



UNIVERSITI KUALA LUMPUR
BUSINESS SCHOOL

FINAL EXAMINATION
MARCH 2026 SEMESTER

COURSE CODE : EIB11803
COURSE TITLE : FINANCIAL MANAGEMENT
PROGRAMME NAME : BACHELOR IN ISLAMIC FINANCE WITH HONOURS
DATE : 26 JUNE 2026
TIME : 3:00PM - 6:00PM
DURATION : 3 HOURS

INSTRUCTIONS TO CANDIDATES

1. Please read the instructions given in the question paper CAREFULLY.
2. This question paper is printed on both sides of the paper.
3. This question paper consist of ONE sections.
4. Section A consist of five questions. Answer FOUR (4) questions only.
5. Please write your answer on the answer booklet provided.
6. Please answer all questions in English only.
7. Refer to the attached Formula/ Appendies. ☐ Tick if applicable

THERE ARE 8 PAGES OF QUESTIONS INCLUDING THIS PAGE

SECTION A (Total: 100 marks)

Answer FOUR (4) questions.

Please use the answer booklet provided.

Question 1

Nova Harvest Sdn. Bhd.'s sales from November 2025 to May 2026 are shown as follows:

Month	Sales (RM)	Status
November 2025	220,000	Actual Sales
December 2025	190,000	Actual Sales
January 2026	200,000	Forecasted Sales
February 2026	180,000	Forecasted Sales
March 2026	260,000	Forecasted Sales
April 2026	210,000	Forecasted Sales
May 2026	240,000	Forecasted Sales

Additional information:

1. The firm generates 40% cash sales. The remaining sales are credit sales and will be collected equally in each of the two months following the sale.
2. The firm purchases raw materials one month in advance before sales. Purchases are approximately 40% of the following month's sales. The firm pays its suppliers 50% of the purchases one month after purchase and the balance two months after purchase.
3. The firm is expected to receive rental income of RM25,000 in January and RM15,000 in March 2026.
4. Salaries paid to employees are 15% of the previous month's sales.
5. Rental expenses of RM10,000 per month are expected to be paid. However, the firm is expected to receive a 5% discount on the rental expense in March 2026.
6. Interest expenses of RM5,000 are due in January and March 2026.
7. Cash bonuses to employees of RM12,000 are expected to be paid in February 2026.
8. The firm plans to buy a new equipment by cash amounting to RM90,000 in February 2026.
9. The firm has a cash balance of RM30,000 on 31 December 2025 and wishes to maintain a minimum cash balance of RM15,000 for liquidity purposes.

You are required to prepare the first-quarter cash budget of Nova Harvest Sdn. Bhd. for the year 2026 based on the above information.

(25 marks)

Question 2

Calculate the following and show all workings clearly:

- (a) Nusa Heritage Café plans to open a new flagship outlet in six years' time. To accumulate sufficient funds for the expansion, the company deposits part of its annual profit into an investment account that yields 15% interest per annum, compounded annually. Because the café's annual profit is inconsistent, the deposits made at the end of each year are not equal.

At the end of Year 1, the café deposits RM6,000, followed by RM7,000 at the end of Year 2 and RM9,000 at the end of Year 3. In Year 4, the company contributes RM8,000, while in Year 5, the deposit is RM6,500. Finally, at the end of Year 6, an additional RM10,000 is deposited.

Assuming the required rate of return remains at 15% annually throughout the investment period, calculate the future value of the entire investment portfolio at the end of Year 6.

(7 marks)

- (b) BioGen Research Sdn. Bhd. is entering into a strategic research partnership with an international health institute. Under the agreement, the company is required to pay RM20,000 per year, beginning immediately at the start of the first year, and continuing annually for a total of 15 years.

Because of the project's risk profile, the finance manager uses a 20% discount rate to evaluate the commitment.

Calculate the present value of all 15 payments as of the start of the contract.

(2 marks)

- (c) CyberMatrix Solutions has been offered a government technology contract. If the company successfully completes the project, it will receive RM400,000 at the end of 4 years. Due to the risk in the digital infrastructure sector, the company evaluates the project using a 12% annual rate, compounded semi-annually.

Determine the equivalent value today of the RM400,000 to be received in 4 years. Show all workings clearly.

(2 marks)

- (d) Dr. Hani plans to purchase a Honda City 1.5 V for her daily travel to campus. The car is priced at RM120,000, and the bank requires a 15% deposit, with the remaining balance financed through a loan. The loan will be repaid in equal annual instalments over six (6) years, with interest charged at 4% per annum, compounded annually.

- i. Calculate the annual instalment that Dr. Hani is required to pay on the loan.

(3 marks)

- ii. Prepare a loan amortization schedule for the six-year financing period, showing for each year the interest charged, the annual instalment paid, the amount of principal repaid, and the closing loan balance.

(11 marks)

Question 3

EcoVolt Manufacturing Bhd. is considering a project to manufacture a new type of high-efficiency smart battery system for industrial energy storage. The initial investment required for the production equipment is RM1,800,000. The project has a lifespan of 5 years. The expected after-tax operating cash inflows are as follows:

Year 1: RM450,000

Year 2: RM500,000

Year 3: RM600,000

Year 4: RM700,000

Year 5: RM650,000

The company's required rate of return (cost of capital) is 10%.

You are required to do the followings on:

(a) Payback Period

- i. Calculate the payback period for the project.

(2 marks)

- ii. Based on your calculation, if the company's maximum acceptable payback period is 3 years, should the project be accepted based on this criterion?

(2 marks)

(b) Discounted Payback Period

- i. Calculate the discounted payback period for the project. Then, indicate whether the project should be accepted if the maximum acceptable payback period is 3 years.

