

**PGDM (Retail Management)**  
**Trimester II Batch 2013-15**  
**Corporate Finance**  
**RM203**

Time 2 hours 30 minutes

MM 50

*This is a closed book examination. Use of ordinary calculator is permitted. In case of any doubts please make reasonable assumptions and proceed. Please write your name and roll no on the question paper as soon as you receive the same*

**Section A**

There are five questions in this section, Attempt any three. Each carries 5 marks

- A1) How the financial decision making involve risk –return trade off?
- A2) You have deposited Rs 20,000 in a bank . The bank gives you interest of 10% . Your goal is to have Rs 30,000 . How many years it will take ?
- A3)What is meant by incremental Cash Flow?
- A4)How is the concept of time value of money applied to capital budgeting
- A5)\ Explain the significance of profitability index ?

**Section B 20 Marks**

There are three questions in this section, Attempt any two Each carries 10 marks

B1)Sushant Ltd. has the following capital structure :

|                       |           |
|-----------------------|-----------|
| Equity shares         | 50,00,000 |
| 10% Preference shares | 10,00,000 |
| 14% Debentures        | 20,00,000 |
|                       | 80,00,000 |

Equity shares of the company are sold at Rs.25 per share in the market. It is expected that the company will pay next year a dividend of Rs.4 per share which will grow at 8% forever. Assume a tax-rate of 30%.

Compute weighted average cost of capital based on the existing capital structure.

B2)The following information is available in respect of two firms X & Y

|                    | X   | Y    |
|--------------------|-----|------|
| Sales              | 500 | 1000 |
| Less Variable Cost | 200 | 300  |
| Contribution       | 300 | 700  |
| Less Fixed Cost    | 150 | 400  |
| EBIT               | 150 | 300  |
| Interest           | 50  | 100  |

Find out Operating Leverage , Financial Leverage and Composite Leverage?

B3)“The profit maximization is not an operationally feasible criterion “Do you agree?  
Explain with suitable example the arbitrage process of MM approach to achieve the equilibrium level

### Section C 15 Marks

From the following data compute the duration of the operating cycle

|                      | Year I   | Year II  |
|----------------------|----------|----------|
| Stock – Raw Material | 20,000   | 27,000   |
| Work In Progress     | 14,000   | 18,000   |
| Finished Goods       | 21,000   | 24,000   |
| Purchases            | 96,000   | 1,35,000 |
| Cost of Goods Sold   | 1,40,000 | 1,80,000 |
| Sales                | 1,60,000 | 2,00,000 |
| Debtors              | 32,000   | 50,000   |
| Creditors            | 16,000   | 18,000   |

You may assume 360 days in a year.

Present Value and Future Value Tables

Table A-3 Present Value Interest Factors for One Dollar Discounted at  $k$  Percent for  $n$  Periods:  $PVIF_{k,n} = 1 / (1 + k)^n$

