FACULTY/COLLEGE	College of Business and Economics
SCHOOL	School of Accounting
DEPARTMENT	Commercial Accouting
CAMPUS(ES)	SWC
MODULE NAME	Financial Management
MODULE CODE	BFB22A2
SEMESTER	Second
ASSESSMENT OPPORTUNITY, MONTH AND YEAR	Final Summative Assessment Opportunity November 2019

ASSESSMENT DATE	14 November 2019	**SESSION**	08:30 to 11:30
ASSESSOR(S)	Ms. P. Ramutumbu and Ms. L. Pelcher, Mr E. Gyhoot		
MODERATOR(S)	Mr. D. du Plessis		
DURATION	3 hours (180 min)	**TOTAL MARKS**	100

NUMBER OF PAGES OF QUESTION PAPER (Including cover page)	18

INFORMATION/INSTRUCTIONS:

- This is a closed-book assessment.
- There are 6 questions. **Answer question 1 to question 6 (compulsory).** (In total you must answer 6 questions).
- Read the questions carefully and answer only what is required.
- Number your answers clearly and correctly as per the question paper.
- Write neatly and legibly on both sides of the paper in the answer book, starting on the first page.
- Answer all questions. Show all formulae, calculations and workings clearly.
- Please start each question on a new page.
- Silent, non-programmable calculators may be used.
- Where applicable, round all calculations to **two decimal** places, unless stipulated otherwise.
- Indicate your **INDEX NUMBER** on the front cover of your script.

QUESTION 1 **(10 MARKS)**

1.1 Below is an extract from the CEO's report published in the 2019 integrated report of Mr Price Group Ltd:

People

Maintain an energised environment with empowered and motivated people.

Headline earnings per share grew 6.2%.

Capital allocation will be applied to the most promising opportunities to ensure appropriate returns are achieved over the short, medium and long-term.

Required:

1.1.1 What is the main objective of a financial manager? **(1)**

1.1.2 Write down the phrase (from the extract) that refers to the main objective of a financial manager? **(1)**

1.1.3 There are two main decisions that a financial manager must make. Which decision is referred to in the extract? **(1)**

1.2 Write down one corresponding difference between financial accounting and financial management. Use the headings: **Financial Accounting** and **Financial Management.** **(2)**

1.3 What does the inverse of the price-earnings (PE) ratio calculate?

1 / PE =? **(1)**

1.4 The figure below is extracted from the 2019 integrated report of Mr Price Group Ltd:

Shareholders
Account for the ownership of 258m shares. Shareholders are 93% institutional and 7% retail. The shareholder base is split almost evenly between local and offshore.

Government & Community
We work closely with key government bodies to ensure that we maximise our impact on the communities within which we operate.

Required:

1.4.1 Categorise each stakeholder listed in the extract. **(3)**

1.4.2 Which one of the above can also pose an external threat to the financial manager? **(1)**

QUESTION 2 **(20 MARKS)**

2.1 A fellow student started making the following summary of the differences between bonds and equity:

	Bonds	Equity
Provides guaranteed income?		
Participates in capital growth?		
Fixed term / set maturity date?		

Required:

2.1.1 Copy the table above in your answer book and fill in the blanks by writing Yes or No in the correct column for each type of instrument. **(3)**

2.1.2 Assume a company has a cash deficit which they expect to last between 6 and 11 months. On which financial market should they try to obtain the funds they need? **(1)**

2.2 The graph below represents movement on the NASDAQ Composite Index for the period 2015-2018:

From the graph, it reads that the Nasdaq was trading at 8109 points on 1 Jul 2018. A year earlier, on 1 Jul 2017, it was trading at 6305 points.

