

SULIT



BAHAGIAN PEPERIKSAAN DAN PENILAIAN  
JABATAN PENDIDIKAN POLITEKNIK  
KEMENTERIAN PENDIDIKAN MALAYSIA

JABATAN PERDAGANGAN

PEPERIKSAAN AKHIR  
SESI DISEMBER 2014

**PS503: ISLAMIC INVESTMENT**

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**TARIKH : 10 APRIL 2015**  
**MASA : 8.30 AM - 10.30 AM (2 JAM)**

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Kertas ini mengandungi **DUA PULUH SATU (21)** halaman bercetak.

Bahagian A: Objektif (25 soalan)

Bahagian B: Esei (3 soalan)

Dokumen sokongan yang disertakan :Jadual PVIF dan PVIFA

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**JANGAN BUKA KERTAS SOALANINI SEHINGGA DIARAHKAN**

(CLO yang tertera hanya sebagai rujukan)

**SULIT**

**SECTION A : 25 MARKS**  
**BAHAGIAN A : 25 MARKAH**

**INSTRUCTION:**

This section consists of **TWENTY FIVE (25)** objective questions. Mark your answers in the OMR form provided.

**ARAHAN :**

*Bahagian ini mengandungi **DUA PULUH LIMA (25)** soalan objektif. Tandakan jawapan anda di dalam borang OMR yang disediakan.*

CLO1  
C1

1. The organization was established on 1<sup>st</sup> March 1993. A statutory body entrusted with the responsibility of regulating and systematically developing the capital markets in Malaysia.

*Organisasi yang telah ditubuhkan pada 1 Mac 1993. Sebuah badan berkanun yang diamanahkan dengan tanggungjawab untuk mengawal selia dan membangunkan secara sistematik pasaran modal di Malaysia.*

The above statement refers to \_\_\_\_\_.

*Kenyataan di atas merujuk kepada \_\_\_\_\_.*

- A. Central Bank of Malaysia  
*Bank Negara Malaysia*
- B. Securities Commission  
*Suruhanjaya Sekuriti*
- C. The Islamic Financial Services Board  
*Lembaga Perkhidmatan Kewangan Islam*
- D. The Accounting and Auditing Organization for Islamic Financial Institutions  
*Organisasi Perakaunan dan Pengauditan bagi Institusi Kewangan Islam*

CLO1  
C1

2. Which of the following statements is **FALSE**?

*Manakah antara kenyataan berikut adalah **SALAH**?*

- A. Maisir is gambling or any game of chance whereby one party will lose at the expense of the other.

*Maisir adalah perjudian atau apa-apa permainan beradu nasib di mana satu pihak akan kalah dengan mengorbankan yang lain.*

- B. Gharar is any transaction whose existence or item are not certain, due to lack of information.

*Gharar adalah apa-apa transaksi yang kewujudannya atau item yang tidak pasti disebabkan kekurangan maklumat.*

- C. Risk sharing is defined as one unit of currency today is more valuable than one unit of currency in the future.

*Perkongsian risiko ditakrifkan sebagai satu unit mata wang hari ini adalah lebih berharga daripada satu unit mata wang pada masa akan datang.*

- D. Islamic investment is a joint pool where a number of people contribute their money for the purpose of investment in conformity with Islamic Shariah.

*Pelaburan Islam adalah pengumpulan bersama di mana jumlah seseorang yang menyumbang wang mereka untuk tujuan pelaburan yang mematuhi Syariah Islam.*

CLO1  
C1

3. Security transaction procedures are stated in \_\_\_\_\_.

*Prosedur transaksi sekuriti dinyatakan dalam \_\_\_\_\_.*

- A. Part IV Industrial Security Act

*Akta Sekuriti Industri Bahagian IV*

- B. Part V Industrial Security Act

*Akta Sekuriti Industri Bahagian V*

- C. Part IIX Industrial Security Act

*Akta Sekuriti Industri Bahagian IIX*

- D. Part IX Industrial Security Act

*Akta Sekuriti Industri Bahagian IX*

CLO1  
C2

4. Alisha purchased 450 units of common shares of SAPURA one year ago at RM14.50 per share. She now decides to sell all her shares at RM16.00 per share. SAPURA paid dividends of RM1.50 per share. Calculate Alisha's holding period return.

