Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER 1
SESSION 2013/2014

COURSE NAME	:	FINANCIAL AND INVESTMENT MANAGEMENT
COURSE CODE	:	BPB 23403
PROGRAMME	:	3 BPA
EXAMINATION DATE	:	DECEMBER 2013/JANUARY 2014
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **ELEVEN (11)** PAGES

Q1 (a) Briefly define the followings:

(i) Eurobonds

(2 marks)

(ii) Zero coupon bonds

(2 marks)

(iii) Junk bonds

(2 marks)

(b) Broader Berhad's bonds have seven-year maturity periods and pay 9 percent interest annually. Your required rate of return is 7 percent and the current market price for the bond is RM1, 100.

(i) Determine the expected rate of return.

(4 marks)

(ii) Calculate the value of the bonds given your required rate of return of 7%?

(4 marks)

(iii) Evaluate the buying decision of the bond at the current market price.

(2 marks)

(c) Creative Q Berhad plans to issue bonds to expand their operations. The bonds will have a par value of RM1,000, a 10-year maturity, and a coupon interest rate of 9%, paid semiannually. Current market conditions are such that the bonds will be sold to net RM937.79.

Calculate the yield-to-maturity of these bonds.

(4 marks)

Q2 Your company's Chief Financial Officer (CEO) give you an assignment to evaluate two mutually exclusive projects, both with five-year expected lives and identical initial outlays of RM110,000. The required rates of return for both projects have been established at 12 percent. The expected free cash flows from each project are as follows:

	Project A	**Project B**
Initial Outlay	(RM110,000)	(RM110,000)
Year 1	20,000	40,000
Year 2	30,000	40,000
Year 3	40,000	40,000
Year 4	50,000	40,000
Year 5	70,000	40,000

You are required to provide answer to the following questions:

(i) Calculate the discounted payback period of each project
(4 marks)

(ii) Determine the Net Present Value (NPV) for each project.
(3 marks)

(iii) Determine the Profitability Index (PI) for each project.
(2 marks)

(iv) Determine the Internal Rate of Return (IRR) for each project.
(6 marks)

(v) Based on **Q2(i)** to **Q2(iv)**, which project should be accepted? Justify your answer.
(5 marks)

Q3 (a) Fiber Asia Berhad is considering the factoring of its receivables as to improve collection. The firm has credit sales of RM500,000 per month and has an average receivables balance of RM1 million with 60-day credit terms. The factoring company has offered to extend credit equal to 85% of the receivables factored less interest on the loan at a rate of 2% per month. The 15% difference in the advance and face value of all receivables factored consists of a 2% factoring fee plus a 13% reserve, which the factoring company maintains. In addition, if the company decides to factor its receivables, it will sell them all, so that it can reduce its credit department costs by RM2,000 a month.

Calculate the cost of borrowing to Fiber Asia Berhad if the company chooses to factor its receivables up to the maximum amount of credit.

(10 marks)

(b) Calculate the effective cost of the following trade credit terms if the discount is foregone and payment is made on the net due date.

(i) 2/15 net 30

(2 marks)

(ii) 2/15 net 45

(2 marks)

(iii) 2/15 net 60

(2 marks)

(c) Briefly define the followings:

(i) Line of credit

(2 marks)

(ii) Compensating balance

(2 marks)

Q4 (a) Focal Aims Berhad plans to issue 10-year bonds with a par value of RM1,000 that will pay RM55 every six months. The net amount of capital to the firm from the sale of each bond is RM840.68. The company is also in the 25% tax bracket.

Calculate after-tax cost of debt?

(4 marks)

(b) The common stock for Supreme Berhad currently sells for RM40 per share. If a new issue is sold, the flotation cost is estimated to be RM7 per share. The company had earnings of RM2.00 per share four years ago. Next year, the company expects to have earnings of RM3.22 per share. The company maintains a constant dividend payout ratio of 40%. Earnings per share are anticipated to grow at the same rate in the future. The firm's marginal tax rate is 30%.

Calculate the cost of internal equity capital and external equity capital.

(6 marks)

(c) The preferred stock of Surimas Berhad sells for RM17 and pays a RM1.75 dividend. The net price of the stock after issuance costs is RM15.30.

Determine the cost for preferred stock.

(2 marks)

(d) A firm currently has the following capital structure which it views as optimal. Debt: RM3,000,000 par value of 9% bonds outstanding with an annual before-tax yield to maturity of 7.67% on a new issue. The bonds currently sell for RM115 per RM100 par value. Common stock: 46,000 shares outstanding currently selling for RM50 per share. The firm expects to pay a RM5.50 dividend per share one year from now and is experiencing a 3.67% growth rate in dividends, which it expects to continue indefinitely. The firm's marginal tax rate is 40%.

Calculate the firm's weighted average cost of capital.

(8 marks)

Q5 (a) Differentiate between direct and indirect quote.

(4 marks)

(b) Define exchange rate risk

(2 marks)

(c) Briefly explain **TWO (2)** types of exchange rate risk.

(4 marks)

(d) The following **Table Q5** contains information on selling quotes for foreign currencies in New York.

Table Q5: Selling Quotes for Foreign Currencies in New York.