Required:

2.2.1 What broad market trend is represented by the graph? **(1)**

2.2.2 By how many points did the NASDAQ Composite Index change from 1 July 2017 to 1 July 2018? **(1)**

2.2.3 Is the information on the graph applicable to each individual share listed on the NASDAQ? Explain your answer. **(1)**

2.2.4 Is the following statement true or false?
"An index's primary purpose is to reflect the aggregate movement of the market." **(1)**

2.2.5 Name two indices that can be found on the JSE. **(2)**

2.3 The following extract from the JSE Ltd report appeared in a recent newspaper:

Company	Close (cents)	Day move (cents)	Volume (000)	12m High	12m Low	DY	PE Ratio
MASSMART	**5011**	**25**	**6653**	**6158**	**4299**	**3.3**	**11.9**
MR PRICE	**18190**	**-29**	**9489**	**18869**	**17600**	**3.2**	**15.5**
TRUWORTHS	**6382**	**132**	**16341**	**6616**	**5997**	**5.1**	**10.4**

Formulae:
PE = MPS ÷ EPS
EY = 1 / PE
DY = DPS ÷ MPS

Please answer the following questions based on the above extract.

Required:

2.3.1 Calculate the earnings yield for Mr Price. **(1)**

2.3.2 Calculate the opening price for Massmart. **(1)**

2.3.3 Calculate the return shareholders earned if they purchased shares in Truworths for 6597c exactly one year ago and held on to them for the entire year. **(3)**

2.3.4 Which share in this extract was traded the most? **(1)**

2.3.5 Which retailer does the market have the most confidence in? **(1)**

2.3.6 Why is the information for all the companies printed in bold? **(1)**

2.3.7 Provide one possible reason why all the companies have a dividend yield. **(1)**

2.3.8 Why are there no asterisks * next to any of the shares in the report? **(1)**

QUESTION 3 **(10 MARKS)**

Instructions: Please round off to *four* decimals for question 3.

3.1 What would you call a company that earn strong currencies while the home currency is the weaker currency? **(1)**

3.2 Name three currencies that can be considered as the most important currencies in the world. **(3)**

3.3

	USD	EUR	ZAR	CHF
USD	1	0.9015	14.6903	0.9859
EUR	1.1093	1	16.2849	1.0937
ZAR	0.0681	0.0614	1	0.0672
CHF	1.0143	0.9144	14.8903	1

Required:

3.3.1 Indicate the direct quote of the ZAR/CHF exchange rate **(1)**

3.3.2 Would you rather have USD 40 or ZAR 500? Show all your calculations. **(2)**

3.4

	1 ZAR	1 foreign currency
Botswana Pula	0.7323	1.3654
Brazilian Real	0.2614	3.8244
Euro	0.0614	16.2843
Indian Rupee	4.7399	0.2109

Required:

3.4.1 Indicate the indirect quote of the ZAR/Brazilian Real. **(1)**

3.4.2 How much EUR can you buy for R380? **(1)**

3.5 Bongani is travelling to America and needs US dollars.
The bank has provided him with the following rates:
$1 = 15.2950 / 15.3158

Required:

Indicate the bid rate to Bongani. **(1)**

QUESTION 4 **(20 MARKS)**

4.1 Explain the relationship between risk and return. **(2)**

4.2 Define “financial risk”. **(2)**

4.3

Instrument	**Expected Return**	**Standard deviation**
Ordinary shares in Meter Ltd	18%	6.40%
Ordinary shares in Lamb Ltd.	16%	7.20%

Required:

4.3.1 Calculate the coefficient of variation for Meter Ltd and Lamb Ltd. Show the formula. **(3)**

4.3.2 Based on your calculations above, which company should the shareholders choose to invest in? Motivate your answer. **(2)**

4.4 Ms Madonsela’s retirement savings is invested in two financial instruments. 60% is invested in government bonds and 40% in shares.
The following returns per financial asset are provided to you:

	Expected Return: Government Bonds	**Expected Return: Shares**
Year 1	6%	16%
Year 2	6.5%	14.5%
Year 3	6.9%	13%

Required:

4.4.1 Calculate the average expected return of the portfolio. **(5)**

4.4.2 Why would one invest in a portfolio rather than in one financial instrument? **(1)**

4.4.3 Name the concept of your explanation in 4.4.2. **(1)**

4.5 Mr C Kolbe wants to invest money in Rugby Ltd. He is not sure what return he can expect from his investment, but has some information about possible returns. There is a 20% probability that the return can be 38%, a 50% probability that the return will be 33% and a 30% probability that the return will be 20%.