| Period | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    | 16%    | 20%    | 24%    | 28%    | 30%    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1      | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 | 0.8621 | 0.8333 | 0.8065 | 0.8000 | 0.7692 |
| 2      | 0.9803 | 0.9612 | 0.9426 | 0.9246 | 0.9070 | 0.8900 | 0.8734 | 0.8573 | 0.8417 | 0.8264 | 0.8115 | 0.7972 | 0.7831 | 0.7695 | 0.7561 | 0.7432 | 0.6944 | 0.6504 | 0.6400 | 0.5917 |
| 3      | 0.9706 | 0.9423 | 0.9151 | 0.8890 | 0.8638 | 0.8396 | 0.8163 | 0.7938 | 0.7722 | 0.7513 | 0.7312 | 0.7118 | 0.6931 | 0.6750 | 0.6575 | 0.6407 | 0.5787 | 0.5245 | 0.5120 | 0.4552 |
| 4      | 0.9610 | 0.9238 | 0.8978 | 0.8726 | 0.8483 | 0.8249 | 0.8024 | 0.7807 | 0.7600 | 0.7400 | 0.7207 | 0.7021 | 0.6842 | 0.6670 | 0.6505 | 0.6347 | 0.5523 | 0.4823 | 0.4680 | 0.3951 |
| 5      | 0.9515 | 0.9057 | 0.8806 | 0.8563 | 0.8329 | 0.8103 | 0.7886 | 0.7677 | 0.7476 | 0.7282 | 0.7095 | 0.6915 | 0.6742 | 0.6575 | 0.6415 | 0.6261 | 0.5179 | 0.4309 | 0.4150 | 0.3281 |
| 6      | 0.9420 | 0.8870 | 0.8627 | 0.8393 | 0.8168 | 0.7951 | 0.7742 | 0.7540 | 0.7346 | 0.7159 | 0.6978 | 0.6803 | 0.6635 | 0.6473 | 0.6317 | 0.6165 | 0.4923 | 0.3909 | 0.3730 | 0.2721 |
| 7      | 0.9327 | 0.8776 | 0.8532 | 0.8307 | 0.8090 | 0.7881 | 0.7680 | 0.7486 | 0.7298 | 0.7115 | 0.6937 | 0.6763 | 0.6594 | 0.6430 | 0.6271 | 0.6117 | 0.4719 | 0.3569 | 0.3370 | 0.2281 |
| 8      | 0.9236 | 0.8684 | 0.8439 | 0.8223 | 0.8014 | 0.7813 | 0.7620 | 0.7434 | 0.7253 | 0.7076 | 0.6903 | 0.6734 | 0.6569 | 0.6407 | 0.6249 | 0.6095 | 0.4549 | 0.3369 | 0.3150 | 0.2001 |
| 9      | 0.9143 | 0.8590 | 0.8344 | 0.8137 | 0.7936 | 0.7744 | 0.7560 | 0.7383 | 0.7211 | 0.7043 | 0.6878 | 0.6716 | 0.6557 | 0.6399 | 0.6245 | 0.6091 | 0.4389 | 0.3169 | 0.2930 | 0.1701 |
| 10     | 0.9053 | 0.8500 | 0.8253 | 0.8055 | 0.7862 | 0.7678 | 0.7502 | 0.7333 | 0.7168 | 0.7006 | 0.6847 | 0.6691 | 0.6537 | 0.6384 | 0.6232 | 0.6080 | 0.4129 | 0.2869 | 0.2610 | 0.1381 |
| 11     | 0.8963 | 0.8410 | 0.8162 | 0.7973 | 0.7789 | 0.7614 | 0.7446 | 0.7284 | 0.7125 | 0.6969 | 0.6815 | 0.6663 | 0.6512 | 0.6362 | 0.6213 | 0.6064 | 0.3963 | 0.2663 | 0.2380 | 0.1151 |
| 12     | 0.8874 | 0.8320 | 0.8071 | 0.7891 | 0.7716 | 0.7549 | 0.7390 | 0.7234 | 0.7080 | 0.6927 | 0.6775 | 0.6625 | 0.6475 | 0.6326 | 0.6177 | 0.6029 | 0.3763 | 0.2423 | 0.2120 | 0.0891 |
| 13     | 0.8787 | 0.8232 | 0.7982 | 0.7811 | 0.7644 | 0.7485 | 0.7334 | 0.7184 | 0.7035 | 0.6887 | 0.6739 | 0.6592 | 0.6445 | 0.6298 | 0.6152 | 0.6006 | 0.3597 | 0.2217 | 0.1890 | 0.0661 |
| 14     | 0.8700 | 0.8144 | 0.7893 | 0.7731 | 0.7572 | 0.7420 | 0.7269 | 0.7119 | 0.6970 | 0.6822 | 0.6675 | 0.6528 | 0.6382 | 0.6237 | 0.6092 | 0.5947 | 0.3337 | 0.1917 | 0.1570 | 0.0341 |
| 15     | 0.8613 | 0.8056 | 0.7804 | 0.7651 | 0.7499 | 0.7349 | 0.7199 | 0.7050 | 0.6902 | 0.6755 | 0.6608 | 0.6462 | 0.6317 | 0.6172 | 0.6027 | 0.5882 | 0.3027 | 0.1547 | 0.1180 | 0.0051 |