(3 marks)

- ii. State one key advantage the discounted payback period has over the traditional payback period.

(2 marks)

(c) Net Present Value (NPV)

- i. Calculate the Net Present Value (NPV) of the project.
(3 marks)
 - ii. Based on the NPV rule, should EcoVolt Manufacturing Bhd. undertake the project?
(2 marks)
- (d) Profitability Index (PI) and Modified Internal Rate of Return (MIRR)
- i. Calculate the Profitability Index (PI) for the project.
(1 marks)
 - ii. Calculate the Modified Internal Rate of Return (MIRR).
(6 marks)
 - iii. Briefly explain why the MIRR and the NPV decision for this project are consistent.
(1 marks)
- (e) Considering all your findings from parts (a) to (d), provide a final, well-reasoned recommendation to the management of EcoVolt Manufacturing Bhd. Your answer should reconcile any conflicting signals from the different techniques.
(3 marks)

Question 4

Global Nexus Berhad has the following capital structure, which it considers to be optimal:

Debt	RM400,000
Preferred stock	RM250,000
Common equity	RM1,350,000

Global Nexus Berhad's expected net income this year is RM48,000. Its established dividend payout ratio is 35 percent; tax rate is 30 percent; and investors expect future earnings and dividends to grow at a constant rate of 8 percent. Global Nexus Berhad paid a dividend of RM4.20 per share last year, and its stock currently sells for RM60.00 per share. Global Nexus Berhad can also obtain new capital in the following ways:

1. New preferred stock with a dividend of RM9.50 can be sold to the public at a price of RM88.00 per share.
2. Debt can be sold at an interest rate of 11 percent.

From the information, you are required to:

- (a) Calculate the dividend for Years 1, 2 and 3.
(6 marks)
- (b) Determine the cost of capital for each component.
(10 marks)
- (c) Calculate the Weighted Average Cost of Capital (WACC) of Global Nexus Berhad.
(6 marks)
- (d) Explain any three (3) factors that affect the cost of capital.
(3 marks)

Question 5

Aurora Wealth Advisory is evaluating three financial assets for possible inclusion in a client's investment portfolio. The possible returns and probabilities for each asset are as follows:

Market Condition	Asset A		Asset B		Asset C	
	Probability	Return	Probability	Return	Probability	Return
Bear	0.30	900	0.45	600	0.25	500
Bull	0.70	1,800	0.55	2,400	0.75	3,000

- (a) Based on the information provided, calculate the following for each of the assets:
- Expected return.
(6 marks)
 - Standard deviation
(6 marks)
 - Coefficient of variation.
(6 marks)
 - Rank the assets in terms of risk, starting with the highest risk.
(1 marks)
- (b) Describe three (3) preferences toward risk.
(6 marks)

END OF EXAMINATION PAPER

Formula:

$$1. \quad FV = PV(1+i)^n$$

$$2. \quad PV = \frac{FV}{(1+i)^n}$$

$$3. \quad PVA = \frac{CF}{i} \left(1 - \frac{1}{(1+i)^n} \right)$$

$$4. \quad FVA = CF \times \left\{ \frac{[(1+r)^n - 1]}{r} \right\}$$

$$5. \quad NPV = \sum_{t=1}^n \frac{CF_t}{(1+r)^t} - CF_0$$

$$6. \quad PI = \frac{\sum PV \text{ of cash inflows}}{CF_0}$$

$$7. \quad \text{After-tax cost of debt} = K_d(1 - T)$$

$$8. \quad k_p = \frac{D_p}{N_p}$$

$$9. \quad k_e = \frac{D_1}{P} + g$$

$$10. \quad k_{nc} = \frac{D_1}{P - f_c} + g$$

$$11. \quad WACC = w_d \times k_d(1 - T) + w_p \times k_p + w_x \times k_{e \text{ or } nc}$$

$$12. \quad PVA(\text{Due}) = \left(\frac{CF}{r} \right) \times \left[1 - \frac{1}{(1+r)^n} \right] \times (1+r)$$

$$13. \quad FVA(\text{Due}) = CF \times \left\{ \frac{[(1+r)^n - 1]}{r} \right\} \times (1+r)$$

$$14. \quad ER = \sum P \times k$$

$$15. \quad \sigma = \sqrt{\sum_{j=1}^n \left[(r_j - \bar{r})^2 \times Pr_j \right]} \quad (8.3a)$$