Required:

Calculate the expected return that Mr Kolbe can expect from Rugby Ltd. Show all your calculations. **(4)**

QUESTION 5 **(20 MARKS)**

5.1 Mpho has moved into her own place. She now needs money to buy furniture and appliances. She does not have any savings and will have to get a personal loan from the bank. The bank is willing to give her R100 000 for a 2 year period at an interest rate of 10% per annum.

Required:

Calculate the amount of money that she will need to pay every year towards paying off the personal loan. Use your financial calculator and show all of your workings. **(4)**

5.2 Minenhle wants to set up a bursary fund for one student per year that wants to study Fine Arts at the University of Cape Town. At the beginning of every year, the total bursary amount will be R100 000. The fund can earn a return of 7% per annum.

Required:

How much does Minenhle need to provide now to ensure that perpetual payments can be made towards the bursary fund? Use the relevant formula and show all of your workings. **(2)**

5.3 Lerato has worked for three employers over the past 10 years and has received various lump sums each time she resigned. She always resigned on the 31st of December. She invested each lump sum in the same investment account. She has now decided to start her own business and wants to use the money she invested. She earned a return of 11% on her investment.

Year	**Lump sum**	**Resigned from Employer**
2010	R100 000	ABSA
2014	R150 000	NEDBANK
2018	R200 000	STANDARD BANK

Required:

Use the interest factor tables to calculate the value of her investment at the end of 2019. Assume that the amounts were received at the end of the specified years. **(6)**

5.4 Karabo is an entrepreneur. She has many ideas and expects to earn the following cash inflows from successfully implementing the plans in her business. Karabo provides you with the following expected annual cash inflows over the next three years:

Year	**Cash flow**
2020	85 000
2021	92 000
2022	107 000

Required:

Calculate the average annual growth rate associated with the cash flow stream. Use your financial calculator and show all of your workings. **(4)**

5.5 Tshepiso won R5 million in the lotto and needs to decide how to invest her winnings. She wants to receive a steady annual cash flow of R500 000 at the beginning of each year for the next 35 years.

Required:

Calculate the deposit that Tshepiso needs to invest today at 6% interest per annum. Use your financial calculator and show all of your workings. **(4)**

QUESTION 6 **(20 MARKS)**

6.1 Apple Chief Executive Officer, Tim Cook has voiced concerns about chief competitor Samsung Electronics getting an edge because its products, unlike Apple's, won't be subject to tariffs when imported by the US due to the current US China trade wars. Apple will be hit by tariffs because it makes the majority of its devices in China before importing them to the US and other parts of the world. Apple now needs to pay particular attention to its capital structure and the cost of its funding in order to remain competitive in this challenging trading environment.

Apple Inc has ordinary shares in issue. US government bonds are currently yielding a return of 7.5% at present. Due to the recent United States and China trade wars, the risk in global markets is perceived as high and a market risk premium of 10% is considered appropriate. The company has a fairly high business risk and a low financial risk. A further premium of 5% is considered appropriate.

The redeemable preference shares of R100 in issue pay an annual dividend of R8 per share. The preference share price is currently at R96 per share. The shares are redeemable in 4 years' time at par.

A loan of R100 000 is under consideration from a finance provider. This is the price at which the loan can be fully repaid today. The loan is repayable in 3 installments of R40 000 each, at the end of each year. The tax rate is 28%.

Required:

6.1.1 Calculate the cost of equity. **(2)**

6.1.2 Calculate the cost of preference shares **(5)**

6.1.3 Calculate the cost of debt. **(5)**

6.2 The capital structure for Samsung Ltd is currently as follows: Equity: 100 000 shares valued at R5 per share. Equity shareholders require 18% return for similar shares. 12% redeemable preference shares: 200 000 valued at R2 each. The preference shareholders require 14% return on similar investments. Debt: R100 000 at a fixed interest of 7.2% after tax.

Samsung wants to launch a new product. The projected returns from the project are 20%.

