SULIT

KEMENTERIAN PENDIDIKAN TINGGI
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI

BAHAGIAN PEPERIKSAAN DAN PENILAIAN
JABATAN PENDIDIKAN POLITEKNIK DAN KOLEJ KOMUNITI
KEMENTERIAN PENDIDIKAN TINGGI

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR

SESI II : 2022/2023

DPA40103 : FINANCIAL MANAGEMENT 2

TARIKH : 19 JUN 2023
MASA : 11.15 AM – 1.15 PM (2 JAM)

Kertas ini mengandungi **SEPULUH (10)** halaman bercetak.
Bahagian A: Struktur (4 soalan)
Dokumen sokongan yang disertakan : Jadual Nilai Kini & Formula

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JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIARAHKAN

(CLO yang tertera hanya sebagai rujukan)

SULIT

INSTRUCTION:

This section consists of **FOUR (4)** structure questions. Answer **ALL** questions.

ARAHAN:

*Bahagian ini mengandungi **EMPAT (4)** soalan berstruktur. Jawab **SEMUA** soalan.*

QUESTION 1

(a) Share is one of the medium that can be used as Long Term Financing for a company. There are two types of shares which are Ordinary Shares and Preference Share.

CLO1 (i) List down **FIVE (5)** types of Preference Shares.

[5 marks]

CLO1 (ii) Compare **TWO (2)** features between Ordinary Shares and Preference Shares.

[5 marks]

CLO1 (b) (i) Discuss **TWO (2)** types of Unsecured Short-Term Credit.

[5 marks]

CLO1 (ii) Mr. Zul plans to borrow RM20,000 from the bank to buy inventory. The bank offered to lend the money at an annual interest rate of 10% for six months.

a. Calculate the annual rate of interest of the loan.

[4 marks]

b. If the bank requires you to maintain a 15% compensating balance in the bank and the interest is discounted, calculate the cost of the loan.

[6 marks]

SOALAN 1

(a) Saham merupakan salah satu medium yang boleh digunakan sebagai Pembiayaan Jangka Panjang bagi sesebuah syarikat. Terdapat dua jenis saham iaitu Saham Biasa dan Saham Keutamaan.

CLO1 *(i) Senaraikan **LIMA (5)** jenis Saham Keutamaan.*

[*5 markah*]

CLO1 *(ii) Bandingkan **DUA (2)** ciri antara Saham Biasa dan Saham Keutamaan.*

[*5 markah*]

CLO1 (b) *(i) Bincangkan **DUA (2)** jenis Kredit Jangka Pendek Tidak Terjamin.*

[*5 markah*]

CLO1 *(ii) En. Zul merancang untuk meminjam RM20,000 daripada bank untuk membeli inventori. Bank menawarkan untuk meminjamkan wang itu pada kadar faedah tahunan 10 peratus selama enam bulan.*

a. Kirakan kadar faedah tahunan pinjaman.

[4 markah]

b. Jika bank memerlukan anda mengekalkan baki pampasan 15% dalam bank dan faedah didiskaunkan. kirakan kos pinjaman.

[*6 markah*]

QUESTION 2

CLO1 (a) Working capital management involves all aspects of the administration of current assets and current liabilities. Identify **FIVE (5)** objectives of working capital management.

[5 marks]

CLO1 (b) Ahmad is still new to working capital management. His concerned is about Accounts Receivable Control Operations on the actions that can be taken before giving credit sales to customers. Explain to Ahmad, the guide to controlling Accounts Receivable based on **FIVE (5)** Cs of credit.

[10 marks]

CLO1 (c) A company uses 20,000 kg of raw material Y per year. The carrying cost is 10% and the unit price is RM1,000. The fixed cost of each order is RM1,500. Calculate Economic Order Quantity (EOQ) and Order Cost for a year.