$$16. \quad COV = \frac{\sigma}{ER}$$

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%	28%	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	1.2800	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	1.6384	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	1.9066	2.1000	2.1970
4	1.0406	1.0824	1.1255	1.1699	1.2156	1.2626	1.3108	1.3595	1.4087	1.4584	1.5086	1.5593	1.6105	1.6622	1.7144	1.7671	2.0144	2.2836	2.5840	2.7456
5	1.0510	1.1041	1.1583	1.2137	1.2704	1.3284	1.3877	1.4483	1.5093	1.5707	1.6325	1.6947	1.7573	1.8204	1.8839	1.9478	2.2400	2.5600	2.9120	3.0900
6	1.0615	1.1262	1.1921	1.2593	1.3279	1.3978	1.4690	1.5415	1.6153	1.6904	1.7668	1.8445	1.9235	2.0038	2.0854	2.1683	2.4800	2.8400	3.2400	3.4300
7	1.0721	1.1487	1.2269	1.3065	1.3876	1.4701	1.5540	1.6393	1.7259	1.8138	1.9029	1.9933	2.0849	2.1777	2.2717	2.3669	2.7200	3.1200	3.5600	3.7600
8	1.0829	1.1717	1.2621	1.3541	1.4476	1.5426	1.6391	1.7370	1.8363	1.9370	2.0390	2.1423	2.2469	2.3528	2.4600	2.5684	2.9600	3.4000	3.8800	4.0900
9	1.0937	1.1951	1.3048	1.4139	1.5214	1.6303	1.7406	1.8523	1.9654	2.0799	2.1958	2.3130	2.4315	2.5513	2.6724	2.7948	3.2400	3.7200	4.2400	4.4600
10	1.1046	1.2180	1.3399	1.4614	1.5825	1.7042	1.8274	1.9521	2.0783	2.2060	2.3352	2.4659	2.5981	2.7318	2.8669	2.9934	3.4800	4.0000	4.5600	4.7800
11	1.1157	1.2434	1.3782	1.5125	1.6473	1.7826	1.9193	2.0575	2.1971	2.3381	2.4805	2.6243	2.7695	2.9161	3.0641	3.2134	3.7200	4.2800	4.8800	5.1100
12	1.1268	1.2692	1.4171	1.5646	1.7126	1.8611	2.0101	2.1605	2.3123	2.4655	2.6201	2.7761	2.9335	3.0923	3.2525	3.4140	3.9600	4.5600	5.2000	5.4400
13	1.1381	1.2936	1.4546	1.6123	1.7706	1.9294	2.0897	2.2514	2.4145	2.5790	2.7449	2.9121	3.0807	3.2507	3.4221	3.5948	4.1600	4.8000	5.4800	5.7300
14	1.1495	1.3195	1.4936	1.6625	1.8318	2.0024	2.1744	2.3478	2.5226	2.6989	2.8766	3.0557	3.2362	3.4181	3.6014	3.7860	4.3600	5.0400	5.7600	6.0200
15	1.1610	1.3409	1.5282	1.7085	1.8892	2.0712	2.2546	2.4394	2.6256	2.8132	2.9921	3.1723	3.3538	3.5366	3.7207	3.9060	4.4800	5.2000	5.9600	6.2300
16	1.1726	1.3728	1.5743	1.7668	1.9596	2.1537	2.3491	2.5458	2.7438	2.9431	3.1436	3.3453	3.5482	3.7523	3.9576	4.1640	4.7600	5.5200	6.3200	6.6000
17	1.1843	1.4052	1.6209	1.8246	2.0287	2.2341	2.4408	2.6488	2.8580	3.0684	3.2800	3.4927	3.7065	3.9214	4.1374	4.3545	4.9600	5.7600	6.6000	6.8900
18	1.1961	1.4382	1.6582	1.8733	2.0884	2.3047	2.5222	2.7410	2.9610	3.1822	3.4045	3.6279	3.8523	4.0777	4.3041	4.5314	5.1400	5.9800	6.8400	7.1400
19	1.2081	1.4668	1.7055	1.9320	2.1582	2.3857	2.6144	2.8443	3.0754	3.3076	3.5408	3.7750	4.0101	4.2461	4.4830	4.7208	5.3400	6.2200	7.1200	7.4300
20	1.2202	1.4959	1.7461	1.9848	2.2218	2.4601	2.6996	2.9403	3.1822	3.4252	3.6692	3.9142	4.1601	4.4069	4.6546	4.9031	5.5200	6.4200	7.3400	7.6600
21	1.2324	1.5157	1.8003	2.0505	2.2974	2.5457	2.7952	3.0458	3.2974	3.5500	3.8035	4.0580	4.3134	4.5697	4.8268	5.0848	5.7000	6.6200	7.5600	7.8900
22	1.2447	1.5360	1.8511	2.1133	2.3701	2.6294	2.8898	3.1512	3.4135	3.6767	3.9408	4.2058	4.4717	4.7384	5.0058	5.2739	5.8800	6.8200	7.7800	8.1200
23	1.2572	1.5569	1.9024	2.1776	2.4361	2.6964	2.9577	3.2199	3.4830	3.7469	4.0116	4.2771	4.5433	4.8103	5.0779	5.3460	5.9400	6.9000	7.8800	8.2300
24	1.2697	1.5804	1.9551	2.2434	2.5054	2.7667	3.0288	3.2918	3.5556	3.8192	4.0836	4.3487	4.6144	4.8807	5.1475	5.4147	6.0000	7.0000	7.9800	8.3400
25	1.2824	1.6006	2.0092	2.3107	2.5738	2.8361	3.0993	3.3633	3.6280	3.8924	4.1574	4.4229	4.6889	4.9553	5.2221	5.4892	6.0600	7.0800	8.0800	8.4500
26	1.2952	1.6215	2.0647	2.3795	2.6403	2.9035	3.1674	3.4323	3.6978	3.9638	4.2302	4.4970	4.7642	5.0317	5.3004	5.5693	6.1200	7.1600	8.1600	8.5400
27	1.3081	1.6430	2.1216	2.4498	2.7124	2.9766	3.2425	3.5082	3.7744	4.0410	4.3080	4.5753	4.8429	5.1107	5.3787	5.6468	6.1800	7.2400	8.2400	8.6300
28	1.3211	1.6651	2.1800	2.5212	2.7868	3.0521	3.3288	3.6053	3.8823	4.1597	4.4374	4.7153	4.9934	5.2716	5.5500	5.8283	6.3400	7.4200	8.4200	8.8200
29	1.3342	1.6878	2.2399	2.5942	2.8629	3.1391	3.4169	3.6943	3.9721	4.2502	4.5284	4.8067	5.0851	5.3635	5.6420	5.9205	6.4000	7.5000	8.5000	8.9100
30	1.3474	1.7111	2.3003	2.6686	2.9405	3.2264	3.5066	3.7853	4.0644	4.3437	4.6230	4.9023	5.1816	5.4610	5.7404	6.0198	6.4800	7.6000	8.6000	9.0200