| 16     | 0.8526 | 0.7968 | 0.7715 | 0.7561 | 0.7410 | 0.7260 | 0.7110 | 0.6961 | 0.6813 | 0.6665 | 0.6518 | 0.6372 | 0.6227 | 0.6082 | 0.5937 | 0.5792 | 0.2777 | 0.1247 | 0.0860 | 0.0001 |
| 17     | 0.8444 | 0.7885 | 0.7631 | 0.7476 | 0.7325 | 0.7175 | 0.7025 | 0.6876 | 0.6727 | 0.6579 | 0.6431 | 0.6284 | 0.6137 | 0.6000 | 0.5863 | 0.5726 | 0.2511 | 0.0941 | 0.0530 | 0.0000 |
| 18     | 0.8360 | 0.7800 | 0.7545 | 0.7389 | 0.7238 | 0.7088 | 0.6938 | 0.6789 | 0.6640 | 0.6492 | 0.6345 | 0.6198 | 0.6052 | 0.5906 | 0.5760 | 0.5614 | 0.2201 | 0.0591 | 0.0150 | 0.0000 |
| 19     | 0.8277 | 0.7716 | 0.7460 | 0.7303 | 0.7152 | 0.7001 | 0.6851 | 0.6701 | 0.6552 | 0.6403 | 0.6255 | 0.6107 | 0.5960 | 0.5813 | 0.5666 | 0.5520 | 0.1991 | 0.0341 | 0.0000 | 0.0000 |
| 20     | 0.8195 | 0.7633 | 0.7376 | 0.7218 | 0.7066 | 0.6915 | 0.6764 | 0.6614 | 0.6464 | 0.6315 | 0.6166 | 0.6017 | 0.5869 | 0.5721 | 0.5574 | 0.5427 | 0.1741 | 0.0000 | 0.0000 | 0.0000 |
| 21     | 0.8114 | 0.7551 | 0.7293 | 0.7134 | 0.6981 | 0.6829 | 0.6677 | 0.6526 | 0.6375 | 0.6225 | 0.6075 | 0.5926 | 0.5777 | 0.5628 | 0.5480 | 0.5332 | 0.1551 | 0.0000 | 0.0000 | 0.0000 |
| 22     | 0.8034 | 0.7470 | 0.7211 | 0.7051 | 0.6897 | 0.6744 | 0.6591 | 0.6438 | 0.6286 | 0.6134 | 0.5983 | 0.5833 | 0.5683 | 0.5534 | 0.5385 | 0.5236 | 0.1371 | 0.0000 | 0.0000 | 0.0000 |
| 23     | 0.7954 | 0.7389 | 0.7129 | 0.6968 | 0.6813 | 0.6658 | 0.6504 | 0.6350 | 0.6197 | 0.6044 | 0.5892 | 0.5740 | 0.5589 | 0.5438 | 0.5288 | 0.5138 | 0.1111 | 0.0000 | 0.0000 | 0.0000 |
| 24     | 0.7876 | 0.7309 | 0.7048 | 0.6886 | 0.6729 | 0.6573 | 0.6417 | 0.6262 | 0.6107 | 0.5953 | 0.5799 | 0.5645 | 0.5492 | 0.5339 | 0.5186 | 0.5034 | 0.0841 | 0.0000 | 0.0000 | 0.0000 |
| 25     | 0.7798 | 0.7230 | 0.6968 | 0.6805 | 0.6647 | 0.6490 | 0.6334 | 0.6178 | 0.6023 | 0.5868 | 0.5714 | 0.5560 | 0.5407 | 0.5254 | 0.5101 | 0.4948 | 0.0641 | 0.0000 | 0.0000 | 0.0000 |
| 30     | 0.7419 | 0.6850 | 0.6587 | 0.6423 | 0.6260 | 0.6097 | 0.5934 | 0.5771 | 0.5608 | 0.5445 | 0.5282 | 0.5119 | 0.4956 | 0.4793 | 0.4630 | 0.4467 | 0.0241 | 0.0000 | 0.0000 | 0.0000 |
| 35     | 0.7059 | 0.6489 | 0.6225 | 0.6060 | 0.5895 | 0.5730 | 0.5565 | 0.5400 | 0.5235 | 0.5070 | 0.4905 | 0.4740 | 0.4575 | 0.4410 | 0.4245 | 0.4080 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 36     | 0.6989 | 0.6418 | 0.6153 | 0.5987 | 0.5821 | 0.5655 | 0.5489 | 0.5323 | 0.5157 | 0.4991 | 0.4825 | 0.4659 | 0.4493 | 0.4327 | 0.4161 | 0.4000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 40     | 0.6717 | 0.6145 | 0.5879 | 0.5712 | 0.5545 | 0.5378 | 0.5211 | 0.5044 | 0.4877 | 0.4710 | 0.4543 | 0.4376 | 0.4209 | 0.4042 | 0.3875 | 0.3708 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 50     | 0.6080 | 0.5507 | 0.5240 | 0.5072 | 0.4904 | 0.4736 | 0.4568 | 0.4400 | 0.4232 | 0.4064 | 0.3896 | 0.3728 | 0.3560 | 0.3392 | 0.3224 | 0.3056 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Table A-4 Present Value Interest Factors for a One-Dollar Annuity Discounted at  $k$  Percent for  $n$  Periods:  $PVIFA = [1 - 1/(1 + k)^n] / k$