Country-Currency	**Contract**	**$/Foreign Currency**
Canada-dollar	Spot	0.8437
	30-day	0.8417
	90-day	0.8395
Japan-yen	Spot	0.004684
	30-day	0.004717
	90-day	0.004781
Switzerland-franc	Spot	0.5139
	30-day	0.5169
	90-day	0.5315

Based on information given in **Table Q5**, answer the following questions:

(i) An American business needs to make the following payments to businesses abroad: (a) 10,000 Canadian dollars, (b) 2 million yen, and (c) 50,000 Swiss francs.

Calculate the dollar payments for (a), (b) and (c).

(3 marks)

(ii) Compute the indirect quote for the spot and forward Canadian dollar, Japanese yen and Swiss franc contracts.

(4 marks)

(iii) Compute the Canadian dollar/yen and the yen/Swiss franc spot rate from the data in **Table Q5**.

(3 marks)

-END OF QUESTION-

APPENDIX I

FINAL EXAMINATION

SEMESTER/SESSION : SEM I 2013/2014
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$FV_n = AMT\ (1+i)^n$ or $AMT\ (FVIF_{i,n})$

$PV = AMT\ (1+i)^{-n}$ or $AMT\ (PVIF_{i,n})$

$FVA = AMT\ (FVIFA_{i,n})$

$$FVIFA_{i,n} = \left[\frac{(1+i)^n - 1}{i}\right]$$

$PVA = AMT\ (PVIFA_{i,n})$

$$PVIFA_{i,n} = \left[\frac{1-(1+i)^{-n}}{i}\right]$$

$$NPV = \sum_{t=1}^{n} \frac{FCF_t}{(1+k)^t} - IO$$

$$PI = \frac{\sum_{t=1}^{n} \frac{FCF_t}{(1+k)^t}}{IO}$$

$$IRR = IRR_1 + \left[\frac{PV_1 - IO}{PV_1 - PV_2} \text{ x } (IRR_2 - IRR_1)\right]$$

$$V_b = \$I_t(PVIFA_{k,n}) + \$M(PVIF_{k,n})$$

$$V_b = \sum_{t=1}^{n} \frac{\$I_t}{(1+k_b)^t} + \frac{\$M}{(1+k_b)^n}$$

$$V_{ps} = \frac{D}{k_{ps}}$$

$$V_{cs} = \frac{D_1}{k_{cs} - g}$$

$$V_{cs} = \frac{D_1}{(1+k_{cs})} + \frac{P_1}{(1+k_{cs})}$$

$$k_d = \frac{C + \frac{Par - Net\ \text{Price}}{n}}{\frac{Par + Net\ \text{Price}}{2}}$$