Required:

6.2.1 Calculate the current weighted average cost of capital. **(6)**

6.2.2 Should Samsung invest in the project? Provide a motivation for your answer. **(2)**

[TOTAL = 100]

APPENDIX

Tables:

$FV_n = PV_0 \times FVIF_{i,n}$

$PV_n = FV_n \times PVIF_{i,n}$

$FVA_n = PMT \times FVIFA_{i,n}$

$PVA_0 = PMT \times PVIFA_{i,n}$

$FVAD_0 = (PMT \times FVIFA_{i,n}) \times (1 + i)$

$PVAD_0 = (PMT \times PVIFA_{i,n} \times (1 + i)$

Formulas:

$R = \sum (R_i)(P_i)$
$\sigma = \sqrt{\sum_{i=1}^{n} (R_i - R)^2 \times P_i}$
$CV = \frac{\sigma}{R}$
$K_p = (W_1 \times K_1) + (W_2 \times K_2) + \ldots + (W_n \times K_n)$
$R = \frac{D_t + (P_t - P_{t-1})}{P_{t-1}} \times \frac{100}{1}$
$FV_n = PV_0 \times (1+i)^n$ $PV_0 = \frac{FV_n}{(1+i)^n} \qquad PV_0 = FV_n \times (1+i)^{-n}$

$$\text{FVA} = \text{PMT} \times \left[\frac{(1+i)^n - 1}{i} \right]$$

$$\text{PVA} = \text{PMT} \times \left[\frac{1-(1+i)^{-n}}{i} \right]$$

$$\text{PV}_{\text{Perp}} = \frac{\text{PMT}}{i}$$

$$\text{EAR} = \left(1 + \frac{i}{m} \right)^m - 1$$

$$\text{FV} = \text{PV}_0 \times \left(1 + \frac{i}{m} \right)^{m \times n}$$

Table 1: Future value of R1 at the end of *n* periods

n	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	1.0000	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
2	1.0000	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
3	1.0000	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
4	1.0000	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
5	1.0000	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
6	1.0000	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
7	1.0000	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
8	1.0000	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
9	1.0000	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
10	1.0000	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
11	1.0000	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
12	1.0000	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
13	1.0000	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
14	1.0000	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
15	1.0000	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
16	1.0000	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
17	1.0000	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	10.7613
18	1.0000	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	10.5752	12.3755
19	1.0000	1.2081	1.4568	1.7535	2.1068	2.5270	3.0256	3.6165	4.3157	5.1417	6.1159	7.2633	8.6128	10.1974	12.0557	14.2318
20	1.0000	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	3.8697	4.6610	5.6044	6.7275	8.0623	9.6463	11.5231	13.7435	16.3665
21	1.0000	1.2324	1.5157	1.8603	2.2788	2.7860	3.3996	4.1406	5.0338	6.1088	7.4002	8.9492	10.8038	13.0211	15.6676	18.8215
22	1.0000	1.2447	1.5460	1.9161	2.3699	2.9253	3.6035	4.4304	5.4365	6.6586	8.1403	9.9336	12.1003	14.7138	17.8610	21.6447
23	1.0000	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	4.7405	5.8715	7.2579	8.9543	11.0263	13.5523	16.6266	20.3616	24.8915
24	1.0000	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	5.0724	6.3412	7.9111	9.8497	12.2392	15.1786	18.7881	23.2122	28.6252
25	1.0000	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	5.4274	6.8485	8.6231	10.8347	13.5855	17.0001	21.2305	26.4619	32.9190
26	1.0000	1.2953	1.6734	2.1566	2.7725	3.5557	4.5494	5.8074	7.3964	9.3992	11.9182	15.0799	19.0401	23.9905	30.1666	37.8568
27	1.0000	1.3082	1.7069	2.2213	2.8834	3.7335	4.8223	6.2139	7.9881	10.2451	13.1100	16.7386	21.3249	27.1093	34.3899	43.5353
28	1.0000	1.3213	1.7410	2.2879	2.9987	3.9201	5.1117	6.6488	8.6271	11.1671	14.4210	18.5799	23.8839	30.6335	39.2045	50.0656
29	1.0000	1.3345	1.7758	2.3566	3.1187	4.1161	5.4184	7.1143	9.3173	12.1722	15.8631	20.6237	26.7499	34.6158	44.6931	57.5755
30	1.0000	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	7.6123	10.0627	13.2677	17.4494	22.8923	29.9599	39.1159	50.9502	66.2118