| Period | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    | 16%    | 20%    | 24%    | 25%    | 30%    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1      | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 | 0.8621 | 0.8333 | 0.8065 | 0.8000 | 0.7692 |
| 2      | 1.9704 | 1.9416 | 1.9125 | 1.8831 | 1.8534 | 1.8234 | 1.7931 | 1.7625 | 1.7316 | 1.7004 | 1.6689 | 1.6371 | 1.6050 | 1.5726 | 1.5400 | 1.5071 | 1.4229 | 1.3400 | 1.3100 | 1.2609 |
| 3      | 2.9410 | 2.8938 | 2.8462 | 2.7981 | 2.7500 | 2.7016 | 2.6529 | 2.6039 | 2.5546 | 2.5050 | 2.4551 | 2.4049 | 2.3544 | 2.3036 | 2.2525 | 2.2011 | 2.0500 | 1.9600 | 1.9200 | 1.8509 |
| 4      | 3.9020 | 3.8077 | 3.7131 | 3.6181 | 3.5228 | 3.4271 | 3.3310 | 3.2346 | 3.1379 | 3.0409 | 2.9436 | 2.8460 | 2.7481 | 2.6500 | 2.5516 | 2.4529 | 2.2200 | 1.9800 | 1.9300 | 1.8209 |
| 5      | 4.8534 | 4.7135 | 4.5735 | 4.4331 | 4.2924 | 4.1513 | 4.0100 | 3.8683 | 3.7263 | 3.5840 | 3.4414 | 3.2985 | 3.1553 | 3.0119 | 2.8682 | 2.7241 | 2.3500 | 1.9500 | 1.8900 | 1.7409 |
| 6      | 5.7955 | 5.6014 | 5.4172 | 5.2327 | 5.0479 | 4.8628 | 4.6774 | 4.4917 | 4.3057 | 4.1194 | 3.9328 | 3.7459 | 3.5587 | 3.3712 | 3.1834 | 3.0000 | 2.4500 | 1.9000 | 1.8300 | 1.6209 |
| 7      | 6.7282 | 6.4720 | 6.2303 | 6.0021 | 5.7834 | 5.5642 | 5.3446 | 5.1246 | 4.9042 | 4.6834 | 4.4622 | 4.2406 | 4.0186 | 3.7962 | 3.5734 | 3.3500 | 2.6500 | 1.9500 | 1.8700 | 1.5909 |
| 8      | 7.6517 | 7.3255 | 7.0197 | 6.7327 | 6.4532 | 6.1822 | 5.9197 | 5.6657 | 5.4102 | 5.1532 | 4.8947 | 4.6347 | 4.3732 | 4.1102 | 3.8457 | 3.5800 | 2.7500 | 1.9500 | 1.8500 | 1.5109 |
| 9      | 8.5660 | 8.1622 | 7.7851 | 7.4353 | 7.1028 | 6.7866 | 6.4767 | 6.1732 | 5.8762 | 5.5857 | 5.2922 | 5.0000 | 4.7091 | 4.4196 | 4.1316 | 3.8450 | 2.8500 | 1.9500 | 1.8300 | 1.4309 |
| 10     | 9.4713 | 8.9826 | 8.5302 | 8.1109 | 7.7217 | 7.3601 | 7.0059 | 6.6591 | 6.3197 | 5.9876 | 5.6628 | 5.3454 | 5.0354 | 4.7328 | 4.4376 | 4.1496 | 2.9500 | 1.9500 | 1.8100 | 1.3609 |
| 11     | 10.368 | 9.7868 | 9.2526 | 8.7605 | 8.3064 | 7.8869 | 7.4907 | 7.1139 | 6.7552 | 6.4149 | 6.0828 | 5.7589 | 5.4434 | 5.1354 | 4.8348 | 4.5416 | 3.0500 | 1.9500 | 1.7700 | 1.2609 |
| 12     | 11.255 | 10.575 | 9.9540 | 9.3851 | 8.8633 | 8.3838 | 7.9427 | 7.5301 | 7.1359 | 6.7602 | 6.4028 | 6.0634 | 5.7314 | 5.4076 | 5.0920 | 4.7844 | 3.1500 | 1.9500 | 1.7300 | 1.1609 |
| 13     | 12.134 | 11.348 | 10.635 | 9.9856 | 9.3936 | 8.8527 | 8.3577 | 7.9038 | 7.4889 | 7.1034 | 6.7499 | 6.4235 | 6.1118 | 5.8072 | 5.5096 | 5.2188 | 3.2500 | 1.9500 | 1.6900 | 1.0909 |
| 14     | 13.004 | 12.106 | 11.296 | 10.563 | 9.8986 | 9.2950 | 8.7455 | 8.2442 | 7.7862 | 7.3667 | 6.9819 | 6.6282 | 6.2954 | 5.9837 | 5.6830 | 5.3932 | 3.3500 | 1.9500 | 1.6300 | 0.9909 |
| 15     | 13.865 | 12.849 | 11.933 | 11.118 | 10.380 | 9.7122 | 9.1079 | 8.5595 | 8.0607 | 7.6061 | 7.1909 | 6.8109 | 6.4624 | 6.1422 | 5.8424 | 5.5526 | 3.4500 | 1.9500 | 1.5700 | 0.9309 |
| 16     | 14.718 | 13.578 | 12.561 | 11.652 | 10.838 | 10.106 | 9.4466 | 8.8514 | 8.3126 | 7.8237 | 7.3792 | 6.9740 | 6.6039 | 6.2651 | 5.9442 | 5.6344 | 3.5500 | 1.9500 | 1.5100 | 0.8709 |
| 17     |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |

