

**GUJARAT NATIONAL LAW UNIVERSITY
GANDHINAGAR**

Course: Financial Management
Semester-V (Batch: 2017-22)

End Semester Examination: October-2019

Date: 25th October, 2019

Duration: 3 hours

Max. Marks: 50

Instructions:

- Read the questions properly and write the answers in the given answer book.
- The respective marks for each question are indicated in-line.
- Do not write anything on the question paper.
- Indicate correct question numbers in front of the answers.
- No questions or clarifications can be sought during the exam period, answer as it is, giving reason, if any.
- Use of scientific calculator is permitted.
- PV and FV tables are attached with this question paper.

Q.1 A firm is evaluating an investment proposal with an initial investment of Rs.7,00,000.

Marks
(10)

It is expected to generate the following cash inflows at the end of each year for next 5 years.

Year	Cash Inflow
1	Rs.2,60,000
2	Rs.1,70,000
3	Rs.1,75,000
4	Rs.1,50,000
5	Rs.1,00,000

Determine the **Internal Rate of Return (IRR)** of the Proposal. Recommend, whether the project should be accepted, if the Cost of Capital (WACC) of the company is 10%.

(a) If the Initial Investment (currently Rs. 7,00,000) increases by Rs.1,50,000; will the project be viable?

(b) If the Discount Rate (currently 10%) increases by 2%; will the project be viable?

(Note: The use of payback method is simply to find a starting point for trial and error)

Q.2 Dawn Ltd. presently has Rs.1,00,000 of capital and market value. It is currently fully financed by equity. The cost of equity is 10%. However, it is interested to use debt as the prevailing market conditions are favorable. The firm is interested to try combinations of 30%, 50%, 70% and 90% debt and remaining equity respectively. The cost of debt is 8%. Examine the value of the firm under Net Income Approach and Net Operating Income Approach. (10)

In the same firm, the following changes are expected in the cost of equity and cost of debt as a response to change in debt equity ratio under the traditional method.

Debt/Equity Ratio	Current Cost of Equity (k_e) = 10%	Current Cost of Debt (k_d) = 08%
	Expected Cost of Equity (k_e) ↓	Expected Cost of Debt (k_d) ↓
0/100	10%	08%
20/80	10%	08%
30/70	12%	10%
50/50	12%	10%
70/30	15%	12%
90/10	16%	16%

Examine the value of the firm under traditional approach for combinations of debt and equity of 20/80, 50/50 and 70/30 and 90/10 and suggest the optimal capital structure.

- Q.3 A company has reported an Earnings Per Share (EPS) of Rs.20, which is likely to remain constant for a year. Its cost of equity capital (k_e) will also remain constant at 10% for the year. Find out the **market price** of the share and suggest the optimum dividend policy under combinations of different rates of return (r), of 8%, 10% and 15% and different dividend pay-out ratios of 0%, 30%, 70% and 100% under both Walter's model and Gordon's model of dividend relevance. (10)

Market price is to be determined under both Walter's model and Gordon's model separately in the following manner;

Rate of Return →	8%	10%	15%
Pay Out Ratio ↓			
0%	?	?	?
30%	?	?	?
70%	?	?	?
100%	?	?	?

- Q.4 (a) CB Ltd. wants to maintain a minimum cash balance of Rs.3,00,000. The estimated standard deviation of the daily cash flows is Rs.1,000. The cost for each transaction of buying and selling marketable securities is fixed at Rs.20. The daily interest rate on marketable securities is 0.1% or (.001). Using the Miller-Orr model of cash management, formulate the company's cash management policy. (5+5=10)

Or

- (a) Write short notes on the following.

- Defensive interval
- Inventory holding period
- Cash cycle
- Systematic risk
- Risk-adjusted discount rate

- (b) S.K Ltd. decided to issue 2,00,000 (14%) Debentures. The face value of the Debentures is Rs.100 and these have tenure of 7 years. The Debentures were issued at a discount of 5%. Further, the firm incurred underwriting fee of 3% of the face value. Assuming a 25% tax rate; Calculate the Cost of Debt before tax and after tax. What would be the after tax cost of Debenture if the Debentures are issued at a premium of 10%?

Or

- (b) Discuss the process of arbitrage and use of personal leverage as a substitute of corporate leverage in accordance with Modigliani and Miller approach of irrelevance of Capital Structure with a suitable example.