[10 marks]

SOALAN 2

CLO1 *(a) Pengurusan modal kerja melibatkan semua aspek pentadbiran aset semasa dan liabiliti semasa. Kenalpasti **LIMA (5)** objektif pengurusan modal kerja.*

[*5 markah*]

CLO1 *(b) Ahmad masih baru dalam pengurusan modal kerja. Beliau bimbang tentang Operasi Kawalan Penghutang Akaun atas tindakan yang boleh diambil sebelum memberikan jualan kredit kepada pelanggan. Terangkan kepada Ahmad, panduan mengawal Akaun Belum Terima berdasarkan **LIMA (5)** C kredit.*

[*10 markah*]

CLO1 *(c) Sebuah syarikat menggunakan 20,000 kg bahan mentah Y setahun. Kos bawaan ialah 10% dan harga seunit ialah RM1,000. Kos tetap setiap pesanan ialah*

RM1,500. Kira Kuantiti Pesanan Ekonomi (EOQ) dan Kos Pesanan untuk setahun.

[*10 markah*]

QUESTION 3

CLO1 (a) Indah Bhd. is considering a project using capital budgeting techniques. Compare the acceptance criteria of Accounting Rate of Return, Payback Period, Net Present Value, Internal Rate of Return and Profitability Index.

[5 marks]

CLO1 (b) The management of Best Buy Bhd. is considering an investment project for next year but does not want to make any investment that requires more than 3.5 years to recover the firm's initial investment. The cash flows for the the project are as follows:

Year	**Project (RM)**
0	(10,000)
1	4,300
2	3,200
3	2,200
4	1,000
5	700

The cost of capital is 10%. Calculate the project's:

(i) Payback Period

[3 marks]

(ii) Net Present Value (NPV)

[4 marks]

(iii) Profitability Index (PI)

[3 marks]

CLO1 (c) Othman is the newly appointed Finance Executive at Syarikat ABC Bhd. You as the Finance Manager is helping him to understand the concept of acceptance

criteria of several projects based on Payback Period, Net Present Value (NPV), Internal Rate of Return and Profitability Index (PI). Please advise Othman to analyze the results below whether to ACCEPT or REJECT Project A and Project B separately for each method, with the appropriate reason.

Method	Required	**Project A**	**Accept/Reject - Reason**
Payback Period	4.5	5	
Net Present Value		300	
Internal Rate of Return	10%	12%	
Profitability Index	1.5	2	

Method	Required	**Project B**	**Accept/Reject - Reason**
Payback Period	4.5	4	
Net Present Value		RM14,300	
Internal Rate of Return	10%	9%	
Profitability Index	1.5	1	

[10 marks]

SOALAN 3

CLO1 (a) *Indah Bhd. sedang mempertimbangkan projek menggunakan teknik belanjawan modal. Bandingkan kriteria penerimaan Kadar Pulangan Perakaunan, Tempoh Bayaran Balik, Nilai Semasa Bersih, kadar pulangan dalaman dan Indeks Keberuntungan.*

[*5 markah*]

CLO1 (b) *Pengurusan Best Buy Bhd. sedang mempertimbangkan projek pelaburan untuk tahun depan tetapi tidak mahu membuat sebarang pelaburan yang memerlukan lebih daripada 3.5 tahun untuk mendapatkan semula pelaburan awal firma itu. Aliran tunai untuk projek adalah seperti berikut:*

Tahun	***Projek (RM)***
0	*(10,000)*
1	*4,300*
2	*3,200*
3	*2,200*
4	*1,000*
5	*700*

Sekiranya kos modal adalah 10%. Kirakan:

(i) Tempoh Bayaran Balik

[*3 markah*]

(ii) Nilai Kini Bersih (NKB)

[*4 markah*]

(iv) Indeks Keberuntungan (IK)

[*3 markah*]

CLO1 *(c) Othman merupakan Eksekutif Kewangan yang baru dilantik di Syarikat ABC Bhd. Anda sebagai Pengurus Kewangan membantu beliau memahami konsep kriteria penerimaan beberapa projek berdasarkan Tempoh Bayaran Balik, Nilai Kini Bersih (NKB), Kadar Pulangan Dalaman dan Indeks Keberuntungan (IK). Sila nasihatkan Othman untuk menganalisis keputusan di bawah sama ada untuk MENERIMA atau MENOLAK projek, dengan alasan yang sesuai.*

Kaedah	*Diperlukan*	***Projek A***	***Terima/Tolak - Alasan***
Tempoh Bayaran Balik	*4.5*	*5*	
Nilai Semasa Bersih		*300*	
Kadar Pulangan Dalaman	*10%*	*12%*	
Indeks Keuntungan	*1.5*	*2*	

Kaedah	*Diperlukan*	***Projek B***	***Terima/Tolak - Alasan***
Tempoh Bayaran Balik	*4.5*	*4*	
Nilai Semasa Bersih		*RM14,300*	
Kadar Pulangan Dalaman	*10%*	*9%*	
Indeks Keuntungan	*1.5*	*1*	

[*10 markah*]

QUESTION 4

CLO1 (a) Firm's business risk is attributed to a firm business and investment decisions. Define business risk and give **FOUR (4)** examples of business risk.