*Alisha membeli 450 unit saham biasa SAPURA satu tahun lalu pada harga RM14.50 sesaham. Beliau kini mengambil keputusan untuk menjual semua saham beliau pada harga RM16.00 sesaham. SAPURA membayar dividen sebanyak RM1.50 sesaham. Kirakan tempoh pegangan pulangan Alisha.*

- A. 45.65%.
- B. 32.18%
- C. 50.67%
- D. 20.69%

CLO1  
C2

5. The equation used by a financial manager to determine the investor's required rate of return is the \_\_\_\_\_.

*Persamaan yang digunakan oleh pengurus kewangan untuk menentukan kadar pulangan perlu pelabur ialah \_\_\_\_\_.*

- A. Expected return  
*Jangkaan pulangan*
- B. Coefficient of variation  
*Pengkali korelasi*
- C. Standard deviation  
*Sisihan Piawai*
- D. Capital Asset Pricing Model  
*Model Letak Harga Aset Modal*

CLO1  
C2

6. What type of risk is related to the event of flooding in the East Coast of Malaysia?

*Apakah jenis risiko yang berkaitan dengan kejadian banjir di kawasan Pantai Timur, Malaysia.*

- A. Systematic risk  
*Risiko sistematis*
- B. Default risk  
*Risiko kelalaian*
- C. Diversifiable risk  
*Risiko diagihkan*
- D. Unsystematic risk  
*Risiko tidak bersistematis*

CLO1  
C2

7. Which of the following can be categorised as unsystematic risk ?

*Manakah yang berikut boleh dikategorikan sebagai risiko tidak sistematis ?*

- A. Market risk  
*Risiko pasaran*
- B. Inflation risk  
*Risiko inflasi*
- C. Financial risk  
*Risiko Kewangan*
- D. Exchange rate risk  
*Risiko Tukaran Asing*

CLO1  
C2

8. The expected market return is 15 percent with risk free rate at 5 percent. The beta value for Asset A is 1.5. Determine the required rate of return for Asset A using Capital Asset Pricing Model (CAPM)

*Jangkaan pulangan pasaran adalah 15 peratus dengan kadar bebas risiko adalah 5 peratus. Nilai beta bagi Aset A ialah 1.5. Tentukan kadar pulangan yang diperlukan bagi Aset A menggunakan Model Modal Aset Harga (CAPM)*

- A. 0.2
- B. 0.3
- C. 0.4
- D. 0.5

CLO 1  
C1

9. Which of the following is **TRUE** about expected return ?

- Manakah antara berikut adalah **BENAR** tentang jangkaan pulangan?*
- A. Actual return that is received after minusing liabilities.  
*Pulangan sebenar yang diterima selepas tolak liability.*
  - B. The estimated return from an asset that the investor anticipates (expects) which he will earn over some future period.  
*Anggaran pulangan aset yang pelabur jangka (harap) untuk diperolehi pada masa hadapan.*
  - C. Percentage measurement relating to all cash flow on security for a given time period.  
*Ukuran peratusan berkaitan semua aliran tunai bagi sesuatu aset untuk suatu tempoh masa yang diberikan.*
  - D. Actual return on an investment for some previous period of time.  
Return that has been earned.  
*Pulangan sebenar atas pelaburan untuk tempoh beberapa masa sebelumnya. Pulangan yang telah diperolehi.*

CLO 1  
C2

10.

'The certificate that carries equal value and is issued with the aim of mobilizing the fund required for producing products that are owned by the certificate holder.'

*'Sijil yang membawa nilai yang sama dan dikeluarkan dengan tujuan untuk menggerakkan dana yang diperlukan untuk menghasilkan produk yang dimiliki oleh sijil holder'.*

The statement above refers to \_\_\_\_\_.

*Penyataan di atas merujuk kepada \_\_\_\_\_.*

- A. Salam Sukuk
- B. Ijarah Sukuk
- C. Istisna Sukuk
- D. Mudarabah Sukuk

CLO 1  
C2

11. Fundamental analysis is about the knowledge of making investment decisions.  
Which of the following is NOT an aspect of fundamental analysis?