35	1.4196	1.9399	2.5139	2.9481	3.3824	3.8167	4.2510	4.6853	5.1196	5.5539	5.9882	6.4225	6.8568	7.2911	7.7254	8.1597	8.6000	9.8000	10.8000	11.2300
40	1.4589	2.0980	2.8220	3.3620	3.9010	4.4399	4.9788	5.5177	6.0566	6.5955	7.1344	7.6733	8.2122	8.7511	9.2900	9.8289	10.2400	11.6000	12.6000	13.0400
50	1.6446	2.8918	4.3839	7.1867	11.467	18.420	28.457	46.902	74.356	117.381	184.585	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%	28%	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	1.2800	1.3000
2	2.0100	2.0600	2.0900	2.1400	2.1900	2.2400	2.2900	2.3400	2.3900	2.4400	2.4900	2.5400	2.5900	2.6400	2.6900	2.7400	2.8000	2.8800	2.9600	3.0000
3	3.0301	3.0904	3.1009	3.1216	3.1525	3.1836	3.2148	3.2461	3.2774	3.3087	3.3400	3.3713	3.4026	3.4339	3.4652	3.4965	3.5600	3.6400	3.7200	3.7600
4	4.0804	4.1218	4.1836	4.2466	4.3101	4.3746	4.4391	4.5036	4.5681	4.6326	4.6971	4.7616	4.8261	4.8906	4.9551	5.0196	5.0800	5.1600	5.2400	5.2800
5	5.1010	5.2040	5.3091	5.4153	5.5225	5.6307	5.7399	5.8491	5.9583	6.0675	6.1767	6.2859	6.3951	6.5043	6.6135	6.7227	6.7800	6.8800	6.9600	7.0000
6	5.1520	5.3081	5.4684	5.6330	5.8019	5.9753	6.1533	6.3359	6.5233	6.7156	6.9129	7.1152	7.3225	7.5348	7.7521	7.9744	8.0300	8.1200	8.2000	8.2400
7	7.2136	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4877	9.7839	10.0891	10.4033	10.7265	11.0487	11.3700	11.4300	11.5200	11.6000	11.6400
8	8.2957	8.5630	8.8323	9.1042	9.3791	9.6570	9.9389	10.2247	10.5145	10.8083	11.1061	11.4079	11.7137	12.0235	12.3372	12.6549	12.7200	12.8000	12.8800	12.9200
9	9.3985	9.7148	10.0339	10.3561	10.6824	11.0127	11.3471	11.6855	12.0279	12.3743	12.7247	13.0791	13.4374	13.7996	14.1657	14.5357	14.6000	14.6800	14.7600	14.8000
10	10.462	10.850	11.2464	11.6512	12.0654	12.4891	12.9223	13.3559	13.7899	14.2243	14.6591	15.0943	15.5299	15.9659	16.4023	16.8391	16.9000	17.0000	17.0800	17.1200
11	11.567	12.169	12.808	13.486	14.207	14.972	15.784	16.643	17.550	18.504	19.506	20.557	21.658	22.809	23.910	25.061	25.1200	25.2000	25.2800	25.3200
12	12.683	13.412	14.192	15.026	15.917	16.870	17.887	18.967	20.110	21.316	22.584	23.914	25.306	26.759	28.274	29.850	29.9100	30.0000	30.0800	30.1200
13	13.808	14.680	15.618	16.627	17.713	18.882	20.141	21.490	22.929	24.458	26.077	27.786	29.586	31.487	33.489	35.592	35.6500	35.7400	35.8200	35.8600
14	14.947	15.974	17.086	18.292	19.599	20.915	22.350	23.823	25.344	26.913	28.531	30.200	31.920	33.691	35.513	37.386	37.4400	37.5200	37.6000	37.6400
15	16.097	17.293	18.596	20.024	21.579	23.276	25.023	26.829	28.694	30.618	32.601	34.643	36.745	38.907	41.129	43.402	43.4600	43.5400	43.6200	43.6600
16	17.268	18.639	20.157	21.826	23.657	25.673	27.888	30.203	32.628	35.163	37.808	40.563	43.428	46.403	49.488	52.683	52.7400	52.8200	52.9000	52.9400
17	18.430	20.012	21.762	23.596	25.840	28.213	30.840	33.750	36.974	40.545	44.501	48.884	53.738	58.116	62.075	66.517	66.5700	66.6600	66.7400	66.7800
18	19.615	21.412	23.414	25.845	28.432	30.908	33.999	37.450	41.301	45.559	50.036	54.741	59.591	64.596	69.749	74.966	75.0200	75.1000	75.1800	75.2200
19	20.811	22.841	25.117	27.671	30.639	33.760	37.379	41.446	46.818	51.559	56.936	62.940	69.749	76.966	84.821	93.424	93.4800	93.5600	93.6400	93.6800
20	22.019	24.297	26.870	29.778	33.086	36.786	40.995	45.762	51.160	57.275	64.263	72.052	80.947	91.025	102.444	115.380	115.4400	115.5200	115.6000	115.6400
21	23.239	25.783	28.578	31.969	35.719	39.983	44.865	50.423	56.765	64.002	72.265	81.889	92.470	104.758	118.810	134.841	134.9000	135.0000	135.1000	135.1400
22	24.472	27.299	30.537	34.248	38.505	43.392	48.906	55.467	62.873	71.403	81.214	92.503	105.491	120.436	137.632	157.415	157.4700	157.5600	157.6600	157.7000
23	25.716	28.845	32.463	36.818	41.430	46.996	53.438	60.883	69.532	79.543	91.148	104.603	120.206	138.297	169.276	183.861	183.9200	184.0000	184.0800	184.1200
24	26.973	30.422	34.426	39.893	44.502	50.816	58.177	66.796	76.790	88.497	102.174	118.156	136.831	158.669	184.188	213.978	214.0400	214.1200	214.2000	214.2400
25	28.243	32.030	36.459	41.646	47.727	54.865	63.249	73.196	84.701	98.347	114.413	133.334	155.620	181.871	212.793	249.214	249.2700	249.3600	249.4600	249.5000
