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POLITEKNIK
Jabatan Pengajian Politeknik

EXAMINATION AND EVALUATION DIVISION
DEPARTMENT OF POLYTECHNIC EDUCATION
(MINISTRY OF HIGHER EDUCATION)

COMMERCE DEPARTMENT

FINAL EXAMINATION
JUNE 2012 SESSION

PS503: ISLAMIC INVESTMENT

**DATE : 19 NOVEMBER 2012(MONDAY)
DURATION : 2 HOURS (2.30 PM - 4.30 PM)**

This paper consists of **THIRTEEN(13)** pages including the front page.

Section A: Objective (25 questions – answer all)

Section B: Essay (3 questions – answer all)

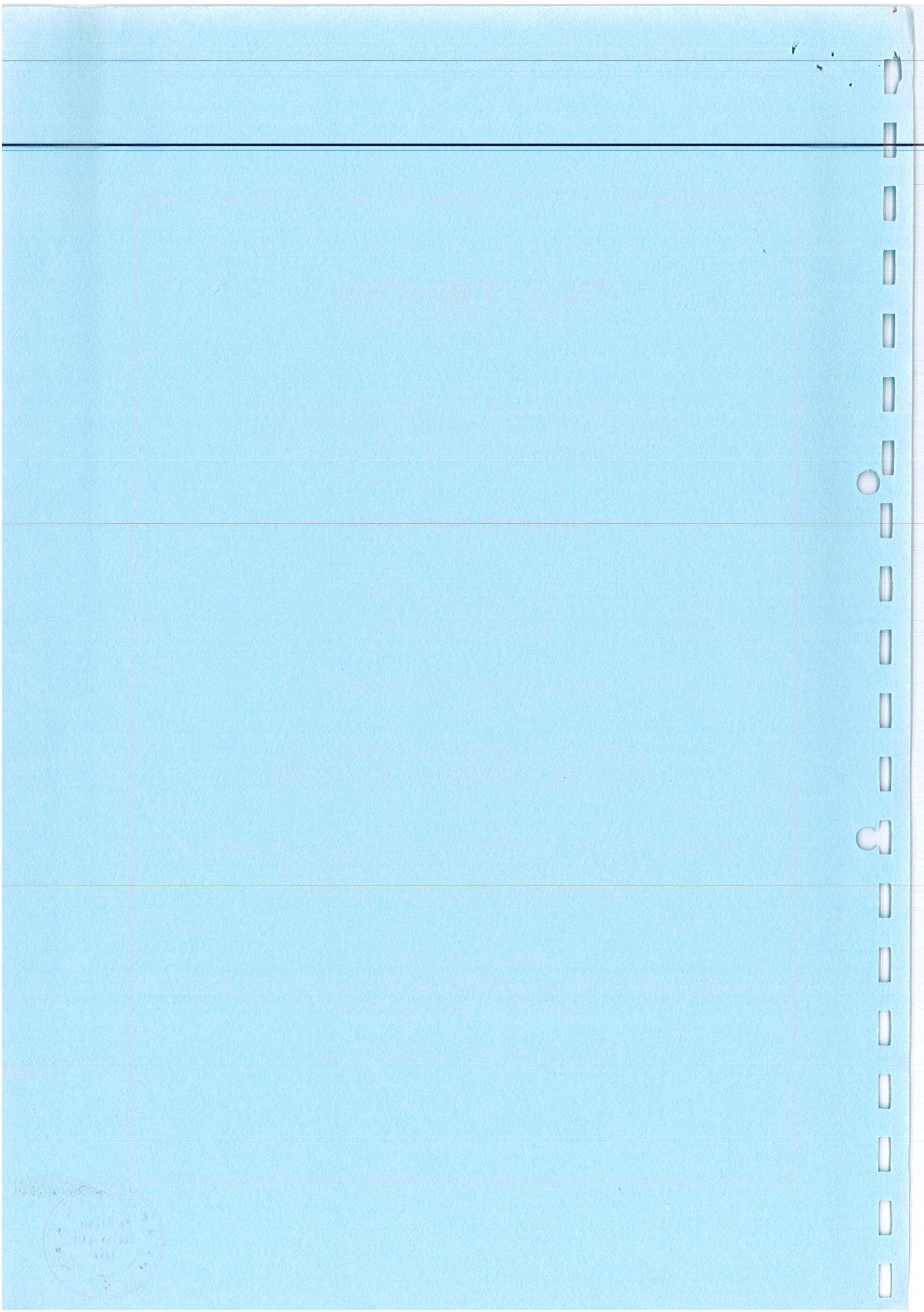
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**SECTION A
OBJECTIVES (25 marks)****INSTRUCTION:**

This section consists of **TWENTY FIVE (25)** objective questions. Write your answers in the answer booklet.