*Analisis asas adalah pengetahuan dalam membuat keputusan pelaburan.  
Manakah antara berikut BUKAN merupakan aspek dalam analisis asas?*

- A. Asset analysis  
*Analisis Aset*
- B. Economic analysis  
*Analisis ekonomi*
- C. Company analysis  
*Analisis Syarikat*
- D. Industry analysis  
*Analisis industri*

CLO 1  
C1

12. \_\_\_\_\_ provides a fund raising platform that caters to new dynamic and qualified companies, that typically do not have an established profit track record.

\_\_\_\_\_ menyediakan platfrom penjanaan dana yang memenuhi keperluan syarikat baru dan dinamik yang berkelayakan, yang pada kebiasaannya tidak mempunyai rekod prestasi untung.

- A. MESDAQ
- B. Bursa Suq Al-Sila
- C. Bursa Malaysia Berhad
- D. Bank Negara Malaysia

CLO 1  
C1

13. "A trustee would sell some of its units or part of its co-ownership interest in the musharakah assets to the originator." This statement refers to the principle of \_\_\_\_\_.

"Pemegang amanah akan menjual beberapa unit atau sebahagian daripada kepentingan pemilikan bersama dalam aset musyarakah kepada pemilik sebenar." Kenyataan ini merujuk kepada prinsip \_\_\_\_\_.

- A. Wakalah
- B. Mudharabah
- C. Bai Bithaman Ajil
- D. Musharakah Mutanaqisah Sukuk

CLO 2  
C2

14. The issuance of sukuk in Malaysia would require the approval of \_\_\_\_\_.

*Pengeluaran sukuk di Malaysia memerlukan kebenaran daripada \_\_\_\_\_.*

- A. Central Bank of Malaysia  
*Bank Negara Malaysia*
- B. Islamic Financial Services Board  
*Lembaga Perkhidmatan Kewangan Islam*
- C. Securities Commission Malaysia  
*Suruhanjaya Sekuriti Malaysia*
- D. Accounting and Auditing Organization for Islamic Financial Institution  
*Organisasi Perakaunan dan Pengauditan bagi Institusi Kewangan Islam*

CLO 2  
C3

15. Which of the following is a disadvantage of sukuk ?

- Yang manakah di antara berikut adalah keburukan sukuk ?*
- A. Full disclosure  
*Pendedahan sepenuhnya*
  - B. Diversified investment  
*Kepelbagaian pelaburan*
  - C. No uncertainty  
*Tidak wujud kesamaran*
  - D. Trade is based on sales of a debt instrument.  
*Perdagangan adalah berdasarkan kepada jualan pada instrumen hutang*

CLO 2  
C2

16. The following are related parties in REITS EXCEPT

*Berikut adalah pihak yang berkaitan dalam REITS KECUALI*

- A. Unit holders  
*Pemegang Unit*
- B. Trustees  
*Pemegang Amanah*
- C. REITs manager  
*Pengurus REIT*
- D. Property holders  
*Pemegang Hartanah*

CLO 2  
C1

17. The concepts of Ijarah Thumma al-Bai and Bai Bithaman Ajil are used in

*Konsep Ijarah Thumma al-bai dan Bai Bithaman Ajil digunakan dalam*

- A. Warrants  
*Waran.*
- B. Islamic equity fund  
*Dana ekuiti Islam.*
- C. Islamic hedge fund  
*Dana lindung nilai Islam.*
- D. Asset backed securities  
*Sekuriti bersandarkan aset.*

CLO 3  
C1

18. The following are principles of Islamic Equity investment **EXCEPT**

*Berikut adalah prinsip-prinsip Ekuiti Pelaburan Islam **KECUALI***

- A. To earn halal profits in strict conformity to Islamic Law.  
*Untuk mendapat keuntungan yang halal selaras dengan syariat Islam.*
- B. Highlights the need for transparency and proper monitoring and regulation of the industry.  
*Menekankan keperluan ketelusan serta pemantauan dan pengawalseliaan industri yang betul.*
- C. To ensure that the investor has clear information about how the investments are being deployed.  
*Bagi memastikan pelabur mempunyai maklumat yang jelas tentang bagaimana pelaburan dijalankan*
- D. To maximize profit without any Islamic restrictions.  
*Untuk memaksimumkan keuntungan tanpa apa-apa halangan Islam.*