26	29.528	33.680	38.168	43.441	49.581	56.761	65.194	75.299	86.964	100.869	118.156	138.156	162.869	193.871	225.214	263.635	263.6900	263.7800	263.8800	263.9200
27	30.828	35.380	39.936	45.286	51.431	58.661	67.694	78.964	91.869	107.064	125.413	146.156	172.869	205.871	239.214	279.635	279.6900	279.7800	279.8800	279.9200
28	32.143	37.130	41.764	47.181	53.381	60.761	70.494	82.964	97.469	114.164	134.413	157.156	185.869	220.871	256.214	298.635	298.6900	298.7800	298.8800	298.9200
29	33.473	38.930	43.598	49.136	55.341	62.861	73.894	86.964	102.469	120.664	142.413	166.156	196.869	233.871	271.214	312.635	312.6900	312.7800	312.8800	312.9200
30	34.818	40.780	45.498	51.141	57.411	65.011	76.094	89.664	106.469	125.664	148.413	173.156	204.869	241.871	280.214	321.635	321.6900	321.7800	321.8800	321.9200
31	36.178	42.680	47.468	53.201	59.541	67.211	78.794	92.964	110.469	129.664	154.413	180.156	212.869	251.871	290.214	330.635	330.6900	330.7800	330.8800	330.9200
32	37.553	44.630	49.438	55.316	61.741	69.461	81.494	96.464	114.469	133.664	160.413	188.156	221.869	261.871	300.214	339.635	339.6900	339.7800	339.8800	339.9200
33	38.943	46.630	51.436	57.381	63.941	71.761	83.994	99.464	117.469	137.664	166.413	194.156	226.869	266.871	305.214	344.635	344.6900	344.7800	344.8800	344.9200
34	40.348	48.680	53.498	59.441	66.091	74.011	86.494	102.464	120.469	141.664	172.413	199.156	231.869	271.871	310.214	349.635	349.6900	349.7800	349.8800	349.9200
35	41.768	50.780	55.560	61.501	68.241	76.261	89.094	105.464	123.469	145.664	176.413	204.156	236.869	276.871	315.214	354.635	354.6900	354.7800	354.8800	354.9200
36	43.203	52.930	57.632	63.556	70.391	78.461	91.694	108.464	126.469	149.664	180.413	208.156	241.869	281.871	320.214	359.635	359.6900	359.7800	359.8800	359.9200
37	44.653	55.130	59.704	65.611	72.541	80.611	94.294	111.464	129.469	153.664	184.413	212.156	246.869	286.871	325.214	364.635	364.6900	364.7800	364.8800	364.9200
38	46.118	57.380	61.776	67.666	74.691	82.761	96.894	114.464	132.469	157.664	188.413	216.156	251.869	291.871	330.214	369.635	369.6900	369.7800	369.8800	369.9200
39	47.598	59.680	63.868	69.721	76.841	84.861	99.494	117.464	135.469	161.664	192.413	220.156	256.869	296.871	335.214	374.635	374.6900	374.7800	374.8800	374.9200
40	49.093	61.980	65.960	71.776	78.991	86.961	102.094	120.464	138.469	165.664	196.413	224.156	261.869	301.871	340.214	379.635	379.6900	379.7800	379.8800	379.9200
41	50.603	64.280	68.052	73.831	81.141	89.061	104.694	123.464	141.469	169.664	200.413	228.156	266.869	306.871	345.214	384.635	384.6900	384.7800	384.8800	384.9200
42	52.128	66.580	70.144	75.886	83.291	91.161	107.294	126.464	144.469	173.664	204.413	232.156	271.869	311.871	350.214	389.635	389.6900	389.7800	389.8800	389.9200
43	53.668	68.880	72.236	77.941	85.441	93.261	110.294	129.464	147.469	177.664	208.413	236.156	276.869	316.871	355.214	394.635	394.6900	394.7800	394.8800	394.9200
44	55.228	71.180	74.328	80.001	87.591	95.361	113.294	132.464	150.469	181.664	212.413	240.156	281.869	321.871	360.214	399.635	399.6900	399.7800	399.8800	399.9200
45	56.798	73.480	76.420	82.056	89.741	97.461	116.294	135.464	153.469	185.664	216.413	244.156	286.869	326.871	365.214	404.635	404.6900	404.7800	404.8800	404.9200
46	58.378	75.780	78.512	84.111	91.891	99.561	119.294	138.464	156.469	189.664	220.413	248.156	291.869	331.871	370.214	409.635	409.6900	409.7800	409.8800	409.9200
47	59.968	78.080	80.604	86.166	94.041	101.661	122.294	141.464	159.469	193.664	224.413	252.156	296.869	336.871	375.214	414.635	414.6900	414.7800	414.8800	414.9200
48	61.568	80.380	82.696	88.221	96.191	103.761	125.294	144.464	162.469	197.664	228.413	256.156	301.869	341.871	380.214	419.635	419.6900	419.7800	419.8800	419.9200
49	63.178	82.680	84.808	90.276	98.341	105.861	128.294	147.464	165.469	201.664	232.413	260.156	306.869	346.871	385.214	424.635	424.6900	424.7800	424.8800	424.9200
50	64.798	84.980	86.920	92.331	100.491	107.961	131.294	150.464	168.469	205.664	236.413	264.156	311.869	351.871	390.214	429.635	429.6900	429.7800	429.8800	429.9200