1. Below are the concept of investment according to Islamic perspective **EXCEPT :**

[CLO 2: C2]

- A. Prohibition of riba, gharar and maisir.
- B. Time value of money Islamically interpreted
- C. Based on interest
- D. Prohibition of speculation

2. Which of the following is a regulatory body for investment activities in Malaysia?

[CLO 3: C2]

- A. Bank Negara Malaysia
- B. IBFIM
- C. ISRA
- D. IFPAM

3. Which of the following is the international standard-setting bodies in investment?

[CLO 1: C1]

- A. The Islamic Financial Services Board (IFSB)
- B. Bank Negara Malaysia
- C. Real Estate Investment Trust
- D. MASDEQ

4. What is the ultimate goal of market analysis?

[CLO 1: C1]

- A. Determine how the stock price can move in the near future.
- B. Reviewing the economic, political and market factors that influence the way the industry develops.
- C. Determine the attractiveness of a market and to understand its evolving opportunities and threats as they relate to the strengths and weaknesses of the firm.
- D. All of the above.

5. Which is **TRUE** about the distributions channels in technical analysis?

[CLO 2: C2]

- A. Existing distribution channel.
- B. Trends and emerging channels.
- C. Channel power structure.
- D. All of the above.

6. What is company analysis?

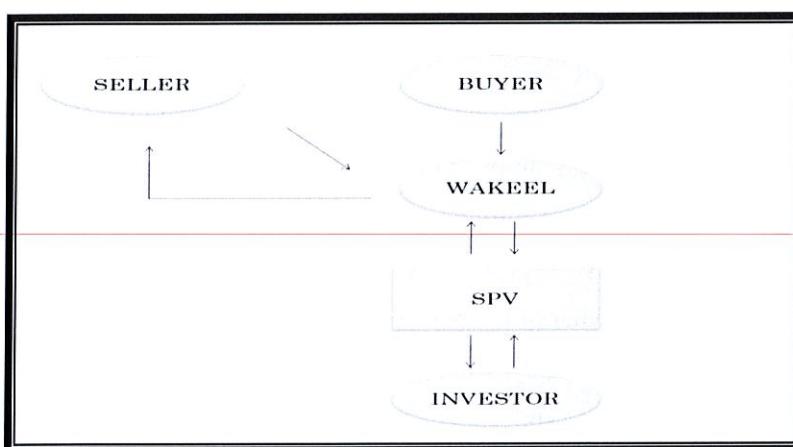
[CLO 1: C2]

- A. Once we've completed the economic forecast and industry analysis, we can focus on choosing the best positioned company in our chosen industry.
- B. Process of evaluating an investment for profitability and risk ultimately has the purpose of measuring how the given investment is a good fit for a portfolio.
- C. Look for companies whose financial health is good and getting better and which are under valued by the market.
- D. Determine the attractiveness of a market and to understand its evolving opportunities and threats as they relate to the strengths and weaknesses of the firm.

7. Which of the following determines the parties involved in securitization?

[CLO 3: C2]

- A. Shariah compliance, Banks, Rating agency and Trustee
- B. SPV, Originator, Investment bankers and Credit enhancer
- C. Originator, Trustee, Shariah adviser and Property manager
- D. Rating agency, Trustee, SPV, Manager and BNM



8. Based on the chart given, identify the **CORRECT** type of Sukuk.

[CLO 3: C3]

- A. Musyaraqah Mutanaqisah
- B. Musyaraqah
- C. Wakalah
- D. Murabahah

9. What are the suitable types of assets that could be used to issue Sukuk?

[CLO 3: C3]

- A. The assets shall be strong cash flow.
- B. The assets shall be value from Islamic perspective.
- C. The assets shall be value from Islamic perspective and strong cash flow.
- D. The assets available for investment.

10. What is the advantage of fund management for Islamic equity investment?

[CLO 3: C1]

- A. Low risk
- B. High risk
- C. Have a gharar, riba and maisir
- D. Will have losses

11. What is Asset-Backed Security?

[CLO 3: C2]

- A. A collection of stocks which pools amount of money with a number of other investors, which enables to pay a professional manager to select specific securities.
- B. Stock purchased to become an owner of the business.
- C. A security whose value and income payments are derived from and collateralized by a specified pool of underlying assets.
- D. A group under the general category called fixed-income securities which is the term bond is commonly used to refer to any securities that are founded on debt

12. What is the role of originator involved in securitization?

[CLO 2: C1]

- A. An entity making loans to borrowers or having receivables from customers
- B. A body that responsible for conducting the documentation work
- C. To provide value addition to security
- D. To provide cover against redemption risk to investor and or under subscription