After-tax cost of debt = $k_d(1-T)$

$$K_{ps} = \frac{D}{NP}$$

$$\bar{k}_{cs} = \frac{D_1}{P_0} + g$$

$$k_{ncs} = \frac{D_1}{NP_{cs}} + g$$

$$k_{wacc} = w_d k_d (1-T_c) + w_{ps} k_{ps} + w_{ncs} k_{ncs}$$

$$k_i = k_{rf} + \beta_i (k_m - k_{rf})$$

$$\bar{k} = \sum_{t=1}^{n} k_i P(k_i)$$

$$\sigma = \sqrt{\sum_{t=1}^{n} (k_i - \bar{k})^2 P(k)_i}$$

$$APR = \frac{\text{interest}_{OR}}{\text{principle x time}}$$

$$APR = \frac{\text{interest}}{\text{principle}} \times \frac{1}{\text{time}}$$

$$APY = \left[1 + \frac{i}{m}\right]^m - 1$$

APPENDIX II

Present Value Table

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	**0.952**	0.943	0.935	0.926	0.917	**0.909**	0.901	0.893	0.885	0.877	**0.870**	0.862	0.855	0.847	0.840	**0.833**
2	0.980	0.961	0.943	0.925	**0.907**	0.890	0.873	0.857	0.842	**0.826**	0.812	0.797	0.783	0.769	**0.756**	0.743	0.731	0.718	0.706	**0.694**
3	0.971	0.942	0.915	0.889	**0.864**	0.840	0.816	0.794	0.772	**0.751**	0.731	0.712	0.693	0.675	**0.658**	0.641	0.624	0.609	0.593	**0.579**
4	0.961	0.924	0.888	0.855	**0.823**	0.792	0.763	0.735	0.708	**0.683**	0.659	0.636	0.613	0.592	**0.572**	0.552	0.534	0.516	0.499	**0.482**
5	0.951	0.906	0.863	0.822	**0.784**	0.747	0.713	0.681	0.650	**0.621**	0.593	0.567	0.543	0.519	**0.497**	0.476	0.456	0.437	0.419	**0.402**
6	0.942	0.888	0.837	0.790	**0.746**	0.705	0.666	0.630	0.596	**0.564**	0.535	0.507	0.480	0.456	**0.432**	0.410	0.390	0.370	0.352	**0.335**
7	0.933	0.871	0.813	0.760	**0.711**	0.665	0.623	0.583	0.547	**0.513**	0.482	0.452	0.425	0.400	**0.376**	0.354	0.333	0.314	0.296	**0.279**
8	0.923	0.853	0.789	0.731	**0.677**	0.627	0.582	0.540	0.502	**0.467**	0.434	0.404	0.376	0.351	**0.327**	0.305	0.285	0.266	0.249	**0.233**
9	0.914	0.837	0.766	0.703	**0.645**	0.592	0.544	0.500	0.460	**0.424**	0.391	0.361	0.333	0.308	**0.294**	0.283	0.243	0.225	0.209	**0.194**
10	**0.905**	**0.820**	**0.744**	**0.676**	**0.614**	**0.558**	**0.508**	**0.463**	**0.422**	**0.386**	**0.352**	**0.322**	**0.295**	**0.270**	**0.247**	**0.227**	**0.206**	**0.191**	**0.176**	**0.162**
11	0.896	0.804	0.722	0.650	**0.585**	0.527	0.475	0.429	0.388	**0.350**	0.317	0.287	0.261	0.237	**0.215**	0.195	0.178	0.162	0.148	**0.136**
12	0.887	0.788	0.701	0.625	**0.557**	0.497	0.444	0.397	0.356	**0.319**	0.286	0.257	0.231	0.208	**0.187**	0.168	0.152	0.137	0.124	**0.112**
13	0.879	0.773	0.681	0.601	**0.530**	0.469	0.415	0.368	0.326	**0.290**	0.258	0.229	0.204	0.182	**0.163**	0.145	0.130	0.116	0.104	**0.093**
14	0.870	0.758	0.661	0.577	**0.506**	0.442	0.388	0.340	0.299	**0.263**	0.232	0.205	0.181	0.160	**0.141**	0.125	0.111	0.099	0.088	**0.078**
15	0.861	0.743	0.642	0.555	**0.481**	0.417	0.362	0.315	0.275	**0.239**	0.209	0.183	0.160	0.140	**0.123**	0.108	0.095	0.084	0.074	**0.065**
16	0.853	0.728	0.623	0.534	**0.458**	0.394	0.339	0.292	0.252	**0.218**	0.188	0.163	0.141	0.123	**0.107**	0.093	0.081	0.071	0.062	**0.054**
17	0.844	0.714	0.605	0.513	**0.436**	0.371	0.317	0.270	0.231	**0.198**	0.170	0.146	0.125	0.108	**0.093**	0.080	0.069	0.060	0.052	**0.045**
18	0.836	0.700	0.587	0.494	**0.416**	0.350	0.296	0.250	0.212	**0.180**	0.153	0.130	0.111	0.095	**0.081**	0.069	0.059	0.051	0.044	**0.038**