CLO 3  
C2

19. The following are the advantages of investing in unit trusts **EXCEPT**

*Berikut adalah kebaikan di dalam pelaburan unit amanah, **KECUALI***

- A. Less liquidity  
*Kurang kecairan*
- B. Spread of risks  
*Penyebaran risiko.*
- C. A small amount is required for the investment.  
*Jumlah yang kecil diperlukan untuk pelaburan.*
- D. Managed by professional fund managers.  
*Diuruskan oleh pengurus dana yang profesional.*

CLO3  
C1

20. The following are the rigidity characteristics of state institutions **EXCEPT**

*Berikut adalah ciri-ciri ketegaran institusi negeri **KECUALI***

- A. Lack of hedging and financial engineering processes.  
*Kurang lindung nilai dan proses kejuruteraan kewangan.*
- B. Practice of the capitalist economic system to increase profits.  
*Mengamalkan sistem ekonomi kapitalis untuk meningkatkan keuntungan.*
- C. Non-existence of inter-bank money markets.  
*Tidak wujud pasaran wang antara bank.*
- D. Ineffective external credit assessment systems.  
*Sistem penilaian kredit luar yang tidak berkesan.*

CLO3  
C2

21. The following are objectives of Real Estate Investment Trust (REITs) **EXCEPT:**

*Berikut adalah matlamat Pelaburan Amanah Hartanah (REIT) **KECUALI:***

- A. High liquidity, unlike traditional real estate.  
*Kecairan yang tinggi, tidak seperti harta tanah tradisional*
- B. Enable sharing in non-residential properties as well, such as hotel, mall and other commercial or industrial properties.  
*Membolehkan perkongsian bukan harta tanah kediaman, seperti hotel, pusat membeli-belah dan lain-lain harta tanah komersil atau perindustrian.*
- C. Does not necessarily increase and decrease in value along with the broader market .  
*Tidak perlu meningkat dan mengurangkan nilai bersama-sama dengan pasaran yang lebih luas.*
- D. REITs is not a minimum investment but the maximum investment in REITs is 100%  
*REITs bukanlah pelaburan yang minimum, tetapi pelaburan maksimum dalam REIT adalah 100%*

CLO 3  
C 2

22. Assuming that the current dividend paid is RM 1.00 per share and the expected dividend growth rate of 7% a year with 15% rate of return. Find the value of the common share.

*Andaikan kadar dividen semasa dibayar adalah RM 1.00 sesaham dan kadar jangkaan pertumbuhan dividen adalah 7% setahun dengan kadar pulangan sebanyak 15%. Kirakan nilai saham biasa.*

- A. RM 22.50
- B. RM 23.00
- C. RM 24.00
- D. RM 24.30

CLO3  
C1

23. An analyst conducted some research on the banking sector and found that the prevailing PE ratio for the following year would be 15 times. If the estimated value per share of Public Bank Bhd. is RM 0.25, calculate the prospective price per share .

*Seorang penganalisis telah menjalankan penyelidikan ke atas sektor perbankan dan mendapati bahawa nisbah PE semasa bagi tahun akan datang ialah 15 kali. Sekiranya anggaran nilai sesaham Public Bank Bhd ialah RM 0.25, kirakan prospek harga sesaham.*

- A. RM 3.71
- B. RM 3.73
- C. RM 3.75
- D. RM 3.76

CLO3  
C1

24. When was MASDEQ launched as a separate securities market ?

*Bilakah MASDEQ dilancarkan sebagai pasaran sekuriti berasingan ?*

- A. 14 September 1998
- B. 6 October 1997
- C. 10 September 1997
- D. 23 August 1998

CLO3  
C2

25. The purpose of a \_\_\_\_\_ is to avoid “ odd lots” and to facilitate easier trading .

*Tujuan \_\_\_\_\_ adalah untuk mengelakkan “odd lots” dan memudahkan perdagangan.*

- A. market lot  
*lot pasaran*
- B. board lot  
*lot dagangan*
- C. speculation lot  
*lot spekulasi*
- D. central depository system  
*sistem pendepositran berpusat*

**SECTION B : 75 MARKS**  
**BAHAGIAN B : 75 MARKAH****INSTRUCTION:**

This section consists of THREE (3) essay questions. Answer ALL questions.

**ARAHAN:**

Bahagian ini mengandungi **TIGA (3)** soalan eseai. Jawab semua soalan.