[5 marks]

CLO1 (b) Footwear Inc. manufactures a complete line of men's and women's shoes for independent merchants. The management is considering the best product to invest between Sports Shoes and Snickers due to capital constraints. You have developed the following data for Footwear Inc:

	Sports Shoes (RM)	**Snickers (RM)**
Sales Price per unit	150	200
Direct Labour per unit	20	30
Direct Expenses per unit	15	20
Fixed Production Overhead	15,000	20,000
Fixed Administration Overhead	20,000	30,000
Expected unit sold	500	400

Footwear Inc. usually evaluate the investment based on profit earn. Choose the best product using the Break-event Point method.

[10 marks]

CLO1 (c) The following information has been provided to you:

	RM
Sales	150,000
(-) Variable cost	30,000
Contribution Margin	120,000
(-) Fixed cost	40,000
Earnin Befor Interest &Taxes	80,000
(-) Interest	10,000
Earning Before Taxes	70,000
(-) Taxes (20%)	14,000
Net Income	56,000

You are required to calculate:

(i) The degree of Operating Leverage (DOL)

(ii) The degree of Financial Leverage (DFL)

(iii) The degree of Combined Leverage (DCL)

(iv) If the sales decreased by 40%, what is the decrease percentage of earning after taxes?

[10 marks]

SOALAN 4

CLO1 *(a) Risiko perniagaan firma adalah disebabkan oleh keputusan perniagaan dan pelaburan yang kukuh. Takrifkan risiko perniagaan dan berikan* ***EMPAT (4)*** *contoh risiko perniagaan.*

[*5 markah*]

CLO1 *(b) Footwear Inc. mengeluarkan kasut lelaki dan wanita. Pihak pengurusan sedang mempertimbangkan produk terbaik untuk melabur antara Kasut Sukan dan Snickers kerana mempunyai kekangan modal. Anda telah membangunkan data berikut untuk Footwear Inc:*

	Kasut Sukan (RM)	*Snickers (RM)*
Harga Jualan seunit	*150*	*200*
Kos Buruh Langsung seunit	*20*	*30*
Perbelanjaan Langsung seunit	*15*	*20*
Overhead Pengeluaran Tetap	*15,000*	*20,000*
Overhead Pentadbiran Tetap	*20,000*	*30,000*
Unit Jualan yang dianggarkan	*500*	*400*

Footwear Inc. biasanya menilai pelaburan berdasarkan keuntungan yang diperolehi. Pilih produk terbaik menggunakan kaedah Titik Pulang Modal.

[*10 markah*]

CLO1 *(c) Maklumat berikut telah diberikan kepada anda:*

	RM
Jualan	*150,000*
(-) Kos Berubah	*30,000*
Margin Sumbangan	*120,000*
(-) Kos Tetap	*40,000*
Pendapatan sebelum faedah dan cukai	*80,000*
(-) Belanja Faedah	*10,000*
Pendapatan sebelum cukai	*70,000*
(-) Cukai (20%)	*14,000*
Untung Bersih	*56,000*

Anda dikehendaki mengira:

(i) Tahap Leverej Operasi

(ii) Tahap Leverej Kewangan

(iii) Tahap Leverej Gabungan

(iv) Sekiranya jualan menurun sebanyak 40%, apakah peratusan penurunan pendapatan selepas cukai?