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%	17%	18%	19%	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	0.8548	0.8476	0.8405	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	0.7564	0.7437	0.7312	0.7189	0.7069	0.6950	0.6545	0.6480	0.6197
3	0.9706	0.9423	0.9151	0.8880	0.8638	0.8406	0.8184	0.7972	0.7769	0.7574	0.7387	0.7207	0.7034	0.6867	0.6706	0.6551	0.6401	0.6256	0.6115	0.5977	0.5582	0.5520	0.5252
4	0.9610	0.9236	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6587	0.6356	0.6133	0.5924	0.5728	0.5536	0.5348	0.5164	0.4984	0.4807	0.4423	0.4368	0.4115
5	0.9515	0.9057	0.8628	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5936	0.5674	0.5428	0.5194	0.4972	0.4761	0.4561	0.4372	0.4184	0.3997	0.3623	0.3572	0.3325
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	0.3894	0.3694	0.3504	0.3316	0.2953	0.2907	0.2665
7	0.9327	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4817	0.4523	0.4261	0.3996	0.3759	0.3538	0.3326	0.3124	0.2931	0.2748	0.2393	0.2352	0.2115
8	0.9235	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4338	0.4039	0.3762	0.3506	0.3269	0.3046	0.2832	0.2628	0.2434	0.2250	0.1903	0.1867	0.1635
9	0.9143	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4244	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.2426	0.2231	0.2045	0.1868	0.1528	0.1497	0.1270
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3856	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.2071	0.1884	0.1705	0.1535	0.1200	0.1174	0.0955
11	0.8963	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3506	0.3173	0.2876	0.2607	0.2366	0.2149	0.1954	0.1771	0.1597	0.1431	0.1270	0.0940	0.0919	0.0705
12	0.8874	0.7895	0.7014	0.6246	0.5568	0.4950	0.4440	0.3971	0.3555	0.3186	0.2858	0.2567	0.2307	0.2075	0.1869	0.1685	0.1512	0.1348	0.1191	0.1038	0.0715	0.0698	0.0490
13	0.8787	0.7736	0.6810	0.5996	0.5288	0.4649	0.4138	0.3670	0.3254	0.2886	0.2558	0.2275	0.2024	0.1801	0.1616	0.1442	0.1282	0.1127	0.0974	0.0821	0.0505	0.0492	0.0290
14	0.8700	0.7579	0.6610	0.5751	0.5013	0.4354	0.3843	0.3375	0.2959	0.2592	0.2264	0.1981	0.1729	0.1506	0.1321	0.1156	0.1000	0.0848	0.0697	0.0544	0.0235	0.0225	0.0130
15	0.8613	0.7430	0.6419	0.5513	0.4745	0.4076	0.3565	0.3100	0.2684	0.2317	0.1990	0.1707	0.1455	0.1231	0.1056	0.0900	0.0748	0.0597	0.0445	0.0292	0.0185	0.0178	0.0090
16	0.8528	0.7284	0.6233	0.5288	0.4490	0.3811	0.3299	0.2834	0.2418	0.2051	0.1724	0.1441	0.1189	0.0965	0.0780	0.0624	0.0472	0.0321	0.0170	0.0115	0.0010	0.0010	0.0000
17	0.8444	0.7142	0.6050	0.5134	0.4315	0.3636	0.3124	0.2659	0.2243	0.1876	0.1549	0.1266	0.1014	0.0790	0.0614	0.0458	0.0307	0.0156	0.0101	0.0000	0.0000	0.0000	0.0000
18	0.8360	0.7002	0.5874	0.4936	0.4117	0.3438	0.2926	0.2461	0.2045	0.1678	0.1351	0.1068	0.0816	0.0592	0.0416	0.0260	0.0109	0.0054	0.0000	0.0000	0.0000	0.0000	0.0000
19	0.8277	0.6864	0.5703	0.4746	0.3917	0.3238	0.2726	0.2261	0.1845	0.1478	0.1151	0.0868	0.0616	0.0392	0.0216	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20	0.8195	0.6730	0.5537	0.4564	0.3735	0.3056	0.2544	0.2079	0.1663	0.1296	0.1000	0.0717	0.0465	0.0241	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21	0.8114	0.6608	0.5375	0.4388	0.3559	0.2880	0.2368	0.1903	0.1487	0.1120	0.0824	0.0541	0.0290	0.0075	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22	0.8034	0.6488	0.5219	0.4220	0.3391	0.2712	0.2199	0.1734	0.1318	0.0951	0.0655	0.0372	0.0121	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23	0.7954	0.6342	0.5037	0.4026	0.3197	0.2518	0.2005	0.1540	0.1124	0.0757	0.0461	0.0178	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
24	0.7876	0.6217	0.4879	0.3858	0.3029	0.2350	0.1837	0.1372	0.0956	0.0590	0.0294	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