13. How the securitization process will securitize of financial asset?

[CLO 1: C2]

- A. Selection of assets by the originator
- B. Packaging of designated pool of loans and advances (asset)
- C. Assigning or selling to of asset to SPV in return of cash
- D. All of the above

14. Why do investors invest in bonds?

[CLO 3 : C1]

- A. Some bonds do not provide tax-free income
- B. It provides current income for conservative investors
- C. Bond is a good hedge against inflation because of the fixed return
- D. It can be used for preservation and short term accumulation of capital

15. According to the Earnings Multiplier Model, if the required rate of return on a stock increases, the.....

[CLO 3 : C2]

- A. P/E ratio will increase.
- B. P/E ratio will decrease.
- C. earnings per share will increase
- D. earnings per share will decrease

16. What is the Holding Period Yield (HPY) if the investment cost is RM 500.00 and worth RM 400.00?

[CLO 1: C3]

- A. 80%
- B. -20%
- C. 20%
- D. -0.2%

17. Choose the statement which best describes the time value of money based on Islamic view?

[CLO 1 : C2]

- A. Money as potential capital
- B. The calculation of future and present values for investment
- C. Islam recognizes the time value of money when it acts as capital.
- D. The reward for delaying consumption or spending is the current level of interest rate.

18. Below are the roles of Securities Commission in development of stock market EXCEPT:

[CLO 1 : C2]

- A. Encouraging self- regulation
- B. Regulating take over and merges company
- C. Approving authority for corporate bond issues
- D. Regulating all matters relating to stock market

19. Which of the following statement is NOT referring to the advantage of future contract?

[CLO 1: C2]

- A. Potential return
- B. Regulating take over and merges company
- C. Approving authority for corporate bond issues
- D. Regulating all matters relating to stock market

20. What is the characteristic of Islamic REITs?

[CLO 1 : C2]

- A. Formed as a trust and open ended
- B. Use of insurance to insure real estates
- C. Not permissible to invest in any jurisdiction
- D. 20% limit on other REITs investment/Islamic instrument

21. Which of the following involved in Islamic Interbank Money Market?

[CLO 1: C2]

- I. Islamic and commercial banks only
 - II. Merchant bank and any eligible finance companies.
 - III. Discount houses
 - IV. Investment company
-
- A. I and II
 - B. I, II, and IV
 - C. I, II and III
 - D. I only

22. What are the characteristics of warrants?

[CLO 2: C2]

- I. Exercising, the warrant parameters and premium
 - II. Gearing, expiration date and restrictions on exercise
 - III. Do not have a fixed liquidation value or par value
 - IV. A claim on liquidation proceeds of a stock corporation
-
- A. I and II
 - B. I, II and III
 - C. II and IV
 - D. All of the above

23. MASDEQ was launched as separate securities market on

[CLO 1 : C1]

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

24. The following is the element of Central Depository System EXCEPT :

[CLO 1 : C2]

- A. Participant / Account Holder
- B. Eligible Pledge
- C. Issuers
- D. Buyer

25. What is the definition of Price-Earnings Ratio?

[CLO 1 : C2]

- A. The value is not same whether the calculation is done for the whole company or on a per-share basis.
- B. The most common measure of how expensive a stock is. The price per share in the numerator is the market price of a single share of the stock.
- C. Also sometimes known as "value multiple" or "stocks multiple".
- D. The price-to-earnings ratio is widely used valuation used for measuring the relative valuation of companies

SECTION B**ESSAY (75 marks)****INSTRUCTION:**

This section consists of **THREE (3)** essay questions. Answer **all** the questions.

QUESTION 1

Nowadays, investment plays important roles in the economy. Investment is one of the channels to generate profit in our life.

- a) Based on the above statement, define Islamic investment.

[CLO1: C1]

(3 mark)

- b) Explain **SIX (6)** concepts of investment according to Islamic perspective.

[CLO1: C2]

(18 mark)

- c) Briefly explain **TWO (2)** regulatory bodies that monitor the investment activities in Malaysia.

[CLO1: C2]

(4 mark)

QUESTION 2

a) Assume $r_F = 5\%$, $r_M = 11\%$ and beta = 1.3 for security A.

i. Determine the expected return for security A.

[CLO2: C3]

(1 mark)

ii. What happened to r_A if an increase in investors risk aversion caused the market risk to increase by 3% (other data do not change)?

[CLO2: C3]

(2 marks)

iii. If beta fall to 0.8 and everything else remains, what would happen to r_A ?

[CLO2: C3]

(2 marks)

b) Explain Security Market Line by using a graph.