- Q.5 (a) The paid up share capital of a company is Rs.20,00,000 with shares of face value of Rs.10. It has Debt capital of Rs.6,00,000 carrying interest rate of 10%. The sales of the firm is 1,00,000 units per annum at a selling price of Rs.10 per unit and variable cost of Rs.7 per unit. The annual fixed operating costs amount to Rs.2,00,000. The company pays tax at the rate of 30%. If the total sale is expected to decrease by 20% due to recession, determine the following (5+5=10)
- (i) Percentage change in Earning Per Share (EPS)
 - (ii) Degree of Operating Leverage
 - (iii) Degree of Financial Leverage
 - (iv) Combined Leverage at both the existing level and expected level of sales
- (b) Discuss Baumol's model of cash management using hypothetical figures.

Present Value and Future Value Tables

Table A-1 Future Value Interest Factors for One Dollar Compounded at k Percent for n Periods: $FVIF_{k,n} = (1 + k)^n$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	1.0100	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1100	1.1200	1.1300	1.1400	1.1500	1.1600	1.2000	1.2400	1.2500	1.3000
2	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.1449	1.1664	1.1881	1.2100	1.2321	1.2544	1.2769	1.2996	1.3225	1.3456	1.4400	1.5376	1.5625	1.6900
3	1.0303	1.0612	1.0927	1.1249	1.1576	1.1910	1.2250	1.2597	1.2950	1.3310	1.3676	1.4049	1.4429	1.4815	1.5209	1.5609	1.7280	1.9056	1.9531	2.1970
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3109	1.3605	1.4116	1.4641	1.5181	1.5735	1.6305	1.6890	1.7490	1.8106	2.0735	2.3642	2.4414	2.8561
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5385	1.6105	1.6851	1.7623	1.8424	1.9254	2.0114	2.1003	2.4883	2.9316	3.0518	3.7123
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5859	1.6741	1.7653	1.8595	1.9567	2.0569	2.1601	2.2663	2.3756	2.8860	3.4352	3.6147	4.4268
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8269	1.9447	2.0672	2.1945	2.3266	2.4636	2.6055	2.7524	3.3832	4.0777	4.2884	5.2749
8	1.0829	1.1717	1.2655	1.3655	1.4717	1.5843	1.7036	1.8297	1.9627	2.1027	2.2497	2.4036	2.5644	2.7321	2.9066	3.0880	3.8332	4.6577	4.8934	6.0573
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8380	1.9970	2.1675	2.3505	2.5460	2.7539	2.9742	3.2069	3.4520	3.7095	4.5883	5.5505	5.8181	7.2506
10	1.1046	1.2190	1.3439	1.4802	1.6289	1.7908	1.9672	2.1589	2.3674	2.5937	2.8394	3.1058	3.3946	3.7072	4.0455	4.4114	5.4197	6.5944	6.8822	8.6423
11	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.1049	2.3316	2.5804	2.8531	3.1518	3.4785	3.8359	4.2262	4.6524	5.1173	6.2501	7.5831	7.8917	9.9222