[*10 markah*]

SOALAN TAMAT

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	1.9066	1.9531	2.1970
4	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.3108	1.3605	1.4116	1.4641	1.5181	1.5735	1.6305	1.6890	1.7490	1.8106	2.0736	2.3642	2.4414	2.8561
5	1.0510	1.1041	1.1593	1.2167	1.2763	1.3382	1.4026	1.4693	1.5386	1.6105	1.6851	1.7623	1.8424	1.9254	2.0114	2.1003	2.4883	2.9316	3.0518	3.7129
6	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.5007	1.5869	1.6771	1.7716	1.8704	1.9738	2.0820	2.1950	2.3131	2.4364	2.9860	3.6352	3.8147	4.8268
7	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.6058	1.7138	1.8280	1.9487	2.0762	2.2107	2.3526	2.5023	2.6600	2.8262	3.5832	4.5077	4.7684	6.2749
8	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	1.7182	1.8509	1.9926	2.1436	2.3045	2.4760	2.6584	2.8526	3.0590	3.2784	4.2998	5.5895	5.9605	8.1573
9	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	1.8385	1.9990	2.1719	2.3579	2.5580	2.7731	3.0040	3.2519	3.5179	3.8030	5.1598	6.9310	7.4506	10.604
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	4.0456	4.4114	6.1917	8.5944	9.3132	13.786
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	7.4301	10.657	11.642	17.922
12	1.1268	1.2682	1.4258	1.6010	1.7959	2.0122	2.2522	2.5182	2.8127	3.1384	3.4985	3.8960	4.3345	4.8179	5.3503	5.9360	8.9161	13.215	14.552	23.298
13	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	2.4098	2.7196	3.0658	3.4523	3.8833	4.3635	4.8980	5.4924	6.1528	6.8858	10.699	16.386	18.190	30.288
14	1.1495	1.3195	1.5126	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	12.839	20.319	22.737	39.374
15	1.1610	1.3459	1.5580	1.8009	2.0789	2.3966	2.7590	3.1722	3.6425	4.1772	4.7846	5.4736	6.2543	7.1379	8.1371	9.2655	15.407	25.196	28.422	51.186
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	18.488	31.243	35.527	66.542
17	1.1843	1.4002	1.6528	1.9479	2.2920	2.6928	3.1588	3.7000	4.3276	5.0545	5.8951	6.8660	7.9861	9.2765	10.761	12.468	22.186	38.741	44.409	86.504
18	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	3.3799	3.9960	4.7171	5.5599	6.5436	7.6900	9.0243	10.575	12.375	14.463	26.623	48.039	55.511	112.455
19	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	7.2633	8.6128	10.197	12.056	14.232	16.777	31.948	59.568	69.389	146.192
20	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	8.0623	9.6463	11.523	13.743	16.367	19.461	38.338	73.864	86.736	190.050
21	1.2324	1.5157	1.8603	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	8.9492	10.804	13.021	15.668	18.822	22.574	46.005	91.592	108.420	247.065
22	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4365	6.6586	8.1403	9.9336	12.100	14.714	17.861	21.645	26.186	55.206	113.574	135.525	321.184
23	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	11.026	13.552	16.627	20.362	24.891	30.376	66.247	140.831	169.407	417.539
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	79.497	174.631	211.758	542.801
25	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.835	13.585	17.000	21.231	26.462	32.919	40.874	95.396	216.542	264.698	705.641
30	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.063	13.268	17.449	22.892	29.960	39.116	50.950	66.212	85.850	237.376	634.820	807.794	*
35	1.4166	1.9999	2.8139	3.9461	5.5160	7.6861	10.677	14.785	20.414	28.102	38.575	52.800	72.069	98.100	133.176	180.314	590.668	*	*	*
36	1.4308	2.0399	2.8983	4.1039	5.7918	8.1473	11.424	15.968	22.251	30.913	42.818	59.136	81.437	111.834	153.152	209.164	708.802	*	*	*
40	1.4889	2.2080	3.2620	4.8010	7.0400	10.286	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	184.565	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	4.0604	4.1216	4.1836	4.2465	4.3101	4.3746	4.4399	4.5061	4.5731	4.6410	4.7097	4.7793	4.8498	4.9211	4.9934	5.0665	5.3680	5.6842	5.7656	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	12.756
7	7.2135	7.4343	7.6625	7.8983	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	16.499	19.123	19.842	23.858
9	9.3685	9.7546	10.159	10.583	11.027	11.491	11.978	12.488	13.021	13.579	14.164	14.776	15.416	16.085	16.786	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	42.566	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	17.086	18.292	19.599	21.015	22.550	24.215	26.019	27.975	30.095	32.393	34.883	37.581	40.505	43.672	59.196	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	51.660	72.035	100.815	109.687	167.286
16	17.258	18.639	20.157	21.825	23.657	25.673	27.888	30.324	33.003	35.950	39.190	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	157.253	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	30.539	33.760	37.379	41.446	46.018	51.159	56.939	63.440	70.749	78.969	88.212	98.603	154.740	244.033	273.556	483.973
20	22.019	24.297	26.870	29.778	33.066	36.786	40.995	45.762	51.160	57.275	64.203	72.052	80.947	91.025	102.444	115.380	186.688	303.601	342.945	630.165
21	23.239	25.783	28.676	31.969	35.719	39.993	44.865	50.423	56.765	64.002	72.265	81.699	92.470	104.768	118.810	134.841	225.026	377.465	429.681	820.215
22	24.472	27.299	30.537	34.248	38.505	43.392	49.006	55.457	62.873	71.403	81.214	92.503	105.491	120.436	137.632	157.415	271.031	469.056	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	47.575	56.085	66.439	79.058	94.461	113.283	136.308	164.494	199.021	241.333	293.199	356.787	434.745	530.312	*	*	*	*
35	41.660	49.994	60.462	73.652	90.320	111.435	138.237	172.317	215.711	271.024	341.590	431.663	546.681	693.573	881.170	*	*	*	*	*
36	43.077	51.994	63.276	77.598	95.836	119.121	148.913	187.102	236.125	299.127	380.164	484.463	618.749	791.673	*	*	*	*	*	*
40	48.886	60.402	75.401	95.026	120.800	154.762	199.635	259.057	337.882	442.593	581.826	767.091	*	*	*	*	*	*	*	*
50	64.463	84.579	112.797	152.667	209.348	290.336	406.529	573.770	815.084	*	*	*	*	*	*	*	*	*	*	*