[CLO2:C3]

(10 marks)

c)

Year	Beginning value	Ending Value	HPR	HPY
1	100	115		
2	115	138		
3	138	110.4		

Based on the above information:

- i. Complete the table

[CLO 2: C3]

(3 marks)

- ii. Find arithmetic mean and geometric mean

[CLO 2: C3]

(4 marks)

- iii. Give your opinion based on your findings in (ii)

[CLO 2: C4]

(3 marks)

QUESTION 3

a) Who are the parties involved in securitization?

[CLO 3 : C2]

(6 marks)

b) What are the criteria for the assets to be securitized as Asset-Backed Securities?

[CLO3: C2]

(6 marks)

c) Explain how MESDAQ affects the technology and non-technology based company. Give examples of the technology based companies involved.

[CLO 3: C3]

(5 marks)

d) Briefly explain:

i) Central Depository System

[CL0 3: C2]

(4 marks)

ii) Prospectus

[CLO 3: C2]

(4 marks)

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	1.5200	1.5609	1.7280	1.9066	1.9531	2.1970
4	1.0406	1.0824	1.1255	1.1694	1.2155	1.2625	1.3104	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	1.5889	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	1.3688	1.4775	1.5938	1.7182	1.8509	1.9928	2.1438	2.3045	2.4760	2.6584	2.8526	3.0590	3.2784	4.2098	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	4.8170	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	16.388	18.100	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	2.4068	2.8543	3.3709	3.9960	4.7171	5.5590	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	3.0258	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	6.5686	8.1403	9.9336	12.100	14.714	17.881	21.645	26.188	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	264.668	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	29.980	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	30.983	42.818	59.138	81.437	111.834	153.152	209.164	708.802	*	*	*
40	1.4688	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	4.2485	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	10.280	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	13.570	14.164	14.776	15.416	16.085	16.786	17.519	20.799	24.712	25.802	32.015
10	10.4622	10.950	11.464	12.006	12.578	13.181	13.816	14.487	15.193	15.907	16.722	17.549	18.420	19.337	20.304	21.321	25.959	31.643	32.253	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	97.255
14	14.947	15.974	17.086	18.292	19.599	21.015														

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	0.3906	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	0.7685	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	0.5653	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.2090	0.1827	0.1599	0.1401	0.1220	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	0.0888	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	0.0928	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	0.3068	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	0.9704	0.9416	0.9135	0.8861	0.8594	0.8334	0.8080	0.7833	0.7591	0.7355	0.7125	0.6901	0.6681	0.6467	0.6257	0.6052	0.5778	0.4568	0.4400	0.3609
3	0.9410	0.8839	0.8286	0.7751	0.7232	0.6730	0.6243	0.5771	0.5213	0.4689	0.4437	0.4018	0.3612	0.3216	0.2832	0.2459	0.2165	0.1913	0.1728	0.1360
4	0.9020	0.8077	0.7171	0.6209	0.5460	0.4651	0.3872	0.3121	0.2397	0.1699	0.1024	0.0573	0.0256	0.0196	0.0151	0.0116	0.0042	0.0016	0.0012	*
5	0.8534	0.7135	0.4518	0.3295	0.2124	0.1402	0.0902	0.0597	0.0389	0.0224	0.0102	0.0037	0.0014	0.0006	0.0003	0.0022	0.0014	0.0009	0.0006	0.0014
6	0.7955	0.6014	0.5172	0.4241	0.3075	0.2413	0.1765	0.1228	0.0745	0.0489	0.0355	0.02305	0.01114	0.0975	0.0887	0.07845	0.06847	0.03255	0.0205	0.0147
7	0.7282	0.6472	0.6203	0.6021	0.5784	0.5524	0.5389	0.5204	0.5030	0.4864	0.4712	0.45638	0.44226	0.42883	0.41604	0.40386	0.36046	0.32423	0.31611	0.28021
8	0.7651	0.7255	0.7017	0.6732	0.6432	0.6098	0.5913	0.5746	0.55348	0.53449	0.51461	0.49676	0.47988	0.46389	0.44873	0.43438	0.38372	0.34212	0.32889	0.29247
9	0.8560	0.8122	0.7781	0.7453	0.7108	0.6807	0.6512	0.62469	0.59952	0.55370	0.51317	0.46846	0.42716	0.38122	0.33216	0.29065	0.24311	0.21631	0.1909	0.1611
10	0.94713	0.8826	0.8502	0.81109	0.77217	0.73601	0.70236	0.67101	0.64177	0.61448	0.58892	0.56052	0.54262	0.51261	0.50188	0.48332	0.41925	0.36819	0.35705	0.30915
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	9.9858	9.3938	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	11.2																	