12	1.1268	1.2682	1.4255	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.4985	3.8960	4.3345	4.8179	5.3503	5.9350	7.2061	8.7511	9.0765	11.4522
13	1.1381	1.2936	1.4685	1.6651	1.8855	2.1329	2.4098	2.7196	3.0658	3.4523	3.8833	4.3635	4.8960	5.4924	6.1528	6.8858	8.3061	10.0000	10.3375	13.0000
14	1.1495	1.3155	1.5128	1.7317	1.9799	2.2609	2.5785	2.9372	3.3417	3.7975	4.3104	4.8871	5.5348	6.2613	7.0757	7.9875	9.5831	11.5000	11.8481	14.7500
15	1.1610	1.3459	1.5580	1.8003	2.0749	2.3956	2.7690	3.1722	3.6425	4.1772	4.7846	5.4736	6.2543	7.1379	8.1371	9.2655	11.0000	13.2500	13.6146	17.0000
16	1.1726	1.3728	1.6047	1.8730	2.1829	2.5404	2.9522	3.4259	3.9703	4.5950	5.3109	6.1304	7.0673	8.1372	9.3576	10.748	12.7500	15.2500	15.6375	19.5000
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	5.8851	6.8560	7.9851	9.2765	10.761	12.468	14.625	17.375	17.775	22.2500
18	1.1961	1.4282	1.7024	2.0258	2.4055	2.8543	3.3799	3.9980	4.7171	5.5599	6.4436	7.5000	8.7500	10.200	11.875	13.750	16.250	19.375	19.781	24.5000
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0236	3.6165	4.3157	5.1417	6.1159	7.2633	8.6128	10.197	12.056	14.232	16.753	20.000	23.625	23.938	29.2500
20	1.2202	1.4859	1.8051	2.1911	2.6533	3.2071	3.8697	4.6510	5.6044	6.7275	8.0623	9.6463	11.523	13.743	16.357	19.451	23.338	28.125	28.351	34.2500
21	1.2324	1.5157	1.8603	2.2788	2.7850	3.3996	4.1406	5.0338	6.1088	7.4002	8.9492	10.804	13.021	15.668	18.822	22.574	27.000	32.125	32.351	38.7500
22	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4355	6.6556	8.1403	9.9336	12.100	14.714	17.861	21.645	26.165	31.250	37.125	37.351	44.2500
23	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	4.7405	5.8716	7.2579	8.9543	11.026	13.552	16.627	20.352	24.891	30.376	35.250	40.625	40.851	47.7500
24	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	12.239	15.179	18.788	23.212	28.625	35.236	40.625	46.875	47.076	54.2500
25	1.2824	1.6405	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.835	13.555	17.000	21.231	26.452	32.919	40.874	45.375	51.875	52.301	60.7500
30	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.053	13.268	17.449	22.892	29.950	39.116	50.950	66.212	85.850	107.376	134.820	138.794	*
35	1.4166	1.9999	2.8139	3.9461	5.5160	7.6851	10.677	14.785	20.414	28.102	38.575	52.800	72.059	98.100	133.176	180.314	230.658	*	*	*
39	1.4908	2.0399	2.9883	4.1039	5.7918	8.1473	11.424	15.958	22.251	30.913	42.818	59.136	81.437	111.834	153.162	209.164	280.802	*	*	*
40	1.4889	2.2080	3.2620	4.8010	7.0400	10.265	14.974	21.725	31.409	45.259	65.001	93.051	132.782	188.884	267.864	378.721	*	*	*	*
50	1.6446	2.6916	4.3839	7.1067	11.467	18.420	29.457	46.902	74.358	117.391	184.665	289.002	450.736	700.233	*	*	*	*	*	*