Present Value and Future Value Tables

Table A-3 Present Value Interest Factors for One Dollar Discounted at  $k$  Percent for  $n$  Periods:  $PVIF_{k,n} = 1 / (1 + k)^n$

| Period | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    | 16%    | 20%    | 24%    | 25%    | 30%    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1      | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 | 0.8621 | 0.8333 | 0.8065 | 0.8000 | 0.7692 |
| 2      | 0.9803 | 0.9612 | 0.9426 | 0.9246 | 0.9070 | 0.8900 | 0.8734 | 0.8573 | 0.8417 | 0.8264 | 0.8116 | 0.7972 | 0.7831 | 0.7695 | 0.7561 | 0.7432 | 0.6944 | 0.6504 | 0.6400 | 0.5917 |
| 3      | 0.9706 | 0.9423 | 0.9151 | 0.8890 | 0.8638 | 0.8395 | 0.8163 | 0.7938 | 0.7722 | 0.7513 | 0.7312 | 0.7118 | 0.6931 | 0.6750 | 0.6575 | 0.6407 | 0.5787 | 0.5245 | 0.5120 | 0.4552 |
| 4      | 0.9610 | 0.9238 | 0.8885 | 0.8548 | 0.8227 | 0.7921 | 0.7629 | 0.7350 | 0.7084 | 0.6830 | 0.6587 | 0.6355 | 0.6133 | 0.5921 | 0.5718 | 0.5523 | 0.4820 | 0.4240 | 0.4100 | 0.3501 |
| 5      | 0.9515 | 0.9057 | 0.8626 | 0.8219 | 0.7835 | 0.7473 | 0.7130 | 0.6806 | 0.6499 | 0.6209 | 0.5935 | 0.5674 | 0.5428 | 0.5194 | 0.4972 | 0.4761 | 0.4019 | 0.3411 | 0.3277 | 0.2693 |
| 6      | 0.9420 | 0.8880 | 0.8375 | 0.7903 | 0.7462 | 0.7050 | 0.6663 | 0.6302 | 0.5963 | 0.5645 | 0.5346 | 0.5066 | 0.4803 | 0.4556 | 0.4323 | 0.4104 | 0.3349 | 0.2751 | 0.2621 | 0.2072 |
| 7      | 0.9327 | 0.8706 | 0.8131 | 0.7699 | 0.7297 | 0.6915 | 0.6551 | 0.6222 | 0.5905 | 0.5607 | 0.5325 | 0.5059 | 0.4803 | 0.4561 | 0.4330 | 0.4104 | 0.3350 | 0.2751 | 0.2621 | 0.2097 |
| 8      | 0.9235 | 0.8535 | 0.7894 | 0.7507 | 0.7145 | 0.6782 | 0.6435 | 0.6112 | 0.5805 | 0.5513 | 0.5235 | 0.4971 | 0.4725 | 0.4494 | 0.4270 | 0.4048 | 0.3300 | 0.2700 | 0.2570 | 0.2054 |
| 9      | 0.9143 | 0.8368 | 0.7664 | 0.7307 | 0.6965 | 0.6620 | 0.6288 | 0.5967 | 0.5660 | 0.5367 | 0.5087 | 0.4825 | 0.4581 | 0.4350 | 0.4128 | 0.3908 | 0.3160 | 0.2560 | 0.2430 | 0.1914 |
| 10     | 0.9053 | 0.8203 | 0.7441 | 0.7107 | 0.6780 | 0.6458 | 0.6143 | 0.5833 | 0.5535 | 0.5248 | 0.4971 | 0.4713 | 0.4475 | 0.4246 | 0.4024 | 0.3804 | 0.3060 | 0.2460 | 0.2330 | 0.1814 |
| 11     | 0.8963 | 0.8043 | 0.7224 | 0.6915 | 0.6598 | 0.6285 | 0.5977 | 0.5673 | 0.5380 | 0.5097 | 0.4823 | 0.4565 | 0.4327 | 0.4098 | 0.3876 | 0.3656 | 0.2910 | 0.2310 | 0.2180 | 0.1664 |
| 12     | 0.8874 | 0.7885 | 0.7014 | 0.6726 | 0.6415 | 0.6112 | 0.5813 | 0.5517 | 0.5231 | 0.4954 | 0.4685 | 0.4431 | 0.4192 | 0.3962 | 0.3739 | 0.3518 | 0.2770 | 0.2170 | 0.2040 | 0.1524 |
| 13     | 0.8787 | 0.7730 | 0.6810 | 0.6543 | 0.6248 | 0.5953 | 0.5660 | 0.5369 | 0.5087 | 0.4813 | 0.4545 | 0.4291 | 0.4051 | 0.3820 | 0.3596 | 0.3374 | 0.2620 | 0.2020 | 0.1890 | 0.1374 |
| 14     | 0.8700 | 0.7579 | 0.6611 | 0.6365 | 0.6078 | 0.5791 | 0.5507 | 0.5225 | 0.4951 | 0.4681 | 0.4413 | 0.4157 | 0.3913 | 0.3680 | 0.3456 | 0.3234 | 0.2480 | 0.1880 | 0.1750 | 0.1234 |