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	0.8396	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	0.8885	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	0.4096	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	0.7599	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	0.8535	0.7894	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	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.1938	0.1443	0.1342	0.0943
10	0.9053	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	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	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.3173	0.2875	0.2607	0.2366	0.2149	0.1954	0.1346	0.0938	0.0859	0.0558
12	0.8874	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	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	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1625	0.1452	0.0935	0.0610	0.0550	0.0330
14	0.8700	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2320	0.2046	0.1807	0.1597	0.1413	0.1252	0.0779	0.0492	0.0440	0.0254
15	0.8613	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1229	0.1079	0.0649	0.0397	0.0352	0.0195
16	0.8528	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1883	0.1631	0.1415	0.1229	0.1069	0.0930	0.0541	0.0320	0.0281	0.0150
17	0.8444	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1696	0.1456	0.1252	0.1078	0.0929	0.0802	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0376	0.0208	0.0180	0.0089
19	0.8277	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1377	0.1161	0.0981	0.0829	0.0703	0.0596	0.0313	0.0168	0.0144	0.0068
20	0.8195	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1240	0.1037	0.0868	0.0728	0.0611	0.0514	0.0261	0.0135	0.0115	0.0053
21	0.8114	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0217	0.0109	0.0092	0.0040
22	0.8034	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.1007	0.0826	0.0680	0.0560	0.0462	0.0382	0.0181	0.0088	0.0074	0.0031
23	0.7954	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0907	0.0738	0.0601	0.0491	0.0402	0.0329	0.0151	0.0071	0.0059	0.0024
24	0.7876	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0817	0.0659	0.0532	0.0431	0.0349	0.0284	0.0126	0.0057	0.0047	0.0018
25	0.7798	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0736	0.0588	0.0471	0.0378	0.0304	0.0245	0.0105	0.0046	0.0038	0.0014
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	*	*
36	0.6989	0.4902	0.3450	0.2437	0.1727	0.1227	0.0875	0.0626	0.0449	0.0323	0.0234	0.0169	0.0123	0.0089	0.0065	0.0048	0.0014	*	*	*
40	0.6717	0.4529	0.3066	0.2083	0.1420	0.0972	0.0668	0.0460	0.0318	0.0221	0.0154	0.0107	0.0075	0.0053	0.0037	0.0026	0.0007	*	*	*
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	1.9135	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	1.5278	1.4568	1.4400	1.3609
3	2.9410	2.8839	2.8286	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	3.5460	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	2.3616	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	2.9906	2.7454	2.6893	2.4356
6	5.7955	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.2305	4.1114	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	4.0386	3.6046	3.2423	3.1611	2.8021
8	7.6517	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	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	6.2469	5.9952	5.7590	5.5370	5.3282	5.1317	4.9464	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	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2065	5.9377	5.6869	5.4527	5.2337	5.0286	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	6.4924	6.1944	5.9176	5.6603	5.4206	5.1971	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	12.106	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	8.5436	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	13.754	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	7.8393	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	13.590	12.462	11.470	10.594	9.8181	9.1285	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	6.3125	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	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	4.9094	4.1300	3.9705	3.3230
23	20.456	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	6.3988	6.0442	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	25.808	22.396	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	24.999	21.487	18.665	16.374	14.498	12.948	11.655	10.567	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	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	8.8786	8.1924	7.5979	7.0790	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	4.9966	4.1659	3.9995	3.3332
50	39.196	31.424	25.730	21.482	18.256	15.762	13.801	12.233	10.962	9.9148	9.0417	8.3045	7.6752	7.1327	6.6605	6.2463	4.9995	4.1666	3.9999	3.3333