Table 2: Present value of R1 at the end of *n* periods

n	0%	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	1.0000	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
2	1.0000	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
3	1.0000	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
4	1.0000	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
5	1.0000	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
6	1.0000	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
7	1.0000	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
8	1.0000	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
9	1.0000	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
10	1.0000	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
11	1.0000	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
12	1.0000	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
13	1.0000	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
14	1.0000	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
15	1.0000	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
16	1.0000	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
17	1.0000	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
18	1.0000	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
19	1.0000	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
20	1.0000	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
21	1.0000	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
22	1.0000	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
23	1.0000	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
24	1.0000	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
25	1.0000	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
26	1.0000	0.7720	0.5976	0.4637	0.3607	0.2812	0.2198	0.1722	0.1352	0.1064	0.0839	0.0663	0.0525	0.0417	0.0331	0.0264
27	1.0000	0.7644	0.5859	0.4502	0.3468	0.2678	0.2074	0.1609	0.1252	0.0976	0.0763	0.0597	0.0469	0.0369	0.0291	0.0230
28	1.0000	0.7568	0.5744	0.4371	0.3335	0.2551	0.1956	0.1504	0.1159	0.0895	0.0693	0.0538	0.0419	0.0326	0.0255	0.0200
29	1.0000	0.7493	0.5631	0.4243	0.3207	0.2429	0.1846	0.1406	0.1073	0.0822	0.0630	0.0485	0.0374	0.0289	0.0224	0.0174
30	1.0000	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