25	0.7798	0.6095	0.4718	0.3687	0.2858	0.2179	0.1666	0.1201	0.0785	0.0419	0.0123	0.0000	0.0000	0.0000	0.0000	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	0.2254	0.1575	0.1056	0.0640	0.0254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
35	0.7059	0.5000	0.3564	0.2534	0.1813	0.1134	0.0615	0.0199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
40	0.6717	0.4529	0.3086	0.2063	0.1420	0.0897	0.0474	0.0158	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
45	0.6390	0.4115	0.2681	0.1668	0.1045	0.0522	0.0199	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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%	17%	18%	19%	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	0.8548	0.8476	0.8405	0.8333	0.8065	0.8000	0.7692
2	1.9794	1.9415	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5852	1.5657	1.5467	1.5281	1.4588	1.4400	1.3888
3	2.9410	2.8838	2.8296	2.7781	2.7293	2.6830	2.6391	2.5976	2.5584	2.5214	2.4865	2.4536	2.4226	2.3934	2.3650	2.3381	2.3126	2.2885	2.2648	2.2424	2.1650	2.1470	2.0940
4	3.9020	3.8077	3.7171	3.6299	3.5460	3.4654	3.3872	3.3114	3.2387	3.1690	3.1024	3.0373	2.9748	2.9137	2.8550	2.7982	2.7437	2.6904	2.6384	2.5876	2.4910	2.4740	2.4200
5	4.8534	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6958	3.6037	3.5143	3.4274	3.3430	3.2610	3.1813	3.1038	3.0284	2.9550	2.8480	2.8320	2.7780
6	5.7956	5.6014	5.4127	5.2291	5.0515	4.8798	4.7139	4.5537	4.3991	4.2499	4.1060	3.9673	3.8337	3.7050	3.5811	3.4620	3.3485	3.2404	3.1376	3.0399	2.9180	2.9020	2.8480
7	6.7283	6.4720	6.2303	6.0021	5.7884	5.5893	5.3954	5.2065	5.0225	4.8434	4.6691	4.4995	4.3346	4.1743	4.0185	3.8671	3.7200	3.5779	3.4406	3.3080	3.1610	3.1450	3.0910
8	7.6517	7.3255	7.0197	6.7327	6.4653	6.2176	5.9891	5.7705	5.5618	5.3629	5.1737	4.9942	4.8243	4.6640	4.5131	4.3714	4.2389	4.1164	4.0038	3.8909	3.7350	3.7190	3.6650
9	8.5660	8.1822	7.8613	7.4363	7.1078	6.8017	6.5152	6.2489	6.0025	5.7759	5.5592	5.3528	5.1564	4.9699	4.7934	4.6269	4.4704	4.3239	4.1874	4.0609	3.8950	3.8790	3.8250
10	9.4713	8.9826	8.5502	8.1199	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.8892	5.6502	5.4267	5.2161	5.0188	4.8332	4.6516	4.4841	4.3306	4.1891	4.0330	3.9970	3.9430
11	10.3688	9.7966	9.2526	8.7605	8.3064	7.8889	7.4987	7.1390	6.8052	6.4951	6.2055	5.9377	5.6889	5.4527	5.2337	5.0286	4.8374	4.6599	4.4954	4.3439	4.1940	4.1580	4.1040
12	11.2555	10.5755	9.9548	9.3861	8.8633	8.3836	7.9427	7.5361	7.1626	6.8137	6.4824	6.1694	5.8744	5.5971	5.3371	5.0883	4.8516	4.6271	4.4146	4.2141	4.0256	3.9900	3.9360
13	12.1344	11.3488	10.6336	9.9666	9.3396	8.7577	8.2147	7.7091	7.2308	6.7891	6.3744	5.9864	5.6244	5.2871	4.9744	4.6861	4.4129	4.1546	3.9111	3.6824	3.4939	3.4590	3.4050
14	13.0064	12.1066	11.2960	10.5633	9.8296	9.1391	8.4901	7.8814	7.3021	6.7514	6.2284	5.7324	5.2644	4.8251	4.4154	4.0261	3.6568	3.3074	2.9779	2.7492	2.5607	2.5260	2.4720
15	13.8665	12.8468	11.9336	11.1128	10.3800	9.6391	8.9471	8.2931	7.6771	7.0984	6.5564	6.0424	5.5564	5.0984	4.6691	4.2694	3.8901	3.5307	3.1911	2.9424	2.7137	2.6790	2.6250
16	14.7148	13.5788	12.5661	11.6453	10.8125	10.0696	9.3656	8.6544	8.0125	7.4237	6.8792	6.3744	5.8984	5.4527	5.0371	4.6516	4.2961	3.9706	3.6651	3.3796	3.1509	3.1170	3.0630
17	15.5562	14.2922	13.1566	12.1366	11.2174	10.4777	9.7632	9.0216	8.3543	7.7598	7.2196	6.7199	6.2491	5.8034	5.3878	5.0023	4.6468	4.3213	4.0258	3.7503	3.4848	3.4510	3.3970
18	16.3898	14.9932	13.7644	12.6539	11.6990	10.8891	10.1691	9.4356	8.7566	8.2014	7.7018	7.2497	6.8299	6.4374	6.0728	5.7373	5.4318	5.1563	4.9008	4.6653	4.4098	4.3760	4.3220
19	17.2226	15.6778	14.3234	13.1344	12.0885	11.1588	10.3336	9.6036	8.9501	8.3649	7.8393	7.3668	6.9380	6.5504	6.1982	5.8775	5.5810	5.3155	5.0700	4.8445	4.5890	4.5550	4.5010