19	0.828	0.686	0.570	0.475	**0.396**	0.331	0.277	0.232	0.194	**0.164**	0.138	0.116	0.098	0.083	**0.070**	0.060	0.051	0.043	0.037	**0.031**
20	**0.820**	**0.673**	**0.554**	**0.456**	**0.377**	**0.312**	**0.258**	**0.215**	**0.178**	**0.149**	**0.124**	**0.104**	**0.087**	**0.073**	**0.061**	**0.051**	**0.043**	**0.037**	**0.031**	**0.026**
21	0.811	0.660	0.538	0.439	**0.359**	0.294	0.242	0.199	0.164	**0.135**	0.112	0.093	0.077	0.064	**0.053**	0.044	0.037	0.031	0.026	**0.022**
22	0.803	0.647	0.522	0.422	**0.342**	0.278	0.226	0.184	0.150	**0.123**	0.101	0.083	0.068	0.056	**0.046**	0.038	0.032	0.026	0.022	**0.018**
23	0.795	0.634	0.507	0.406	**0.326**	0.262	0.211	0.170	0.138	**0.112**	0.091	0.074	0.060	0.049	**0.040**	0.033	0.027	0.022	0.018	**0.015**
24	0.788	0.622	0.492	0.390	**0.310**	0.247	0.197	0.158	0.126	**0.102**	0.082	0.066	0.053	0.043	**0.035**	0.028	0.023	0.019	0.015	**0.013**
25	0.780	0.610	0.478	0.375	**0.296**	0.233	0.184	0.146	0.116	**0.092**	0.074	0.059	0.047	0.038	**0.030**	0.024	0.020	0.016	0.013	**0.010**
26	0.772	0.598	0.464	0.361	**0.281**	0.220	0.172	0.135	0.106	**0.084**	0.066	0.053	0.042	0.033	**0.026**	0.021	0.017	0.014	0.011	**0.009**
27	0.764	0.586	0.450	0.347	**0.268**	0.207	0.161	0.125	0.098	**0.076**	0.060	0.047	0.037	0.029	**0.023**	0.018	0.014	0.011	0.009	**0.007**
28	0.757	0.574	0.437	0.333	**0.255**	0.196	0.150	0.116	0.090	**0.069**	0.054	0.042	0.033	0.026	**0.020**	0.016	0.012	0.010	0.008	**0.006**
29	0.749	0.583	0.424	0.321	**0.243**	0.185	0.141	0.107	0.082	**0.063**	0.048	0.037	0.029	0.022	**0.017**	0.014	0.011	0.008	0.006	**0.005**
30	**0.742**	**0.552**	**0.412**	**0.308**	**0.231**	**0.174**	**0.131**	**0.099**	**0.075**	**0.057**	**0.044**	**0.033**	**0.026**	**0.020**	**0.015**	**0.012**	**0.009**	**0.007**	**0.005**	**0.004**
31	0.735	0.541	0.400	0.296	**0.220**	0.164	0.123	0.092	0.069	**0.052**	0.039	0.030	0.023	0.017	**0.013**	0.010	0.008	0.006	0.005	**0.004**
32	0.727	0.531	0.388	0.285	**0.210**	0.155	0.115	0.085	0.063	**0.047**	0.035	0.027	0.020	0.015	**0.011**	0.009	0.007	0.005	0.004	**0.003**
33	0.720	0.520	0.377	0.274	**0.200**	0.146	0.107	0.079	0.058	**0.043**	0.032	0.024	0.018	0.013	**0.010**	0.007	0.006	0.004	0.003	**0.002**
34	0.713	0.510	0.366	0.264	**0.190**	0.138	0.100	0.073	0.053	**0.039**	0.029	0.021	0.016	0.012	**0.009**	0.006	0.005	0.004	0.003	**0.002**
35	0.706	0.500	0.355	0.253	**0.181**	0.130	0.094	0.068	0.049	**0.036**	0.026	0.019	0.014	0.010	**0.008**	0.006	0.004	0.003	0.002	**0.002**
36	0.699	0.490	0.345	0.244	**0.173**	0.123	0.088	0.063	0.045	**0.032**	0.023	0.017	0.012	0.009	**0.007**	0.005	0.004	0.003	0.002	**0.001**
37	0.692	0.481	0.335	0.234	**0.164**	0.116	0.082	0.058	0.041	**0.029**	0.021	0.015	0.011	0.008	**0.006**	0.004	0.003	0.002	0.002	**0.001**
38	0.685	0.471	0.325	0.225	**0.157**	0.109	0.076	0.054	0.038	**0.027**	0.019	0.013	0.010	0.007	**0.005**	0.004	0.003	0.002	0.001	**0.001**
39	0.678	0.462	0.316	0.217	**0.149**	0.103	0.071	0.050	0.035	**0.024**	0.017	0.012	0.009	0.006	**0.004**	0.003	0.002	0.002	0.001	**0.001**
40	**0.672**	**0.453**	**0.307**	**0.206**	**0.142**	**0.097**	**0.067**	**0.046**	**0.032**	**0.022**	**0.015**	**0.011**	**0.006**	**0.005**	**0.004**	**0.003**	**0.002**	**0.001**	**0.001**	**0.001**