| 15     | 0.8613 | 0.7430 | 0.6419 | 0.6185 | 0.5905 | 0.5627 | 0.5351 | 0.5075 | 0.4807 | 0.4541 | 0.4277 | 0.4023 | 0.3779 | 0.3544 | 0.3318 | 0.3094 | 0.2340 | 0.1740 | 0.1610 | 0.1094 |
| 16     | 0.8526 | 0.7284 | 0.6232 | 0.6009 | 0.5736 | 0.5463 | 0.5191 | 0.4923 | 0.4657 | 0.4393 | 0.4131 | 0.3875 | 0.3627 | 0.3388 | 0.3154 | 0.2920 | 0.2160 | 0.1560 | 0.1430 | 0.0914 |
| 17     | 0.8444 | 0.7142 | 0.6050 | 0.5837 | 0.5563 | 0.5291 | 0.5023 | 0.4757 | 0.4493 | 0.4231 | 0.3971 | 0.3715 | 0.3463 | 0.3215 | 0.2970 | 0.2726 | 0.1960 | 0.1360 | 0.1230 | 0.0714 |
| 18     | 0.8360 | 0.7002 | 0.5874 | 0.5671 | 0.5395 | 0.5123 | 0.4855 | 0.4589 | 0.4325 | 0.4063 | 0.3803 | 0.3545 | 0.3291 | 0.3040 | 0.2790 | 0.2540 | 0.1780 | 0.1180 | 0.1050 | 0.0534 |
| 19     | 0.8277 | 0.6864 | 0.5703 | 0.5510 | 0.5232 | 0.4959 | 0.4691 | 0.4425 | 0.4161 | 0.3899 | 0.3637 | 0.3377 | 0.3121 | 0.2866 | 0.2612 | 0.2358 | 0.1600 | 0.1000 | 0.0870 | 0.0354 |
| 20     | 0.8195 | 0.6730 | 0.5537 | 0.5354 | 0.5081 | 0.4813 | 0.4549 | 0.4287 | 0.4027 | 0.3767 | 0.3507 | 0.3249 | 0.2993 | 0.2738 | 0.2484 | 0.2230 | 0.1470 | 0.0870 | 0.0740 | 0.0224 |
| 21     | 0.8114 | 0.6598 | 0.5375 | 0.5199 | 0.4931 | 0.4663 | 0.4397 | 0.4133 | 0.3871 | 0.3609 | 0.3349 | 0.3091 | 0.2835 | 0.2580 | 0.2326 | 0.2072 | 0.1310 | 0.0710 | 0.0580 | 0.0064 |
| 22     | 0.8034 | 0.6468 | 0.5219 | 0.5049 | 0.4781 | 0.4513 | 0.4247 | 0.3983 | 0.3721 | 0.3459 | 0.3199 | 0.2941 | 0.2685 | 0.2430 | 0.2176 | 0.1922 | 0.1160 | 0.0560 | 0.0430 | 0.0004 |
| 23     | 0.7954 | 0.6342 | 0.5067 | 0.4897 | 0.4629 | 0.4361 | 0.4095 | 0.3831 | 0.3567 | 0.3305 | 0.3043 | 0.2783 | 0.2525 | 0.2268 | 0.2012 | 0.1756 | 0.1000 | 0.0400 | 0.0270 | 0.0004 |
| 24     | 0.7876 | 0.6217 | 0.4919 | 0.4749 | 0.4481 | 0.4213 | 0.3947 | 0.3683 | 0.3419 | 0.3155 | 0.2893 | 0.2631 | 0.2371 | 0.2112 | 0.1854 | 0.1596 | 0.0840 | 0.0240 | 0.0110 | 0.0004 |
| 25     | 0.7798 | 0.6095 | 0.4776 | 0.4606 | 0.4338 | 0.4071 | 0.3805 | 0.3539 | 0.3273 | 0.3007 | 0.2741 | 0.2475 | 0.2211 | 0.1948 | 0.1684 | 0.1420 | 0.0660 | 0.0060 | 0.0004 | 0.0004 |
| 30     | 0.7419 | 0.5621 | 0.4120 | 0.3983 | 0.3714 | 0.3445 | 0.3176 | 0.2907 | 0.2638 | 0.2369 | 0.2100 | 0.1831 | 0.1562 | 0.1293 | 0.1024 | 0.0755 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 35     | 0.7059 | 0.5000 | 0.3554 | 0.3434 | 0.3164 | 0.2895 | 0.2626 | 0.2357 | 0.2088 | 0.1819 | 0.1550 | 0.1281 | 0.1012 | 0.0743 | 0.0474 | 0.0205 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 36     | 0.6989 | 0.4902 | 0.3450 | 0.3327 | 0.3057 | 0.2788 | 0.2519 | 0.2250 | 0.1981 | 0.1712 | 0.1443 | 0.1174 | 0.0905 | 0.0636 | 0.0367 | 0.0098 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 40     | 0.6717 | 0.4529 | 0.3066 | 0.2943 | 0.2673 | 0.2404 | 0.2135 | 0.1866 | 0.1597 | 0.1328 | 0.1059 | 0.0790 | 0.0521 | 0.0252 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| 50     | 0.6080 | 0.3715 | 0.2281 | 0.1407 | 0.0872 | 0.0543 | 0.0339 | 0.0213 | 0.0134 | 0.0085 | 0.0054 | 0.0035 | 0.0022 | 0.0014 | 0.0009 | 0.0006 | *      | *      | *      | *      |