20	18.0446	16.3551	14.8777	13.5900	12.4622	11.4770	10.6494	9.8181	9.1285	8.5138	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	5.6333	5.3778	5.1423	4.9168	4.6613	4.6270	4.5730
21	18.8577	17.0111	15.4515	14.0229	12.8221	11.7854	10.8336	9.9717	9.2923	8.6487	8.0751	7.5620	7.1018	6.6870	6.3125	5.9731	5.6776	5.4121	5.1766	4.9511	4.6956	4.6610	4.6070
22	19.6600	17.6556	15.9337	14.4511	13.1653	12.0421	11.0661	10.2001	9.4424	8.7715	8.1757	7.6446	7.1799	6.7592	6.3747	6.0253	5.7198	5.4443	5.1988	4.9533	4.6978	4.6630	4.6090
23	20.4565	18.2822	16.4444	14.8651	13.4883	12.3043	11.2722	10.3771	9.5892	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	5.7287	5.4532	5.2077	4.9622	4.7067	4.6720	4.6180
24	21.2433	18.9144	16.9336	15.2447	13.7799	12.5580	11.4669	10.5229	9.7696	9.0447	8.3481	7.7843	7.2828	6.8351	6.4338	6.0726	5.7471	5.4716	5.2261	4.9806	4.7251	4.6900	4.6360
25	22.0223	19.5523	17.4133	15.6222	14.0094	12.7837	11.6564	10.6765	9.8276	9.0770	8.4217	7.8431	7.3308	6.8729	6.4641	6.0971	5.7716	5.4961	5.2506	4.9951	4.7396	4.7050	4.6510
26	22.7940	20.1949	17.9600	15.7292	14.3272	13.0765	11.9258	10.8774	9.9691	9.1442	8.4689	7.8892	7.3669	6.9071	6.4883	6.1113	5.7858	5.5093	5.2638	5.0083	4.7528	4.7180	4.6640
27	23.5585	20.8439	18.4831	15.8466	14.6374	13.3836	12.2448	11.1555	10.1667	9.2818	8.5565	7.9768	7.4545	6.9947	6.5759	6.1989	5.8734	5.5969	5.3514	5.0959	4.8404	4.8060	4.7520
28	24.3160	21.4988	19.0000	15.9676	14.9461	13.6907	12.5000	11.4117	10.3731	9.4382	8.6619	8.0822	7.5599	7.1001	6.6813	6.3043	5.9788	5.6923	5.4468	5.1913	4.9358	4.9020	4.8480
29	25.0675	22.1599	19.5000	16.0900	15.2577	13.9978	12.7552	11.6668	10.5744	9.5933	8.7660	8.1863	7.6640	7.2042	6.7854	6.4084	6.0829	5.7964	5.5509	5.2954	5.0400	4.9960	4.9420
30	25.8130	22.8270	19.9900	16.2133	15.5688	14.3049	13.0100	11.8719	10.7388	9.7077	8.8304	8.2507	7.7279	7.2681	6.8493	6.4723	6.1468	5.8603	5.6148	5.3593	5.1040	5.0600	5.0060
31	26.5525	23.4999	20.4700	16.3366	15.8800	14.6120	13.2652	12.0770	10.9400	9.8566	8.9393	8.3596	7.8368	7.3770	6.9582	6.5812	6.2557	5.9692	5.7237	5.4682	5.2130	5.1690	5.1150
32	27.2860	24.1788	20.9400	16.4500	16.1911	14.9191	13.5204	12.3320	11.2000	10.1127	9.1454	8.5657	8.0429	7.5831	7.1643	6.7873	6.4618	6.1753	5.9298	5.6743	5.4190	5.3750	5.3210
33	28.0135	24.8633	21.4000	16.5644	16.5022	15.2202	13.7776	12.5990	11.4600	10.3250	9.2977	8.7180	8.1383	7.6155	7.1967	6.8197	6.4942	6.2077	5.9622	5.7067	5.4510	5.4070	5.3530
34	28.7360	25.5533	21.8500	16.6788	16.8111	15.5213	14.0348	12.8600	11.7200	10.5967	9.5180	8.9383	8.3586	7.8358	7.4170	7.0400	6.7145	6.4280	6.1825	5.9270	5.6715	5.6270	5.5730
35	29.4535	26.2488	22.3000	16.7933	17.1200	15.8224	14.2900	13.0810	12.0000	10.8773	9.7383	9.1586	8.5789	8.0561	7.6373	7.2603	6.9348	6.6483	6.4028	6.1473	5.8918	5.8480	5.7940
36	30.1660	26.9499	22.7500	16.9088	17.4311	16.1235	14.5452	13.3362	12.2600	11.1380	10.0000	9.4203	8.8406	8.2599	7.7371	7.3601	7.0346	6.7481	6.5026	6.2471	6.0016	5.9580	5.9040
37	30.8735	27.6564	23.2000	17.0200	17.7322	16.4246	14.8004	13.5914	12.5200	11.4000	10.2600	9.6403	9.0606	8.4799	7.9571	7.5801	7.2546	6.9681	6.7226	6.4671	6.2216	6.1780	6.1240
38	31.5760	28.3633	23.6500	17.1344	18.0333	16.7257	15.0556	13.8466	12.7800	11.6600	10.5200	9.9203	9.3406	8.7599	8.1771	7.7001	7.3746	7.0791	6.8336	6.5781	6.3326	6.2890	6.2350
39	32.2735	29.0708	24.1000	17.2488	18.3344	17.0268	15.3108	14.1018	13.0400	11.9200	10.7800	10.1803	9.5996	9.0179	8.4351	7.9581	7.6326	7.3471	7.1016	6.8561	6.6106	6.5670	6.5130
40	32.9660	29.7783	24.5500	17.3588	18.6355	17.3279	15.5660	14.3570	13.3000	12.1800	11.0400	10.4403	9.8596	9.2779	8.6951	8.2181	7.8926	7.5971	7.3516	7.1061	6.8606	6.8170	6.7630