APPENDIX II

Present Value of an Annuity Table

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.990	0.980	0.971	0.962	**0.962**	0.943	0.935	0.926	0.917	**0.909**	0.901	0.893	0.885	0.877	**0.870**	0.862	0.855	0.847	0.840	**0.833**
2	1.970	1.942	1.913	1.885	**1.859**	1.833	1.808	1.783	1.759	**1.736**	1.713	1.690	1.668	1.647	**1.626**	1.605	1.585	1.566	1.547	**1.528**
3	2.941	2.884	2.829	2.775	**2.723**	2.673	2.624	2.577	2.531	**2.487**	2.444	2.402	2.361	2.322	**2.283**	2.246	2.210	2.174	2.140	**2.106**
4	3.902	3.808	3.717	3.630	**3.546**	3.465	3.387	3.312	3.240	**3.170**	3.102	3.037	2.974	2.914	**2.855**	2.798	2.743	2.690	2.639	**2.589**
5	4.853	4.713	4.580	4.452	**4.329**	4.212	4.100	3.993	3.890	**3.791**	3.696	3.605	3.517	3.433	**3.352**	3.274	3.199	3.127	3.058	**2.991**
6	5.795	5.601	5.417	5.242	**5.076**	4.917	4.767	4.623	4.486	**4.355**	4.231	4.111	3.998	3.889	**3.784**	3.685	3.589	3.498	3.410	**3.326**
7	6.728	6.472	6.230	6.002	**5.796**	5.582	5.389	5.206	5.033	**4.968**	4.712	4.564	4.423	4.288	**4.160**	4.039	3.922	3.812	3.706	**3.605**
8	7.652	7.325	7.020	6.733	**6.463**	6.210	5.971	5.747	5.535	**5.335**	5.146	4.968	4.799	4.639	**4.487**	4.344	4.207	4.078	3.954	**3.837**
9	8.566	8.162	7.786	7.435	**7.108**	6.802	6.515	6.247	5.995	**6.759**	5.537	5.328	5.132	4.946	**4.772**	4.607	4.451	4.303	4.163	**4.031**
10	**9.471**	**8.963**	**8.530**	**8.111**	**7.722**	**7.360**	**7.024**	**6.710**	**6.418**	**6.145**	**5.889**	**5.650**	**5.426**	**5.216**	**5.019**	**4.833**	**4.669**	**4.494**	**4.339**	**4.192**
11	10.368	9.787	9.253	8.760	**8.306**	7.887	7.499	7.139	6.805	**6.496**	6.207	5.938	5.687	5.453	**5.234**	5.029	4.836	4.656	4.486	**4.327**
12	11.255	10.575	9.954	9.385	**9.863**	8.384	7.943	7.536	7.161	**6.914**	6.492	6.194	5.918	5.660	**5.421**	5.197	4.988	4.793	4.611	**4.439**
13	12.134	11.348	10.635	9.986	**9.384**	8.853	8.358	7.904	7.487	**7.103**	6.750	6.424	6.122	5.842	**5.583**	5.342	5.118	4.910	4.715	**4.533**
14	13.004	12.106	11.296	10.563	**9.800**	9.295	8.745	8.244	7.786	**7.387**	6.982	6.628	6.302	6.002	**5.724**	5.468	5.229	5.008	4.802	**4.611**
15	13.865	12.849	11.938	11.118	**10.380**	9.712	9.108	8.559	8.061	**7.606**	7.191	6.811	6.462	6.142	**5.947**	5.575	5.324	5.092	4.876	**4.675**
16	14.718	13.578	12.561	11.652	**10.838**	10.106	9.447	8.851	8.313	**7.824**	7.379	6.974	6.604	6.265	**5.964**	5.668	5.405	5.162	4.938	**4.730**
17	15.582	14.292	13.166	12.166	**11.274**	10.477	9.763	9.122	8.544	**8.022**	7.549	7.120	6.729	6.373	**6.047**	5.749	5.475	5.222	4.990	**4.775**
18	16.396	14.992	13.754	12.659	**11.690**	10.828	10.059	9.372	8.756	**8.201**	7.702	7.250	6.840	6.467	**6.128**	5.818	5.534	5.273	5.033	**4.812**
19	17.226	15.678	14.324	13.134	**12.085**	11.158	10.336	9.604	8.950	**8.366**	7.839	7.366	6.938	6.550	**6.196**	5.877	5.584	5.316	5.070	**4.843**
20	**18.046**	**16.351**	**14.877**	**13.590**	**12.462**	**11.470**	**10.594**	**9.818**	**9.129**	**8.514**	**7.963**	**7.489**	**7.025**	**6.623**	**6.259**	**5.929**	**5.628**	**5.363**	**5.101**	**4.870**