Table A-4 Present Value Interest Factors for a One-Dollar Annuity Discounted at  $k$  Percent for  $n$  Periods:  $PVIFA = [1 - 1/(1 + k)^n] / k$

| Period | 1%     | 2%     | 3%     | 4%     | 5%     | 6%     | 7%     | 8%     | 9%     | 10%    | 11%    | 12%    | 13%    | 14%    | 15%    | 16%    | 20%    | 24%    | 25%    | 30%    |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1      | 0.9901 | 0.9804 | 0.9709 | 0.9615 | 0.9524 | 0.9434 | 0.9346 | 0.9259 | 0.9174 | 0.9091 | 0.9009 | 0.8929 | 0.8850 | 0.8772 | 0.8696 | 0.8621 | 0.8333 | 0.8065 | 0.8000 | 0.7692 |
| 2      | 1.9704 | 1.9416 | 1.9128 | 1.8840 | 1.8552 | 1.8264 | 1.7976 | 1.7688 | 1.7400 | 1.7112 | 1.6824 | 1.6536 | 1.6248 | 1.5960 | 1.5672 | 1.5384 | 1.4600 | 1.4000 | 1.3800 | 1.3000 |
| 3      | 2.9410 | 2.8839 | 2.8268 | 2.7751 | 2.7232 | 2.6713 | 2.6194 | 2.5675 | 2.5156 | 2.4637 | 2.4118 | 2.3600 | 2.3081 | 2.2562 | 2.2043 | 2.1524 | 2.0700 | 1.9800 | 1.9600 | 1.8600 |
| 4      | 3.9020 | 3.8077 | 3.7171 | 3.6299 | 3.5460 | 3.4643 | 3.3827 | 3.3011 | 3.2195 | 3.1379 | 3.0563 | 2.9747 | 2.8931 | 2.8115 | 2.7299 | 2.6483 | 2.5600 | 2.4600 | 2.4400 | 2.3200 |
| 5      | 4.8534 | 4.7135 | 4.5797 | 4.4518 | 4.3295 | 4.2124 | 4.1002 | 3.9927 | 3.8897 | 3.7908 | 3.6959 | 3.6048 | 3.5172 | 3.4331 | 3.3522 | 3.2743 | 2.9900 | 2.7454 | 2.6893 | 2.4355 |
| 6      | 5.7955 | 5.6014 | 5.4172 | 5.2421 | 5.0757 | 4.9173 | 4.7655 | 4.6229 | 4.4859 | 4.3533 | 4.2250 | 4.1011 | 3.9815 | 3.8661 | 3.7548 | 3.6474 | 3.3500 | 3.0205 | 2.9514 | 2.6427 |
| 7      | 6.7282 | 6.4720 | 6.2303 | 6.0021 | 5.7864 | 5.5824 | 5.3893 | 5.2064 | 5.0330 | 4.8684 | 4.7122 | 4.5638 | 4.4226 | 4.2883 | 4.1604 | 4.0386 | 3.6800 | 3.2423 | 3.1611 | 2.8021 |
| 8      | 7.6517 | 7.3255 | 7.0197 | 6.7327 | 6.4632 | 6.2098 | 5.9713 | 5.7466 | 5.5349 | 5.3451 | 5.1681 | 4.9937 | 4.8315 | 4.6808 | 4.5413 | 4.4128 | 4.0000 | 3.4800 | 3.3888 | 2.9427 |
| 9      | 8.5660 | 8.1622 | 7.7861 | 7.4353 | 7.1078 | 6.8017 | 6.5152 | 6.2469 | 5.9952 | 5.7590 | 5.5370 | 5.3282 | 5.1317 | 4.9464 | 4.7716 | 4.6055 | 4.0300 | 3.4655 | 3.4631 | 3.0190 |