Table A-2 Future Value Interest Factors for a One-Dollar Annuity Compounded at k Percent for n Periods: $FVIFA_{k,n} = [(1 + k)^n - 1] / k$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	24%	25%	30%
1	1.0000	1.0200	1.0300	1.0400	1.0500	1.0600	1.0700	1.0800	1.0900	1.1000	1.1100	1.1200	1.1300	1.1400	1.1500	1.1600	1.2000	1.2400	1.2500	1.3000
2	2.0100	2.0200	2.0300	2.0400	2.0500	2.0600	2.0700	2.0800	2.0900	2.1000	2.1100	2.1200	2.1300	2.1400	2.1500	2.1600	2.2000	2.2400	2.2500	2.3000
3	3.0301	3.0604	3.0909	3.1216	3.1525	3.1836	3.2149	3.2464	3.2781	3.3100	3.3421	3.3744	3.4069	3.4396	3.4725	3.5056	3.6400	3.7776	3.8125	3.9900
4	4.0504	4.1216	4.1836	4.2465	4.3101	4.3745	4.4399	4.5051	4.5731	4.6410	4.7097	4.7793	4.8498	4.9211	4.9934	5.0665	5.3600	5.6842	5.7655	6.1870
5	5.1010	5.2040	5.3091	5.4163	5.5256	5.6371	5.7507	5.8666	5.9847	6.1051	6.2278	6.3528	6.4803	6.6101	6.7424	6.8771	7.4416	8.0484	8.2070	9.0431
6	6.1520	6.3081	6.4684	6.6330	6.8019	6.9753	7.1533	7.3359	7.5233	7.7156	7.9129	8.1152	8.3227	8.5355	8.7537	8.9775	9.9299	10.980	11.259	12.765
7	7.2135	7.4343	7.6525	7.8933	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872	9.7833	10.089	10.405	10.730	11.067	11.414	12.916	14.615	15.073	17.583
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.260	10.637	11.028	11.436	11.859	12.300	12.757	13.233	13.727	14.240	16.459	19.123	19.842	23.858
9	9.3685	9.7645	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.164	14.776	15.416	16.085	16.785	17.519	20.799	24.712	25.802	32.015
10	10.462	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.937	16.722	17.549	18.420	19.337	20.304	21.321	25.959	31.643	33.253	42.619
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.645	17.560	18.531	19.561	20.655	21.814	23.045	24.349	25.733	32.150	40.238	42.568	56.405
12	12.683	13.412	14.192	15.026	15.917	16.870	17.888	18.977	20.141	21.384	22.713	24.133	25.650	27.271	29.002	30.850	39.581	50.895	54.208	74.327
13	13.809	14.680	15.618	16.627	17.713	18.882	20.141	21.495	22.953	24.523	26.212	28.029	29.985	32.089	34.352	36.786	48.497	64.110	68.760	97.625
14	14.947	15.974	17.066	18.292	19.599	21.016	22.550	24.215	26.019	27.975	30.095	32.393	34.883	37.581	40.505	43.672	61.995	80.496	86.949	127.913
15	16.097	17.293	18.599	20.024	21.579	23.276	25.129	27.152	29.361	31.772	34.405	37.280	40.417	43.842	47.580	51.650	72.035	100.815	109.587	167.285
16	17.258	18.639	20.167	21.825	23.657	25.673	27.888	30.324	33.003	35.950	39.180	42.753	46.672	50.980	55.717	60.925	87.442	126.011	138.109	218.472
17	18.430	20.012	21.762	23.698	25.840	28.213	30.840	33.750	36.974	40.545	44.501	48.884	53.739	59.118	65.075	71.673	105.931	157.263	173.636	285.014
18	19.615	21.412	23.414	25.645	28.132	30.906	33.999	37.450	41.301	45.599	50.396	55.750	61.725	68.394	75.836	84.141	128.117	195.994	218.045	371.518
19	20.811	22.841	25.117	27.671	30.639	33.760	37.379	41.445	46.018	51.159	56.939	63.440	70.749	78.959	88.212	98.503	154.740	244.003	273.555	483.973
20	22.019	24.297	26.870	29.778	33.056	36.785	40.995	45.762	51.160	57.275	64.203	72.052	80.947	91.025	102.444	115.320	186.668	303.601	342.945	630.165
21	23.239	25.783	28.676	31.969	35.719	39.993	44.855	50.423	56.765	64.002	72.265	81.699	92.470	104.768	118.810	134.841	225.026	377.465	429.581	820.215
22	24.472	27.299	30.537	34.268	38.505	43.392	49.006	55.457	62.873	71.403	81.214	92.503	105.491	120.435	137.632	157.415	271.031	459.056	538.101	*
23	25.716	28.845	32.453	36.618	41.430	46.996	53.436	60.893	69.532	79.543	91.148	104.603	120.205	138.297	159.276	183.601	326.237	582.630	673.626	*
24	26.973	30.422	34.426	39.083	44.502	50.816	58.177	66.765	76.790	88.497	102.174	118.155	136.831	158.659	184.168	213.978	392.484	723.461	843.033	*
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.106	84.701	98.347	114.413	133.334	155.620	181.871	212.793	249.214	471.981	898.092	*	*
30	34.785	40.568	47.675	56.085	66.439	79.058	94.461	113.283	135.303	164.494	199.021	241.333	293.199	358.787	434.745	530.312	*	*	*	*
35	41.690	49.994	60.462	73.652	90.320	111.435	138.237	172.317	215.711	271.024	341.590	431.693	546.681	693.573	881.170	*	*	*	*	*
36	43.077	51.994	63.276	77.598	95.836	119.121	148.913	187.102	236.126	299.127	380.164	484.453	618.749	791.673	*	*	*	*	*	*
40	48.886	60.402	76.401	95.026	120.800	151.762	199.635	259.057	337.882	442.593	581.826	767.091	*	*	*	*	*	*	*	*
50	64.643	84.579	112.797	152.667	209.348	290.336	406.529	573.770	815.034	*	*	*	*	*	*	*	*	*	*	*