Table 3: Future value of an annuity of R1 per period for *n* periods

n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
1	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
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
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
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	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	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
7	7.2135	7.4343	7.6625	7.8983	8.1420	8.3938	8.6540	8.9228	9.2004	9.4872	9.7833	10.0890	10.4047	10.7305	11.0668
8	8.2857	8.5830	8.8923	9.2142	9.5491	9.8975	10.2598	10.6366	11.0285	11.4359	11.8594	12.2997	12.7573	13.2328	13.7268
9	9.3685	9.7546	10.1591	10.5828	11.0266	11.4913	11.9780	12.4876	13.0210	13.5795	14.1640	14.7757	15.4157	16.0853	16.7858
10	10.4622	10.9497	11.4639	12.0061	12.5779	13.1808	13.8164	14.4866	15.1929	15.9374	16.7220	17.5487	18.4197	19.3373	20.3037
11	11.5668	12.1687	12.8078	13.4864	14.2068	14.9716	15.7836	16.6455	17.5603	18.5312	19.5614	20.6546	21.8143	23.0445	24.3493
12	12.6825	13.4121	14.1920	15.0258	15.9171	16.8699	17.8885	18.9771	20.1407	21.3843	22.7132	24.1331	25.6502	27.2707	29.0017
13	13.8093	14.6803	15.6178	16.6268	17.7130	18.8821	20.1406	21.4953	22.9534	24.5227	26.2116	28.0291	29.9847	32.0887	34.3519
14	14.9474	15.9739	17.0863	18.2919	19.5986	21.0151	22.5505	24.2149	26.0192	27.9750	30.0949	32.3926	34.8827	37.5811	40.5047
15	16.0969	17.2934	18.5989	20.0236	21.5786	23.2760	25.1290	27.1521	29.3609	31.7725	34.4054	37.2797	40.4175	43.8424	47.5804
16	17.2579	18.6393	20.1569	21.8245	23.6575	25.6725	27.8881	30.3243	33.0034	35.9497	39.1899	42.7533	46.6717	50.9804	55.7175
17	18.4304	20.0121	21.7616	23.6975	25.8404	28.2129	30.8402	33.7502	36.9737	40.5447	44.5008	48.8837	53.7391	59.1176	65.0751
18	19.6147	21.4123	23.4144	25.6454	28.1324	30.9057	33.9990	37.4502	41.3013	45.5992	50.3959	55.7497	61.7251	68.3941	75.8364
19	20.8109	22.8406	25.1169	27.6712	30.5390	33.7600	37.3790	41.4463	46.0185	51.1591	56.9395	63.4397	70.7494	78.9692	88.2118
20	22.0190	24.2974	26.8704	29.7781	33.0660	36.7856	40.9955	45.7620	51.1601	57.2750	64.2028	72.0524	80.9468	91.0249	102.4436
21	23.2392	25.7833	28.6765	31.9692	35.7193	39.9927	44.8652	50.4229	56.7645	64.0025	72.2651	81.6987	92.4699	104.7684	118.8101
22	24.4716	27.2990	30.5368	34.2480	38.5052	43.3923	49.0057	55.4568	62.8733	71.4027	81.2143	92.5026	105.4910	120.4360	137.6316
23	25.7163	28.8450	32.4529	36.6179	41.4305	46.9958	53.4361	60.8933	69.5319	79.5430	91.1479	104.6029	120.2048	138.2970	159.2764
24	26.9735	30.4219	34.4265	39.0826	44.5020	50.8156	58.1767	66.7648	76.7898	88.4973	102.1742	118.1552	136.8315	158.6586	184.1678
25	28.2432	32.0303	36.4593	41.6459	47.7271	54.8645	63.2490	73.1059	84.7009	98.3471	114.4133	133.3339	155.6196	181.8708	212.7930
26	29.5256	33.6709	38.5530	44.3117	51.1135	59.1564	68.6765	79.9544	93.3240	109.1818	127.9988	150.3339	176.8501	208.3327	245.7120
27	30.8209	35.3443	40.7096	47.0842	54.6691	63.7058	74.4838	87.3508	102.7231	121.0999	143.0786	169.3740	200.8406	238.4993	283.5688
28	32.1291	37.0512	42.9309	49.9676	58.4026	68.5281	80.6977	95.3388	112.9682	134.2099	159.8173	190.6989	227.9499	272.8892	327.1041
29	33.4504	38.7922	45.2189	52.9663	62.3227	73.6398	87.3465	103.9659	124.1354	148.6309	178.3972	214.5828	258.5834	312.0937	377.1697
30	34.7849	40.5681	47.5754	56.0849	66.4388	79.0582	94.4608	113.2832	136.3075	164.4940	199.0209	241.3327	293.1992	356.7868	434.7451

Table 4: Present value of an annuity of R1 per period for *n* periods

n	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%
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
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
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
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
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
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
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
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
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
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
11	10.3676	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
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
13	12.1337	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.7499	6.4235	6.1218	5.8424	5.5831
14	13.0037	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.9819	6.6282	6.3025	6.0021	5.7245
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
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
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
18	16.3983	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.7016	7.2497	6.8399	6.4674	6.1280
19	17.2260	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.8393	7.3658	6.9380	6.5504	6.1982
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
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	7.1016	6.6870	6.3125
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
23	20.4558	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3711	9.5802	8.8832	8.2664	7.7184	7.2297	6.7921	6.3988
24	21.2434	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066	8.9847	8.3481	7.7843	7.2829	6.8351	6.4338
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
26	22.7952	20.1210	17.8768	15.9828	14.3752	13.0032	11.8258	10.8100	9.9290	9.1609	8.4881	7.8957	7.3717	6.9061	6.4906
27	23.5596	20.7069	18.3270	16.3296	14.6430	13.2105	11.9867	10.9352	10.0266	9.2372	8.5478	7.9426	7.4086	6.9352	6.5135
28	24.3164	21.2813	18.7641	16.6631	14.8981	13.4062	12.1371	11.0511	10.1161	9.3066	8.6016	7.9844	7.4412	6.9607	6.5335
29	25.0658	21.8444	19.1885	16.9837	15.1411	13.5907	12.2777	11.1584	10.1983	9.3696	8.6501	8.0218	7.4701	6.9830	6.5509
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