21	18.857	17.011	15.415	14.029	**12.821**	11.764	10.836	10.017	9.292	**8.649**	8.075	7.562	7.102	6.687	**6.312**	5.973	5.665	5.384	5.127	**4.891**
22	19.660	17.658	15.937	14.451	**13.163**	12.042	11.061	10.201	9.442	**8.772**	8.176	7.645	7.170	6.743	**6.359**	6.011	5.696	5.410	5.149	**4.909**
23	20.456	18.292	16.444	14.857	**13.499**	12.303	11.272	10.371	9.580	**8.883**	8.266	7.718	7.230	6.792	**6.399**	6.044	5.723	5.432	5.167	**4.925**
24	21.243	18.914	16.936	15.247	**13.799**	12.550	11.469	10.529	9.707	**8.965**	8.348	7.784	7.283	6.835	**6.434**	6.073	5.746	5.451	5.182	**4.937**
25	22.023	19.523	17.413	15.622	**14.094**	12.783	11.654	10.675	9.823	**9.077**	8.422	7.843	7.330	6.873	**6.464**	6.097	5.766	5.467	5.195	**4.948**
26	22.795	20.121	17.877	15.963	**14.375**	13.003	11.826	10.810	9.929	**9.161**	8.488	7.896	7.372	6.906	**6.491**	6.118	5.783	5.480	5.206	**4.956**
27	23.560	20.707	18.327	16.330	**14.643**	13.211	11.987	10.935	10.027	**9.237**	8.546	7.943	7.409	6.935	**6.541**	6.136	5.796	5.492	5.215	**4.964**
28	24.316	21.281	18.764	16.663	**14.996**	13.406	12.137	11.051	10.116	**9.307**	8.602	7.984	7.441	6.961	**6.534**	6.152	5.810	5.502	5.223	**4.970**
29	25.066	21.844	19.188	16.984	**15.141**	13.591	12.278	11.158	10.198	**9.370**	8.650	8.022	7.470	6.983	**6.551**	6.166	5.820	5.510	5.229	**4.975**
30	**25.806**	**22.396**	**19.800**	**17.292**	**15.372**	**13.765**	**12.409**	**11.258**	**10.274**	**9.427**	**8.694**	**8.055**	**7.496**	**7.003**	**6.566**	**6.177**	**5.829**	**5.517**	**5.236**	**4.979**
31	26.542	22.938	20.000	17.588	**15.593**	13.929	12.532	11.350	10.343	**9.479**	8.733	8.085	7.518	7.020	**6.579**	6.187	5.837	5.523	5.239	**4.982**
32	27.270	23.468	20.389	17.874	**15.803**	14.084	12.647	11.435	10.406	**9.526**	8.769	8.112	7.538	7.035	**6.591**	6.196	5.844	5.528	5.243	**4.965**
33	27.990	23.989	20.766	18.148	**16.003**	14.230	12.754	11.514	10.464	**9.569**	8.801	8.135	7.556	7.048	**6.600**	6.203	5.846	5.532	5.246	**4.985**
34	28.703	24.499	21.132	18.411	**16.193**	14.368	12.854	11.587	10.518	**9.609**	8.829	8.157	7.572	7.060	**6.609**	6.210	5.854	5.536	5.249	**4.990**
35	29.409	24.999	21.487	18.665	**16.374**	14.498	12.948	11.655	10.587	**9.644**	8.855	8.176	7.588	7.070	**6.617**	6.215	5.858	5.539	5.251	**4.992**
36	30.108	25.489	21.832	18.908	**16.547**	14.621	13.035	11.717	10.612	**9.677**	8.879	8.192	7.598	7.079	**6.623**	6.220	5.882	5.541	5.253	**4.993**
37	30.800	25.969	22.167	19.143	**16.711**	14.737	13.117	11.775	10.653	**9.706**	8.900	8.208	7.609	7.087	**6.629**	6.224	5.865	5.543	5.255	**4.994**
38	31.485	26.441	22.492	19.368	**16.968**	14.846	13.193	11.829	10.691	**9.733**	8.919	8.221	7.618	7.094	**6.634**	6.228	5.867	5.545	5.256	**4.995**
39	32.163	26.903	22.808	19.584	**17.017**	14.949	13.265	11.879	10.726	**9.757**	8.936	8.233	7.627	7.100	**6.638**	6.231	5.869	5.547	5.257	**4.996**
40	**32.835**	**27.355**	**23.115**	**19.793**	**17.169**	**15.046**	**13.332**	**11.925**	**10.757**	**9.779**	**8.961**	**8.244**	**7.634**	**7.106**	**6.642**	**6.233**	**5.871**	**5.548**	**5.258**	**4.997**

