>970</td>
<td>1500</td>
</tr>
<tr>
<td>4</td>
<td>1700</td>
<td>1500</td>
</tr>
</tbody>
</table>

The discount rate is 18 percent.

i. Calculate the present value for each investment. (5 marks)

ii. Which investment should you choose? Justify your answer. (2 marks)
QUESTION TWO (20 MARKS)

A. Champion Company must choose between two asset purchases. The annual rate of return and related probabilities given below summarize the firm’s analysis.

<table>
<thead>
<tr>
<th>Asset A</th>
<th>Asset B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate of Return (percent)</td>
<td>Probability (percent)</td>
</tr>
<tr>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>15</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

For each asset, compute:

i. the expected rate of return.

(5 marks)

ii. the standard deviation of the expected return.

(5 marks)
iii. the coefficient of variation of the return.  

(2 marks)

iv. Which asset should this company select? Justify your answer.  

(2 marks)

B. CSB Inc. has a beta of 0.765. If the expected market return is 11.5 percent and the risk-free rate is 7.5 percent, what is the appropriate required rate of return of CSB?  

(2 marks)

C. Briefly explain the difference between “systematic risk” and “unsystematic risk.” Give ONE (1) example for each type of risk.  

(4 marks)
QUESTION THREE (20 MARKS)

A. A toy manufacturing company has a RM75 per unit per year carrying cost on a certain item in inventory. This item is used at a rate of 50,000 per year. Ordering costs are RM500 per order.

i. Calculate the EOQ for this item. (3 marks)

ii. What are the annual inventory costs for this company if it orders in this quantity? (Assume constant demand and instantaneous delivery) (4 marks)

iii. Give THREE (3) assumptions made by the EOQ model? (3 marks)
B. Alifa Inc. is considering a change in its cash-only policy. The new terms would be net one period. Based on the following information, determine if Alifa should proceed or not. The required return is 3 percent per period.

<table>
<thead>
<tr>
<th></th>
<th>Current Policy</th>
<th>New Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Price per unit</td>
<td>RM75</td>
<td>RM80</td>
</tr>
<tr>
<td>Cost per unit</td>
<td>RM43</td>
<td>RM43</td>
</tr>
<tr>
<td>Unit sales per month</td>
<td>3,200</td>
<td>3,500</td>
</tr>
</tbody>
</table>

(10 marks)
FORMULA SHEET

\[ FV_n = PV(1 + i)^n \]

\[ PV = \frac{FV}{(1 + i)^n} \]

\[ FV_A = PMT \left[ \frac{(1+i)^n - 1}{i} \right] \]

\[ PV_A = PMT \left[ \frac{1 - \left(\frac{1}{1+i}\right)^n}{i} \right] \]

\[ EAR = \left(1 + \frac{\text{quoted rate}}{m}\right)^m - 1 \]

\[ FV_n = PV \left( FVIF_{i,n} \right) \]

\[ CY = \frac{PMT}{V_b} \]

\[ FV_n = PV \left(1 + \frac{i}{m}\right)^{mn} \]

\[ PV = \frac{PP}{i} \]

\[ = \left(\frac{Q}{2}\right)C + \left(\frac{S}{Q}\right)O \]

\[ \sigma = \sqrt{\sum_{i=1}^{n} (k_i - \bar{k})^2 P(k_i)} \]

\[ Q^* = \sqrt{\frac{2SO}{C}} \]

