UNIVERSITY OF JOHANNESBURG

Department of Accounting

Financial Recording, Analysis and Management B

FRAM0B1

LAST ASSESSMENT OPPORTUNITY

19 November 2019

Time: 3 hours **Marks: 100**

Assessor: Mr M de Wet
Mr M Booyens

Moderator: Prof G Els

INSTRUCTIONS:

- This paper consists of **15** pages (including the formulae sheet and interest factors tables) **AND** a **separate, pre-printed answer book**.
- Clearly PRINT your **initial(s)**, **surname** and **student number** in the spaces provided on the **answer book**.
- Answer ALL questions ***in the spaces provided*** in **black** or **blue pen** in the **answer book**. Please remember that marks are ONLY allocated to answers written in these spaces!
- Please note that questions may have more than one correct answer!
- You may complete all workings and/or calculations on the question paper.
- Silent, non-programmable calculators may be used, unless otherwise instructed.
- Round all calculations to **TWO** decimal places unless instructed otherwise.
- Answers with Tippex and in pencil will **not** be marked and the paper will **not** be eligible for a remark.

Section one: multiple choice questions (33)

QUESTION 1 (1)

Which of the following statements about return is least accurate?

A Return is compensation for taking on a certain degree of risk.
B Return is made up of the dividends earned by owning a share.
C Return consists of dividends paid to share holders as well as capital gains on a share.
D The return can be negative.

QUESTION 2 (1)

Which of the following is true about a rational investor:

A A rational investor will maximize return at all cost
B A rational investor will aim to minimize risk for a given level of return
C A rational investor will aim to maximize risk for a given level of return
D A rational investor will aim to minimize return for a given level of risk

QUESTION 3 (1)

The price paid for the 'rental' of borrowed funds is commonly referred to as the …

A interest rate.
B inflation rate.
C rental rate.
D transaction cost.

QUESTION 4 (1)

Using financial statements to decide whether to invest in a company is known as…

A financial statement analysis.
B financial responsibility.
C financial accountability.
D None of the above.

QUESTION 5 (1)

If a price index is 89, which ONE of the following statements is/are correct about average prices?

A Prices have risen by 89% relative to the base year.
B Prices are now 0.89 times the base year.
C Prices have declined by 11% relative to the base year.
D Prices have increased by 11% relative to the base year.

Consider the following regression line and answer questions 6 – 8:

$$Y = 23 + 1.2X + \hat{u}$$

QUESTION 6 (1)

In the above regression line, *Y* represents …

A the explanatory variable.
B the intercept.
C the residual term.
D the dependent variable.

QUESTION 7 (1)

In the above regression line, û represents …

A the explanatory variable.
B the intercept.
C the residual term.
D the dependent variable.

QUESTION 8 (1)

The slope of the *X* variable is …

A Y
B 23
C û
D 1.2

QUESTION 9 (1)

Markets in which funds are transferred from those who have excess funds available to those who have a shortage of available funds are called …

A commodity markets.
B funds markets.
C derivative exchange markets.
D financial markets.

QUESTION 10 (1)

Which ONE of the following functions does every financial market perform?

A It determines the level of interest rates.
B It allows ordinary shares to be traded.
C It allows loans to be made.
D It channels funds from lenders-savers to borrowers-spenders.

QUESTION 11 (1)

Which ONE of the following is not a disadvantage of calculating an arithmetic mean?

A It may be influenced by extreme values
B It may give undue weight to extreme values
C It is unsuitable for use in mathematical tables
D The calculated value may not correspond to any individual value in the distribution

QUESTION 12 (1)

One of the most common measures of an asset's risk is …

A standard deviation.
B standard error.
C rate of return.
D normal distribution of the asset.

QUESTION 13 (1)

Which ONE of the following statements of the coefficient of variation is the most accurate?

A It measures the risk of an asset relative to the total return of an asset
B It measures the risk of an asset per unit of return
C It is also known as the standard deviation of an asset's return
D None of the above are correct

QUESTION 14 (1)

Consider a company with a relatively high P/E ratio, which ONE of the following statements is most accurate?

A The company is a low earnings growth company
B The company is a high earnings growth company
C The company is seen by investors as a high risk company
D The company is mispriced, and the price must fall

QUESTION 15 (1)

Which indexing method is most appropriate to use when indexing the price of a commodity of which the basic nature of the commodity is changing over time?