APPENDIX II

Future Value Table

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1.010	1.020	1.030	1.040	**1.050**	1.060	1.070	1.080	1.090	**1.100**	1.110	1.120	1.130	1.140	**1.150**	1.160	1.170	1.180	1.190	**1.200**
2	1.020	1.040	1.061	1.082	**1.103**	1.124	1.145	1.166	1.188	**1.210**	1.232	1.254	1.277	1.300	**1.323**	1.346	1.369	1.392	1.416	**1.440**
3	1.030	1.061	1.093	1.125	**1.158**	1.191	1.225	1.260	1.295	**1.331**	1.368	1.405	1.443	1.482	**1.521**	1.561	1.602	1.643	1.685	**1.728**
4	1.041	1.082	1.126	1.170	**1.216**	1.262	1.311	1.360	1.412	**1.464**	1.518	1.574	1.630	1.689	**1.749**	1.811	1.874	1.939	2.005	**2.074**
5	1.051	1.104	1.159	1.217	**1.276**	1.338	1.403	1.469	1.539	**1.611**	1.685	1.762	1.842	1.925	**2.011**	2.100	2.192	2.288	2.386	**2.488**
6	1.062	1.126	1.194	1.265	**1.340**	1.419	1.501	1.587	1.677	**1.772**	1.870	1.974	2.082	2.195	**2.313**	2.436	2.565	2.700	2.840	**2.986**
7	1.072	1.149	1.230	1.316	**1.407**	1.504	1.606	1.714	1.828	**1.949**	2.076	2.211	2.353	2.502	**2.660**	2.826	3.001	3.185	3.379	**3.583**
8	1.083	1.172	1.267	1.369	**1.477**	1.594	1.718	1.851	1.993	**2.144**	2.305	2.476	2.658	2.853	**3.059**	3.278	3.511	3.759	4.021	**4.300**
9	1.094	1.195	1.305	1.423	**1.551**	1.689	1.838	1.999	2.172	**2.358**	2.558	2.773	3.004	3.252	**3.518**	3.803	4.108	4.435	4.785	**5.160**
10	**1.105**	**1.218**	**1.344**	**1.480**	**1.629**	**1.791**	**1.967**	**2.159**	**2.367**	**2.594**	**2.839**	**3.106**	**3.395**	**3.707**	**4.046**	**4.411**	**4.807**	**5.234**	**5.695**	**6.192**
11	1.116	1.243	1.384	1.539	**1.710**	1.898	2.105	2.332	2.580	**2.853**	3.152	3.479	3.836	4.226	**4.652**	5.117	5.624	6.176	6.777	**7.430**
12	1.127	1.268	1.426	1.601	**1.796**	2.012	2.252	2.518	2.813	**3.138**	3.498	3.896	4.335	4.818	**5.350**	5.936	6.580	7.288	8.064	**8.916**
13	1.138	1.294	1.469	1.665	**1.886**	2.133	2.410	2.720	3.066	**3.452**	3.883	4.363	4.898	5.492	**6.153**	6.886	7.699	8.599	9.596	**10.669**
14	1.149	1.319	1.513	1.732	**1.980**	2.261	2.579	2.937	3.342	**3.797**	4.310	4.887	5.535	6.261	**7.076**	7.988	9.007	10.147	11.420	**12.839**
15	1.161	1.346	1.558	1.801	**2.079**	2.397	2.759	3.172	3.642	**4.177**	4.785	5.474	6.254	7.138	**8.137**	9.266	10.539	11.974	13.590	**15.407**
16	1.173	1.373	1.605	1.873	**2.183**	2.540	2.952	3.426	3.970	**4.595**	5.311	6.130	7.067	8.137	**9.358**	10.748	12.330	14.129	16.172	**18.488**
17	1.184	1.400	1.653	1.948	**2.292**	2.693	3.159	3.700	4.328	**5.054**	5.895	6.866	7.986	9.276	**10.761**	12.468	14.426	16.672	19.244	**22.186**
18	1.196	1.428	1.702	2.026	**2.407**	2.854	3.380	3.996	4.717	**5.560**	6.544	7.690	9.024	10.575	**12.375**	14.463	16.879	19.673	22.901	**26.623**
19	1.208	1.457	1.754	2.107	**2.527**	3.026	3.617	4.316	5.142	**6.116**	7.263	8.613	10.197	12.056	**14.232**	16.777	19.748	23.214	27.252	**31.948**
20	**1.220**	**1.486**	**1.806**	**2.191**	**2.653**	**3.207**	**3.870**	**4.661**	**5.604**	**6.727**	**8.062**	**9.646**	**11.523**	**13.743**	**16.367**	**19.461**	**23.106**	**27.393**	**32.429**	**38.338**
21	1.232	1.516	1.860	2.279	**2.786**	3.400	4.141	5.034	6.109	**7.400**	8.949	10.804	13.021	15.668	**18.822**	22.574	27.034	32.324	38.591	**46.005**
22	1.245	1.546	1.916	2.370	**2.925**	3.604	4.430	5.437	6.659	**8.140**	9.934	12.100	14.714	17.861	**21.645**	26.186	31.629	38.142	45.923	**55.206**
23	1.257	1.577	1.974	2.465	**3.072**	3.820	4.741	5.871	7.258	**8.954**	11.026	13.552	16.627	20.362	**24.891**	30.376	37.006	45.008	54.649	**66.247**
24	1.270	1.608	2.033	2.563	**3.225**	4.049	5.072	6.341	7.911	**9.850**	12.239	15.179	18.788	23.212	**28.625**	35.236	43.297	53.109	65.032	**79.497**
25	1.282	1.641	2.094	2.666	**3.386**	4.292	5.427	6.848	8.623	**10.835**	13.585	17.000	21.231	26.462	**32.919**	40.874	50.658	62.669	77.388	**95.396**
26	1.295	1.673	2.157	2.772	**3.556**	4.549	5.807	7.396	9.399	**11.918**	15.080	19.040	23.991	30.167	**37.857**	47.414	59.270	73.949	92.092	**114.475**
27	1.308	1.707	2.221	2.883	**3.733**	4.822	6.214	7.988	10.245	**13.110**	16.739	21.325	27.109	34.390	**43.535**	55.000	69.345	87.260	109.589	**137.371**
28	1.321	1.741	2.288	2.999	**3.920**	5.112	6.649	8.627	11.167	**14.421**	18.580	23.884	30.633	39.204	**50.066**	63.800	81.134	102.967	130.411	**164.845**
29	1.335	1.776	2.357	3.119	**4.116**	5.418	7.114	9.317	12.172	**15.863**	20.624	26.750	34.616	44.693	**57.575**	74.009	94.927	121.501	155.189	**197.814**
30	**1.348**	**1.811**	**2.427**	**3.243**	**4.322**	**5.743**	**7.612**	**10.063**	**13.268**	**17.449**	**22.892**	**29.960**	**39.116**	**50.950**	**66.212**	**85.850**	**111.065**	**143.371**	**184.675**	**237.376**
31	1.361	1.848	2.500	3.373	**4.538**	6.088	8.145	10.868	14.462	**19.194**	25.410	33.555	44.201	58.083	**76.144**	99.586	129.946	169.177	219.764	**284.852**
32	1.375	1.885	2.575	3.508	**4.765**	6.453	8.715	11.737	15.763	**21.114**	28.206	37.582	49.947	66.215	**87.565**	115.520	152.036	199.629	261.519	**341.822**
33	1.389	1.922	2.652	3.648	**5.003**	6.841	9.325	12.676	17.182	**23.225**	31.308	42.092	56.440	75.485	**100.700**	134.003	177.883	235.563	311.207	**410.186**
34	1.403	1.961	2.732	3.794	**5.253**	7.251	9.978	13.690	18.728	**25.548**	34.752	47.143	63.777	86.053	**115.805**	155.443	208.123	277.964	370.337	**492.224**
35	1.417	2.000	2.814	3.946	**5.516**	7.686	10.677	14.785	20.414	**28.102**	38.575	52.800	72.069	98.100	**133.176**	180.314	243.503	327.997	440.701	**590.668**
36	1.431	2.040	2.898	4.104	**5.792**	8.147	11.424	15.968	22.251	**30.913**	42.818	59.136	81.437	111.834	**153.152**	209.164	284.899	387.037	524.434	**708.802**
37	1.445	2.081	2.985	4.268	**6.081**	8.636	12.224	17.246	24.254	**34.004**	47.528	66.232	92.024	127.491	**176.125**	242.631	333.332	456.703	624.076	**850.562**
38	1.460	2.122	3.075	4.439	**6.385**	9.154	13.079	18.625	26.437	**37.404**	52.756	74.180	103.987	145.340	**202.543**	281.452	389.998	538.910	742.651	**1020.675**
39	1.474	2.165	3.167	4.616	**6.705**	9.704	13.995	20.115	28.816	**41.145**	58.559	83.081	117.506	165.687	**232.925**	326.484	456.298	635.914	883.754	**1224.810**
40	**1.489**	**2.208**	**3.262**	**4.801**	**7.040**	**10.286**	**14.947**	**21.725**	**31.409**	**45.259**	**65.001**	**93.051**	**132.782**	**188.884**	**267.864**	**378.721**	**533.869**	**750.378**	**1051.668**	**1469.772**