\[ \bar{k} = \sum_{i=1}^{n} X_i P(k_i) \]
<table>
<thead>
<tr>
<th>COMMON FINANCIAL RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current ratio</strong> = ( \frac{\text{Current asset}}{\text{Current liabilities}} )</td>
</tr>
<tr>
<td><strong>Quick ratio</strong> = ( \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}} )</td>
</tr>
<tr>
<td><strong>Total debt ratio</strong> = ( \frac{\text{total debt}}{\text{total assets}} )</td>
</tr>
<tr>
<td><strong>Long term debt ratio</strong> = ( \frac{\text{Long term debt}}{\text{Long term debt} + \text{total equity}} )</td>
</tr>
<tr>
<td><strong>Time Interest Earned Ratio</strong> = ( \frac{\text{EBIT}}{\text{Interest}} )</td>
</tr>
<tr>
<td><strong>Inventory turnover</strong> = ( \frac{\text{Costs of goods sold}}{\text{Inventory}} )</td>
</tr>
<tr>
<td><strong>Day's sales in inventory</strong> = ( \frac{365 \text{ days}}{\text{Inventory turnover}} )</td>
</tr>
<tr>
<td><strong>Profit margin</strong> = ( \frac{\text{Net income}}{\text{Sales}} )</td>
</tr>
<tr>
<td><strong>Return on assets (ROA)</strong> = ( \frac{\text{Net income}}{\text{Total asset}} )</td>
</tr>
<tr>
<td><strong>Return on equity (ROE)</strong> = ( \frac{\text{Net income}}{\text{Equity}} )</td>
</tr>
<tr>
<td><strong>Receivables turnover</strong> = ( \frac{\text{sales}}{\text{Account receivables}} )</td>
</tr>
<tr>
<td><strong>Day's sales in receivables</strong> = ( \frac{365 \text{ days}}{\text{Receivables turnover}} )</td>
</tr>
<tr>
<td><strong>Net Income</strong> = ( \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}} )</td>
</tr>
<tr>
<td><strong>Price Earnings ratio</strong> = ( \frac{\text{Price per share}}{\text{Earnings per share}} )</td>
</tr>
<tr>
<td><strong>Fixed asset turnover</strong> = ( \frac{\text{Sales}}{\text{Net fixed asset}} )</td>
</tr>
<tr>
<td><strong>Market to book ratio</strong> = ( \frac{\text{market value per share}}{\text{Book value per share}} )</td>
</tr>
<tr>
<td><strong>Total asset turnover</strong> = ( \frac{\text{Sales}}{\text{Total asset}} )</td>
</tr>
<tr>
<td>Period</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

### Using the Calculator to Compute the Future Value of a Single Amount

**Before you begin,** be certain to clear the memory, ensure that you are in the end mode and that your calculator is set for one payment per year, and set the number of decimal places that you want (usually two for dollar-related accuracy).

**SAMPLE PROBLEM**
You place $500 in a savings account at 6% compounded annually. What is your account balance at the end of 3 years?

**Solution**

1. **Step 1:** Enter the annual interest rate, 6%, by pressing the `6` key on the Texas Instruments BA II Plus.
2. **Step 2:** Press the `2ND` key, then the `FV` key.
3. **Step 3:** Enter the number of years, 3, by pressing the `3` key.
4. **Step 4:** Press the `PV` key and enter the principal, -500 (negative because it is a deposit).
5. **Step 5:** Press the `CPT` key to calculate the future value.

**Result:** The future value is $621.10.

---

For the **TI BA II Plus**, you would see the `---` symbol on the display. For the **TI BA II Plus**, you would see the `FV` key instead of the `STO` key.

**Note:**
- For the **TI BA II Plus**, you would see the `---` symbol on the display. You should check your calculator's manual for more details.
- For the **TI BA II Plus**, you would see the `FV` key instead of the `STO` key. If your calculator displays `---` or `STO`, you should consult the user's manual.
### Table A-2: Present Value Interest Factors for One Dollar Discounted at \( r \) Percent for \( n \) Periods; \( PVIF_{r,n} = \frac{1}{(1 + r)^n} \)

| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
|--------|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1      | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| 2      | 0.90 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| 3      | 0.90 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 | 0.82 |
| 4      | 0.90 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 | 0.83 |
| 5      | 0.90 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| 6      | 0.90 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| 7      | 0.90 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 | 0.86 |
| 8      | 0.90 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| 9      | 0.90 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| 10     | 0.90 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |

### Using the Calculator to Compute the Present Value of a Single Amount

Before you begin, make sure to clear the memory, ensure that you are in the 11C mode, and that your calculator is set for one payment per year, and set the number of decimal places that you want (usually two for dollars-related accuracy).

**SAMPLE PROBLEM**

You want to know the present value of $1,000 to be received at the end of 8 years, assuming a 5% discount rate.