**QUESTION 1****SOALAN 1**

CLO 1  
C2

- a) Based on the data below, determine :

*Daripada data di bawah, tentukan :*

- i. Capital Gain

*Keuntungan Modal*

[5 marks]

[5markah]

- ii. Total Return

*Jumlah Pulangan*

[10 marks]

[10 markah]

**Historical investment data for a hypothetical investment**

<b>Market Value (Price)</b>			
<b>Year</b>	<b>Income (RM)</b>	<b>Beginning of the year (RM)</b>	<b>End of year (RM)</b>
2000	4.00	100	95
2001	3.00	95	99
2002	4.00	99	105
2003	5.00	105	115
2004	5.00	115	125
2005	3.00	125	120
2006	3.00	120	122
2007	4.00	122	130
2008	5.00	130	140
2009	5.00	140	155
Average	4.10		

CLO1  
C2

- b) Explain briefly  
*Terangkan secara ringkas*

[10 marks]  
[10 markah]

i. Risk

*Risiko*

ii. Return

*Pulangan*

iii. Required Rate of Return

*Kadar Pulangan Diperlukan*

iv. Expected Rate of Return

*Kadar Pulangan Jangkaan*

v. Security Market Line

*Garisan Pasaran Sekuriti*

**QUESTION 2**  
**SOALAN 2**

CLO2  
C3

- a) Interpret the following types of Sukuk :-

*Jelaskan jenis sukuk yang berikut:-*

- i. Ijarah Sukuk

*Sukuk Ijarah*

[3 marks]

[3 markah]

- ii. Istisna' Sukuk

*Sukuk Istisna'*

[3 marks]

[3 markah]

- iii. Mudharabah Sukuk

*Sukuk Mudharabah*

[3 marks]

[3 markah]

- iv. Musharakah Sukuk

*Sukuk Musharakah*

[3 marks]

[3 markah]

CLO2  
C1

- b) State **FOUR (4)** types of associated with Sukuk.

*Nyatakan **EMPAT (4)** jenis risiko di bawah struktur Sukuk.*

[4 marks]

[4 markah]

CLO2  
C1

- c) Describe **THREE (3)** advantages of Real Estate Investment Trust (REITs)

*Terangkan **TIGA (3)** kebaikan Pelaburan Amanah Harta Tanah (REITs)*

[6 marks]

[ 6 markah]

CLO2  
C1

- d) State the definition of option.

*Nyatakan maksud opsyen.*

[3 marks]

[3 markah]

**QUESTION 3****SOALAN 3**CLO3  
C2

- a) List THREE (3) advantages of Sukuk.

*Senaraikan TIGA (3) kebaikan Sukuk.*

[3 marks]

[3 markah]

CLO3  
C3

- b) Dividend of APOLLO company is projected to grow at a rate of 7% forever. If the discount rate is 12 percent and the current dividend is RM9.50, calculate the value of the APOLLO stock.

*Dividen syarikat APOLLO diunjurkan berkembang pada kadar 7% selama-lamanya. Jika kadar diskaun adalah 12 peratus dan dividen semasa ialah RM9.50, kirakan nilai saham APOLLO.*

[5 marks]

[5 markah]

CLO3  
C4

- c) In 2013, Exxon Mobil paid RM3.50 dividend and the required rate of return is 6.75 percent. The industry average growth rate is 3 percent.

*Pada tahun 2013, Exxon Mobil membayar dividen RM3.50 dan kadar pulangan yang diperlukan adalah 6.75 peratus. Kadar pertumbuhan purata industri ialah 3 peratus.*

- i. Calculate a present value estimate for Exxon Mobil.

*Kira jangkaan nilai semasa Exxon Mobil.*

7 markah  
[6 marks]  
[6 markah]

- ii. In December 2013, Exxon Mobil stock price was RM82.00. Based on your calculation in Question 3 (c)(i), indicate whether to invest or not in Exxon Mobil. Justify your answer.