APPENDIX II

Future Value of an Annuity Table

	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	1.000	1.000	1.000	1.000	**1.000**	1.000	1.000	1.000	1.000	**1.000**	1.000	1.000	1.000	1.000	**1.000**	1.000	1.000	1.000	1.000	**1.000**
2	2.010	2.020	2.030	2.040	**2.050**	2.060	2.070	2.080	2.090	**2.100**	2.110	2.120	2.130	2.140	**2.150**	2.160	2.170	2.180	2.190	**2.200**
3	3.030	3.060	3.091	3.122	**3.153**	3.184	3.215	3.246	3.278	**3.310**	3.342	3.374	3.407	3.440	**3.473**	3.506	3.539	3.572	3.606	**3.640**
4	4.060	4.122	4.184	4.246	**4.310**	4.375	4.440	4.506	4.573	**4.641**	4.710	4.779	4.850	4.921	**4.993**	5.066	5.141	5.215	5.291	**5.368**
5	5.101	5.204	5.309	5.416	**5.526**	5.637	5.751	5.867	5.985	**6.105**	6.228	6.353	6.480	6.610	**6.742**	6.877	7.014	7.154	7.297	**7.442**
6	6.152	6.308	6.468	6.633	**6.802**	6.975	7.153	7.336	7.523	**7.716**	7.913	8.115	8.323	8.536	**8.754**	8.977	9.207	9.442	9.683	**9.930**
7	7.214	7.434	7.662	7.898	**8.142**	8.394	8.654	8.923	9.200	**9.487**	9.783	10.089	10.405	10.730	**11.067**	11.414	11.772	12.142	12.523	**12.916**
8	8.286	8.583	8.892	9.241	**9.549**	9.897	10.260	10.637	11.028	**11.436**	11.859	12.300	12.757	13.233	**13.727**	14.420	14.773	15.327	15.902	**16.499**
9	9.369	9.755	10.159	10.583	**11.207**	11.491	11.978	12.488	13.021	**13.579**	14.164	14.776	15.416	16.085	**16.786**	17.519	18.285	19.086	19.923	**20.799**
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**	**22.393**	**23.521**	**24.709**	**25.959**
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	27.200	28.755	30.404	**32.150**
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	32.824	34.931	37.180	**39.581**
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	39.404	42.219	45.244	**48.497**
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	47.103	50.818	54.841	**59.196**
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	56.110	60.965	66.261	**72.035**
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	66.649	72.939	79.850	**87.442**
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	78.979	87.068	96.022	**105.931**
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	93.406	103.740	115.266	**128.117**
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	110.285	123.414	138.166	**154.740**
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**	**130.033**	**146.628**	**165.418**	**186.688**
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	153.139	174.021	197.847	**225.026**
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	180.172	206.345	236.438	**271.031**
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	211.801	244.487	282.362	**326.237**
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	248.808	289.494	337.010	**392.484**
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	292.105	342.063	402.042	**471.981**
26	29.526	33.671	38.553	44.312	**51.113**	59.156	68.676	79.954	93.324	**109.182**	127.999	150.334	176.850	208.333	**245.712**	290.088	342.763	405.272	479.431	**567.377**
27	30.821	35.344	40.710	47.084	**54.669**	63.706	74.484	87.351	102.723	**121.100**	143.079	169.374	200.841	238.499	**283.569**	337.502	402.032	479.221	571.522	**681.853**
28	32.129	37.051	42.931	49.968	**58.403**	68.528	80.698	95.339	112.968	**134.210**	159.817	190.699	227.950	272.889	**327.104**	392.503	471.378	566.481	681.112	**819.223**
29	33.450	38.792	45.219	52.966	**62.323**	73.640	87.347	103.966	124.135	**148.631**	178.397	214.583	258.583	312.094	**377.170**	456.303	552.512	669.447	811.523	**984.068**
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**	**647.439**	**790.948**	**966.712**	**1181.882**
31	36.133	42.379	50.003	59.328	**70.761**	84.802	102.073	123.346	149.575	**181.943**	221.913	271.293	332.315	407.737	**500.957**	616.162	758.504	934.319	1151.387	**1419.258**
32	37.494	44.227	52.503	62.701	**75.299**	90.890	110.218	134.214	164.037	**201.138**	247.324	304.848	376.516	465.820	**577.100**	715.747	888.449	1103.496	1371.15	**1704.109**
33	38.869	46.112	55.078	66.210	**80.064**	97.343	118.933	145.951	179.800	**222.252**	275.529	342.429	426.463	532.035	**664.666**	831.267	1040.486	1303.125	1632.670	**2045.931**
34	40.258	48.034	57.730	69.858	**85.067**	104.184	128.259	158.627	196.982	**245.477**	306.837	384.521	482.903	607.520	**765.365**	965.270	1218.368	1538.688	1943.877	**2456.118**
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**	1120.713	1426.491	1816.652	2314.214	**2948.341**
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	**1014.346**	1301.027	1669.994	2144.649	2754.914	**3539.009**
37	44.508	54.034	66.174	81.702	**101.628**	127.268	160.337	203.070	258.376	**330.039**	422.982	543.599	700.187	903.507	**1167.498**	1510.191	1954.894	2531.686	3279.348	**4247.811**
38	45.953	56.115	69.159	85.970	**107.710**	135.904	172.561	220.316	282.630	**364.043**	470.511	609.831	792.211	1030.998	**1343.622**	1752.822	2288.225	2988.389	3903.424	**5098.373**
39	47.412	58.237	72.234	90.409	**114.095**	145.058	185.640	238.941	309.066	**401.448**	523.267	684.010	896.198	1176.338	**1546.165**	2034.273	2678.224	3527.299	4646.075	**6119.048**
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**	**1013.704**	**1342.025**	**1779.090**	**2360.757**	**3134.522**	**4163.213**	**5529.829**	**7343.858**