**Steps (for HP 12C)**

1.  **Clear the 12C:**
   
   - Press **CLEAR 12C**

2.  **Set the memory:**
   
   - Press **STO 1 0 0 0**

3.  **Set payments per year:**
   
   - Press **2 N/Y**

4.  **Set the discount rate:**
   
   - Press **5 I/Y**

5.  **Calculate the present value:**
   
   - Press **PV**

**Steps (for BA II Plus)**

1.  **Clear the memory:**
   
   - Press **CLR TVM**

2.  **Set the payment years:**
   
   - Press **8 N**

3.  **Set the discount rate:**
   
   - Press **5 I/Y**

4.  **Calculate the present value:**
   
   - Press **PV**

---

*For the HP 12C, you would press the **C** key instead of the **STO** key. For the HP 11C, you would press the **g** key instead of the **STO** key.*
TABLE A-3  Future Value Interest Factors for a One-Dollar Ordinary Annuity Compounded at i Percent for n Periods: \( FVAIF_{i,n} = \sum_{t=1}^{n} (1 + i)^{-t} \)

<table>
<thead>
<tr>
<th>Period</th>
<th>0%</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>
<th>11%</th>
<th>12%</th>
<th>13%</th>
<th>14%</th>
<th>15%</th>
<th>16%</th>
<th>17%</th>
<th>18%</th>
<th>19%</th>
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</thead>
<tbody>
<tr>
<td>1</td>
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<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
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<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
<td>1.000</td>
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</tr>
<tr>
<td>2</td>
<td>2.000</td>
<td>2.020</td>
<td>2.040</td>
<td>2.060</td>
<td>2.080</td>
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<td>2.160</td>
<td>2.180</td>
<td>2.200</td>
<td>2.220</td>
<td>2.240</td>
<td>2.260</td>
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<td>2.300</td>
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<td>2.340</td>
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Using the Calculator to Compute the Future Value of an Ordinary Annuity

Before you begin, be certain to clear the memory, ensure that you are in the end mode and that your calculator is set for one payment per year, and set the number of decimal places that you want (usually two for dollar-and-cent accuracy).

SAMPLE PROBLEM: You want to know what the future value will be at the end of 3 years if you place $1,000 in an account paying 7% annually. What is your account balance at the end of 3 years?

```
\text{Texas Instruments,} \text{ BA II Plus, BA II Plus*}
```

**Internet, Pocketbook HP 12C, 17B II, and 19B**
### Table A-4: Present Value Interest Factors for a One-Dollar Discounted at i Percent for n Periods: 

\[ PVIF_{n, i} = \frac{1}{(1 + i)^n} \]

<table>
<thead>
<tr>
<th>Period</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>
<th>12%</th>
<th>14%</th>
<th>16%</th>
<th>18%</th>
<th>20%</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>0.990</td>
<td>0.980</td>
<td>0.970</td>
<td>0.960</td>
<td>0.950</td>
<td>0.940</td>
<td>0.930</td>
<td>0.920</td>
<td>0.910</td>
<td>0.900</td>
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<td>0.854</td>
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<td>1.920</td>
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<td>1.720</td>
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<td>50.544</td>
<td>48.916</td>
<td>47.287</td>
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<td>44.030</td>
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<td>54.827</td>
<td>52.705</td>
<td>51.583</td>
<td>47.646</td>
<td>47.152</td>
<td>46.657</td>
<td>46.162</td>
<td>45.667</td>
</tr>
</tbody>
</table>

### Using the Calculator to Compute the Present Value of an Annuity

#### Before you begin, make sure to clear the memory, ensure that you are in the end mode and that your calculator is set for one payment per year, and set the number of decimal places that you want (usually two for dollar-related accuracy).

#### SAMPLE PROBLEM
You want to know what the present value will be at an interest rate of 7% per year, given a discount rate of 10%.

#### Projected Return of NPV
17.6% and 18.6%

#### Inputs

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Benefit Payment</td>
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<tr>
<td>Discount Rate</td>
<td>10%</td>
</tr>
<tr>
<td>Interest Rate</td>
<td>7%</td>
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</table>

#### Table

<table>
<thead>
<tr>
<th>Year</th>
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<th>10%</th>
<th>7%</th>
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<td>0.9709</td>
<td>97.09</td>
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<tr>
<td>3</td>
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<td>0.8246</td>
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<tr>
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<td>0.5002</td>
<td>50.02</td>
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</tbody>
</table>

### Notes

1. You would use the [ ] key instead of the [ ] key and the [ ] key instead of the [ ] key.
2. The minus sign that precedes the dollars should be ignored.
3. You would use the [ ] key instead of the [ ] key.
4. If a minus sign precedes the answer, it should be ignored.