*Pada Disember 2013, harga saham Exxon Mobil adalah RM82.00. Berdasarkan pengiraan anda dalam Soalan 3 (c) (i), tentukan sama ada untuk melabur atau tidak dalam Exxon Mobil. Jelaskan jawapan anda.*

[3 marks]  
[3 markah]

CLO3  
C2

- d) Differentiate between share capital and share market.  
*Bezakan di antara modal saham dan pasaran saham.*

[4 marks]  
[4 markah]

CLO3  
C1

- e) Define securitization.  
*Definisikan pengsekuritian.*

[3 marks]  
[3 markah]

### SOALAN TAMAT

Present Value and Future Value Tables

Period	Table A-4 Present value interest factors for a One-Dollar Annuity Discounted at $k$ percent for $n$ periods : $PVIFA = [1 - 1/(1+k)^n] / k$																			
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
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	0.8547	0.8475	0.8403	0.8333
2	1.9704	1.9416	1.9135	1.8861	1.8584	1.8308	1.7833	1.7591	1.7355	1.7125	1.6901	1.6681	1.6467	1.6257	1.6052	1.5852	1.5656	1.5465	1.5278	1.4968
3	2.9410	2.8839	2.8286	2.7751	2.732	2.6730	2.6243	2.5771	2.5313	2.4869	2.4437	2.4018	2.3612	2.3216	2.2832	2.2459	2.2096	2.1743	2.1399	2.1065
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	2.7432	2.6901	2.6386	2.5887
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	3.1983	3.1272	3.0576	2.9906
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	3.8687	3.7645	3.6847	3.5892	3.4976	3.4098	3.3255
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	3.9224	3.8115	3.7057	3.6046
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	4.2072	4.0776	3.9544	3.8375
9	8.5860	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	4.4506	4.3030	4.1633	4.0310
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	4.6586	4.4941	4.3380	4.1925
11	10.3676	9.7668	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	6.2085	5.9377	5.6869	5.4527	5.2337	5.0286	4.8354	4.6560	4.4865	4.3271
12	11.2551	10.5753	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	5.1911	4.9884	4.7932	4.6105	4.4392
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8557	8.3577	7.9469	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831	5.3423	5.1183	4.9095	4.7147	4.5327	4.3912
14	13.0037	12.1062	11.2961	10.5631	9.9896	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245	5.4675	5.2293	5.0081	4.8023	4.6106
15	13.8651	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	7.1909	6.8109	6.4624	6.1422	5.8474	5.5755	5.3242	5.0916	4.8759	4.6755
16	14.7179	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	7.3792	6.9740	6.6039	6.2651	5.9542	5.6685	5.4053	5.1624	4.9377	4.7296
17	15.5623	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.5488	7.1196	6.7291	6.3729	6.0472	5.7487	5.4746	5.2223	4.9897	4.7746
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8273	10.0591	9.3719	8.7576	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280	5.8178	5.5339	5.2732	5.0333	4.8122
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	9.9501	8.3649	7.8393	7.3668	6.9380	6.5504	6.1982	5.8775	5.5845	5.3162	5.0700	4.8435
20	18.0456	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.9633	7.4694	7.0248	6.6231	6.2593	5.9288	5.6278	5.3527	5.1009	4.8696
21	18.8570	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922	8.6487	8.0751	7.5620	7.0116	6.6870	6.3125	5.9731	5.6648	5.3837	5.1268	4.8913
22	19.6604	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424	8.7715	8.1757	7.6446	7.1695	6.7429	6.3587	6.0113	5.6964	5.4099	5.1486	4.9094
23	20.4558	18.2922	16.4436	14.8588	13.4886	12.3034	11.2722	10.3711	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988	6.0442	5.7431	5.4321	5.1658	4.9245
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066	9.0847	8.3481	7.7843	7.2829	6.8351	6.4338	6.0726	5.7465	5.4509	5.1822	4.9371
25	22.0232	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	8.4217	7.8431	7.3300	6.8729	6.4641	6.0971	5.7662	5.4669	5.1951	4.9476
30	25.8077	22.3965	19.6004	17.2920	15.3725	13.7648	12.4090	11.2578	10.2737	9.4269	8.6938	8.0552	7.4957	7.0027	6.5660	6.1772	5.8294	5.5168	5.2347	4.9789
35	29.4086	24.9986	21.4872	18.6646	16.3742	14.4982	12.9477	11.6546	10.5668	9.6442	8.8552	8.1755	7.5856	7.0700	6.6166	6.2153	5.8882	5.5386	5.2512	4.9915
36	30.1075	25.4888	21.8323	18.9083	16.5469	14.6210	13.0352	11.7172	10.6118	9.6765	8.8786	8.1924	7.5979	7.0790	6.6231	6.2201	5.8617	5.5412	5.2831	4.9929
40	32.8347	27.3555	23.1148	17.1591	15.0463	13.3317	11.9346	10.7574	9.7791	8.9511	8.2438	7.6344	7.1050	6.6418	6.2335	5.8713	5.5482	5.2582	4.9966	4.1649
50	39.1961	31.4236	25.7298	21.4822	18.2559	15.7619	13.8007	12.2335	10.9617	9.9147	8.3045	7.6752	7.1327	6.6605	6.2463	5.9801	5.5541	5.2623	4.9995	4.1666