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	0.9345	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	0.9428	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	0.9705	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	0.6576	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	0.4823	0.4230	0.4095	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	0.8889	0.8375	0.7893	0.7452	0.7050	0.6683	0.6340	0.5993	0.5645	0.5348	0.5066	0.4803	0.4556	0.4323	0.4104	0.3349	0.2751	0.2621	0.2072
7	0.9327	0.8705	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4251	0.3996	0.3759	0.3538	0.2791	0.2218	0.2097	0.1594
8	0.9235	0.8553	0.7914	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4339	0.4039	0.3762	0.3506	0.3269	0.3050	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8408	0.7704	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3076	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6755	0.6169	0.5584	0.5033	0.4532	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.1615	0.1164	0.1074	0.0725
11	0.8963	0.8043	0.7224	0.6539	0.5954	0.5369	0.4817	0.4289	0.3875	0.3505	0.3173	0.2876	0.2607	0.2356	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6245	0.5659	0.5074	0.4540	0.3971	0.3555	0.3185	0.2858	0.2567	0.2307	0.2076	0.1869	0.1685	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6006	0.5420	0.4835	0.4300	0.3757	0.3326	0.2957	0.2628	0.2337	0.2087	0.1876	0.1691	0.1515	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5755	0.5169	0.4584	0.4049	0.3506	0.3075	0.2706	0.2377	0.2087	0.1837	0.1626	0.1450	0.1282	0.0702	0.0410	0.0350	0.0225
15	0.8613	0.7430	0.6419	0.5553	0.4968	0.4383	0.3848	0.3305	0.2874	0.2505	0.2176	0.1887	0.1637	0.1426	0.1250	0.1082	0.0619	0.0330	0.0270	0.0150
16	0.8528	0.7284	0.6232	0.5366	0.4781	0.4196	0.3661	0.3118	0.2687	0.2318	0.1989	0.1700	0.1450	0.1239	0.1063	0.0905	0.0519	0.0230	0.0170	0.0050
17	0.8444	0.7142	0.6050	0.5184	0.4600	0.4015	0.3480	0.2937	0.2506	0.2137	0.1808	0.1519	0.1269	0.1058	0.0882	0.0724	0.0435	0.0146	0.0086	0.0016
18	0.8360	0.7002	0.5874	0.4958	0.4374	0.3789	0.3254	0.2711	0.2280	0.1911	0.1582	0.1293	0.1043	0.0832	0.0656	0.0508	0.0319	0.0070	0.0010	0.0000
19	0.8277	0.6864	0.5703	0.4746	0.4162	0.3577	0.3042	0.2499	0.2068	0.1700	0.1371	0.1082	0.0832	0.0621	0.0445	0.0307	0.0118	0.0009	0.0000	0.0000
20	0.8195	0.6730	0.5537	0.4554	0.3970	0.3385	0.2850	0.2307	0.1876	0.1508	0.1179	0.0890	0.0640	0.0429	0.0253	0.0115	0.0006	0.0000	0.0000	0.0000
21	0.8114	0.6598	0.5375	0.4383	0.3800	0.3215	0.2680	0.2137	0.1706	0.1338	0.1009	0.0720	0.0470	0.0259	0.0111	0.0002	0.0000	0.0000	0.0000	0.0000
22	0.8034	0.6468	0.5219	0.4227	0.3644	0.3059	0.2524	0.1981	0.1550	0.1182	0.0853	0.0564	0.0314	0.0103	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.7954	0.6342	0.5067	0.4075	0.3490	0.2905	0.2370	0.1827	0.1396	0.1028	0.0699	0.0410	0.0160	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.7875	0.6217	0.4919	0.3901	0.3316	0.2731	0.2196	0.1653	0.1222	0.0854	0.0525	0.0236	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.7795	0.6095	0.4776	0.3758	0.3173	0.2588	0.2053	0.1510	0.1079	0.0711	0.0382	0.0093	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
30	0.7419	0.5521	0.4120	0.3083	0.2314	0.1741	0.1314	0.0994	0.0754	0.0573	0.0437	0.0334	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	*
35	0.7059	0.5000	0.3554	0.2534	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0017	0.0005	*	*
40	0.6698	0.4602	0.3150	0.2137	0.1427	0.1012	0.0711	0.0490	0.0341	0.0234	0.0165	0.0113	0.0076	0.0050	0.0030	0.0016	0.0001	*	*	*
45	0.6371	0.4259	0.2806	0.1793	0.1083	0.0668	0.0367	0.0218	0.0149	0.0097	0.0060	0.0033	0.0017	0.0009	0.0004	0.0001	0.0000	*	*	*