| 10     | 9.4713 | 8.9826 | 8.5302 | 8.1109 | 7.7217 | 7.3601 | 7.0236 | 6.7101 | 6.4177 | 6.1446 | 5.8892 | 5.6502 | 5.4262 | 5.2161 | 5.0188 | 4.8332 | 4.1925 | 3.6819 | 3.6705 | 3.0916 |
| 11     | 10.368 | 9.7868 | 9.2526 | 8.7605 | 8.3064 | 7.8889 | 7.4987 | 7.1390 | 6.8052 | 6.4951 | 6.2065 | 5.9377 | 5.6889 | 5.4527 | 5.2337 | 5.0286 | 4.3271 | 3.7757 | 3.6654 | 3.1473 |
| 12     | 11.255 | 10.575 | 9.9540 | 9.3851 | 8.8633 | 8.3838 | 7.9427 | 7.5361 | 7.1607 | 6.8137 | 6.4924 | 6.1944 | 5.9176 | 5.6603 | 5.4205 | 5.1971 | 4.4392 | 3.8514 | 3.7251 | 3.1903 |
| 13     | 12.134 | 11.348 | 10.635 | 9.9656 | 9.3936 | 8.8527 | 8.3577 | 7.9038 | 7.4869 | 7.1034 | 6.7499 | 6.4235 | 6.1218 | 5.8424 | 5.5831 | 5.3423 | 4.5327 | 3.9124 | 3.7801 | 3.2233 |
| 14     | 13.004 | 12.106 | 11.296 | 10.563 | 9.8986 | 9.2950 | 8.7455 | 8.2442 | 7.7862 | 7.3667 | 6.9819 | 6.6282 | 6.3025 | 6.0021 | 5.7245 | 5.4675 | 4.6106 | 3.9616 | 3.8241 | 3.2487 |
| 15     | 13.865 | 12.849 | 11.938 | 11.118 | 10.380 | 9.7122 | 9.1079 | 8.5595 | 8.0607 | 7.6061 | 7.1909 | 6.8109 | 6.4624 | 6.1422 | 5.8474 | 5.5755 | 4.6755 | 4.0013 | 3.8593 | 3.2682 |
| 16     | 14.718 | 13.578 | 12.561 | 11.652 | 10.838 | 10.106 | 9.4466 | 8.8514 | 8.3126 | 7.8237 | 7.3792 | 6.9740 | 6.6039 | 6.2651 | 5.9542 | 5.6685 | 4.7296 | 4.0333 | 3.8874 | 3.2832 |
| 17     | 15.562 | 14.292 | 13.166 | 12.166 | 11.274 | 10.477 | 9.7632 | 9.1216 | 8.5438 | 8.0216 | 7.5488 | 7.1196 | 6.7291 | 6.3729 | 6.0472 | 5.7487 | 4.7746 | 4.0591 | 3.9099 | 3.2948 |
| 18     | 16.398 | 14.992 | 13.754 | 12.659 | 11.690 | 10.828 | 10.059 | 9.3719 | 8.7556 | 8.2014 | 7.7016 | 7.2497 | 6.8399 | 6.4674 | 6.1280 | 5.8178 | 4.8122 | 4.0799 | 3.9279 | 3.3037 |
| 19     | 17.226 | 15.678 | 14.324 | 13.134 | 12.085 | 11.158 | 10.336 | 9.6036 | 8.9501 | 8.3649 | 7.8358 | 7.3658 | 6.9380 | 6.5504 | 6.1982 | 5.8775 | 4.8435 | 4.0987 | 3.9424 | 3.3105 |
| 20     | 18.046 | 16.351 | 14.877 | 13.590 | 12.462 | 11.470 | 10.594 | 9.8181 | 9.1265 | 8.5136 | 7.9633 | 7.4694 | 7.0248 | 6.6231 | 6.2593 | 5.9288 | 4.8696 | 4.1103 | 3.9539 | 3.3158 |
| 21     | 18.857 | 17.011 | 15.415 | 14.029 | 12.821 | 11.764 | 10.836 | 10.017 | 9.2922 | 8.6487 | 8.0751 | 7.5620 | 7.1016 | 6.6870 | 6.31   |        |        |        |        |        |