Present Value and Future Value Tables

**Table A-3 Present value interest factors One-Dollar Discounted at  $k$  percent for  $n$  periods:  $PVIF_{kn} = 1/(1+k)^n$**

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	0.8772	0.8666	0.8621	0.8547	0.8475	0.8403	0.8333	0.8085	0.8000	0.7692	
2	0.9803	0.9612	0.9426	0.9246	0.9070	0.8890	0.8734	0.8573	0.8417	0.8264	0.8116	0.7972	0.7831	0.7695	0.7432	0.7305	0.7182	0.7062	0.6944	0.6504	0.6400	0.5917	
3	0.9706	0.9423	0.9151	0.8890	0.8538	0.8396	0.8163	0.7938	0.7722	0.7513	0.7312	0.7118	0.6931	0.6750	0.6575	0.6407	0.6244	0.6086	0.5934	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	0.5337	0.5158	0.4987	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	0.4561	0.4371	0.4190	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	0.3898	0.3704	0.3521	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	0.3332	0.3139	0.2959	0.2791	0.2218	0.2087	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	0.2848	0.2660	0.2487	0.2326	0.1789	0.1678	0.1226
9	0.9143	0.8368	0.7664	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3909	0.3606	0.3329	0.3075	0.2843	0.2630	0.2434	0.2255	0.2090	0.1938	0.1443	0.1342	0.0943	
10	0.9053	0.8203	0.7441	0.5756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3522	0.3220	0.2946	0.2697	0.2472	0.2267	0.2080	0.1911	0.1756	0.1615	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	0.2566	0.2149	0.1954	0.1778	0.1619	0.1476	0.1346	0.0998	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	0.1520	0.1372	0.1240	0.1122	0.0757	0.0687	0.0429
13	0.8787	0.7730	0.6810	0.6066	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2575	0.2292	0.2042	0.1821	0.1452	0.1299	0.1163	0.1042	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	0.2370	0.2046	0.1807	0.1597	0.1413	0.1252	0.1110	0.0985	0.0876	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	0.0949	0.0835	0.0736	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	0.0811	0.0708	0.0618	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	0.0693	0.0600	0.0520	0.0451	0.0258	0.0225	0.0116
18	0.8360	0.7002	0.5874	0.4936	0.4155	0.3503	0.2989	0.2502	0.2120	0.1799	0.1528	0.1300	0.1108	0.0946	0.0808	0.0691	0.0592	0.0508	0.0437	0.0376	0.0208	0.0180	
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	0.0506	0.0431	0.0367	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	0.0433	0.0365	0.0308	0.0261	0.0135	0.0053	
21	0.8114	0.6598	0.5375	0.4388	0.3389	0.2942	0.2415	0.1987	0.1637	0.1351	0.1117	0.0926	0.0768	0.0638	0.0531	0.0443	0.0370	0.0309	0.0259	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	0.0316	0.0262	0.0218	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	0.0270	0.0222	0.0183	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	0.0231	0.0188	0.0154	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	0.0197	0.0160	0.0129	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	0.0090	0.0070	0.0054	0.0042	0.0016	0.0012	0.
35	0.7059	0.5000	0.3554	0.2554	0.1813	0.1301	0.0937	0.0676	0.0490	0.0356	0.0259	0.0189	0.0139	0.0102	0.0075	0.0055	0.0041	0.0030	0.0023	0.0017	0.0005	0.	
40	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	0.0035	0.0026	0.0019	0.0014	0.		
45	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	0.0019	0.0013	0.0010	0.0007	0.		
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	0.0009	0.0004	0.0003	0.0002	0.0001	0.	0.	0.		