50	0.6099	0.3715	0.2261	0.1407	0.0872	0.0543	0.0339	0.0213	0.0134	0.0085	0.0054	0.0030	0.0015	0.0007	0.0003	0.0001	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	0.9345	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	1.9146	1.8635	1.8161	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8266	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.1065	1.9813	1.9520	1.8161
4	3.9020	3.8077	3.7171	3.6299	3.5450	3.4651	3.3872	3.3121	3.2397	3.1699	3.1024	3.0373	2.9745	2.9137	2.8550	2.7982	2.5887	2.4043	2.3516	2.1662
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	2.9905	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0767	4.9173	4.7655	4.6229	4.4859	4.3533	4.2305	4.1144	3.9975	3.8887	3.7845	3.6847	3.3255	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	4.0388	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7468	5.5349	5.3349	5.1461	4.9676	4.7988	4.6389	4.4873	4.3436	3.8372	3.4212	3.3289	2.9247
9	8.5660	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2459	5.9952	5.7590	5.5370	5.3282	5.1317	4.9484	4.7716	4.6065	4.0310	3.5655	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	3.5705	3.0915
11	10.368	9.7868	9.2525	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0285	4.3271	3.7757	3.6564	3.1473
12	11.255	10.575	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.4942	6.1994	5.9261	5.6742	5.4435	5.2264	4.4392	3.8514	3.7251	3.1903
13	12.134	11.348	10.635	9.9856	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	12.105	11.295	10.553	9.8986	9.2950	8.7455	8.2442	7.7862	7.3857	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	4.6106	3.9516	3.8241	3.2487
15	13.865	12.849	11.938	11.118	10.380	9.7122	9.1079	8.5595	8.0607	7.6051	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	9.4468	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	4.7298	4.0333	3.8874	3.2832
17	15.562	14.292	13.168	12.166	11.274	10.477	9.7632	9.1216	8.5436	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	13.764	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	4.0759	3.9279	3.3037
19	17.226	15.678	14.324	13.134	12.085	11.158	10.336	9.6035	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982	5.8775	4.8435	4.0967	3.9424	3.3105
20	18.046	16.351	14.877	13.650	12.462	11.470	10.594	9.8181	9.1285	8.5136	7.9833	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	6.3125	5.9731	4.8913	4.1212	3.9631	3.3198
22	19.660	17.658	15.937	14.451	13.163	12.042	11.061	10.201	9.4424	8.7715	8.1767	7.6445	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.455	18.292	16.444	14.857	13.489	12.303	11.272	10.371	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3998	6.0432	4.9245	4.1371	3.9764	3.3254
24	21.243	18.914	16.936	15.247	13.799	12.550	11.469	10.529	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	4.9371	4.1428	3.9811	3.3272
25	22.023	19.523	17.413	15.622	14.094	12.783	11.654	10.675	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	4.9476	4.1474	3.9849	3.3286
30	26.808	22.395	19.600	17.292	15.372	13.765	12.409	11.258	10.274	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	4.9789	4.1601	3.9950	3.3321
35	29.409	24.959	21.487	18.665	16.374	14.493	12.918	11.655	10.567	9.6442	8.8552	8.1765	7.5856	7.0700	6.6168	6.2193	4.9915	4.1644	3.9984	3.3330
36	30.108	25.489	21.832	18.908	16.547	14.621	13.035	11.717	10.612	9.6765	8.8785	8.1924	7.5979	7.0750	6.6231	6.2201	4.9929	4.1649	3.9987	3.3331
40	32.835	27.355	23.115	19.793	17.159	15.046	13.332	11.925	10.757	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	4.9956	4.1659	3.9995	3.3332
50	39.196	31.544	25.730	21.482	18.266	15.762	13.801	12.233	10.952	9.9148	9.0417	8.3045	7.6762	7.1327	6.6605	6.2453	4.9995	4.1666	3.9999	3.3333