FORMULA

Operating Cycle = Average age of inventory (AAI) + Average collection period (ACP)

Total carrying cost (TCC) = (inventory average) (carrying cost per unit)
= (Q / 2) C

Total ordering cost (TOC) = (times order is made) (each order cost)
= (S / Q) O

Total inventory cost (TIC) = TCC + TOC
= (Q / 2) C + (S / Q) O

$$EOQ = \sqrt{\frac{2\,(S)\,(O)}{C}}$$

Inventory average = (EOQ / 2) + safety stock

Number of annual order = annual requirement / each order quantity (EOQ)

Total inventory cost = Total Carrying Cost (TCC) + Total Ordering Cost (TOC)
= ((Q/2) + safety stock) C + (S/Q) O

Surrendered discount annual cost = (Credit effective cost) $\frac{a}{1-a} \times \frac{360}{c-b}$

Interest = Principlal (P) X Rate (R) X Time (T)

Annual effective rate = $\frac{\text{Interest}}{\text{Principlal}} \times \frac{1}{\text{Time}}$

Annual effective rate (Discounted) = $\frac{\text{Interest}}{\text{Principlal - Interest}} \times \frac{1}{\text{Time}}$

Effective cost of Interest = $\frac{\text{(Interest + Fees)}}{\text{(Principal - Interest – Fees)}} \times \frac{1}{\text{Time}}$

Vb= I (PVIFA i, n) + M (PVIF i , n)

Vb = I (PVIFA i/m , mn) + M (PVIF i/m , mn)

Vps = $\frac{D}{Rps}$, Rps = $\frac{D}{Vps}$, Vcs = $\frac{D1 + P1}{1 + Rcs}$, Vcs = $\frac{D}{Rcs}$, Vcs = $\frac{D1}{Rcs - g}$, D1 = Do (1+g)

Annual Depreciation = $\frac{\text{Cost of depreciable assets - Scrap Value}}{\text{Asset life}}$

PP = Initial outlay / ACF average

NPV = $(ACF_t \times PVIFA_{k,n}) - IO$

IRR = $IO = \frac{ACF_t}{\Sigma\,(1 + IRR)^t}$

$PI = \frac{\frac{ACF_t}{\Sigma\,(1 + k)^t}}{IO}$

(P x Q) - [(V x Q) + F] = EBIT = 0

BEP (unit), $Q = \frac{F}{P - V}$, BEP ($) = BEP (unit) x sales price

BEP ($), *S = $\frac{F}{1 - \frac{V}{S}}$, BEP (unit) = BEP ($) / Sales price per unit

DOL (S) = (S – VQ) / (S – VQ – F)

DFL (S) = (S – VQ – FC) / (S – VQ – FC – I – [PD x 1 / (1 – T)])

DCL = DOL x DFL

DCL (S) = (S – VQ) / (S – VQ – FC – I – [PD / (1 – T)])