A Fixed-base method
B Splicing method
C Chain-base method
D Paasche indexing method

QUESTION 16 (1)

Firms that require funds from external sources can obtain such funds ...

(i) from the capital market.
(ii) from retained earnings.
(iii) from suppliers' credit.
(iv) from the money market.

Which of the above statements are correct?

A (i) and (ii)
B (i) and (iii)
C (i), (iii) and (iv)
D (i), (ii), (iii) and (iv)

QUESTION 17 (1)

Which of the following is <u>not</u> a classification group when considering classification of cost according to nature: materials, labour or expense cost:

A materials
B direct cost
C labour
D expenses

QUESTION 18 (1)

Direct cost can be described as …

A costs that can be clearly identified with the cost object we are trying to cost.
B costs incurred in the form of wages and salaries, together with related employment costs.
C The cost of obtaining the materials and receiving them within the organisation.
D costs that cannot be directly attributed to a particular cost unit.

QUESTION 19 (1)

Which ONE of the following time value of money statements is least correct?

A Interest earned on money partly compensate for the natural loss in the value of money
B The future value of money is typically smaller than the present value of money
C The future value of money is typically larger that the present value of money
D Interest rates are typically used as discount rates

QUESTION 20 (1)

The money market is the market in which … are traded.

A new issues of securities
B previously issued securities
C short-term debt instruments
D long-term debt instruments

QUESTION 21 (1)

The secondary market is the market in which … are traded.

A new issues of securities
B previously issued securities
C short-term debt instruments
D long-term debt instruments

Refer to the following table, showing exchange rate quotations for various currency pairs, to answer question 22 to 24.

ZAR/JPY	EUR/ZAR	NZD/ZAR	CAD/ZAR
0.34	16.74	9.23	10.53

QUESTION 22 (2)

How many Rand (ZAR) do you require to purchase one Euro (EUR)?

A 9.23
B 16.74
C 0.059
D 10.53

QUESTION 23 (2)

How many New Zealand dollars (NZD) do you require to purchase one Rand?

A 9.23
B 16.74
C 0.108
D 10.53

QUESTION 24 (2)

If I purchase goods from Canada priced at 1 298 Canadian dollar (CAD), how much Rand would I require to purchase these goods:

A 1 298
B 10.53
C 123.267
D 13 667.94

QUESTION 25 (2)

A company's total monthly costs (RC) were plotted against production (P) for the last 50 months and a regression line valuated to be $C = 1089 + 27P + Error$. Which ONE, or more, of the following statements about the breakdown of weekly costs is/are true?

A Fixed costs are R1 089 and variable costs per unit are R27.
B Fixed costs are R27 and variable costs per unit are R1089.
C Fixed costs are R40 and variable costs per unit are R27.
D One cannot determine fixed and variable costs based on the information given.

QUESTION 26 (2)

Assume that the expected return on a company with the name RR capital is 17% and the typical variance of this stock is 9%, what is this RR capital's coefficient of variation:

A 17%
B 9%
C 1.889
D 0.529

QUESTION 27 (2)

You are considering Combat Ltd as a possible investment choice and determined the following possible returns as well as respective probability that each return realizes.

Possible return	Probability
3%	25%
17%	49%
14%	26%

What is the expected return for Combat Ltd?

A 6.667%
B More information is required to answer this question
C 12.81%
D -12.81%

Section two: true and false (15)

QUESTION 28

State whether the following statements are true or false:

	True	False
A. The closer the correlation coefficient is to -1, the weaker the relationship between two variables are.		
B. Compounded interest is only payed on the initial principal amount.		
C. If the interest due at the end of an interest period is added to the principal, so that the interest computed for the next interest period is based on this new interest amount (old principal plus interest), then the interest is said to have been compounded.		
D. The beta coefficient of a linear regression can be calculated by using the following equation: $\frac{\Delta Y}{\Delta X}$		
E. If you are a depositor and the bank offers you an option of 8% simple interest and 8% compounded interest on your deposit, you should choose the simple interest rate option.		
F. If you and a friend deposit the same amount of money at the same interest rate today and you earn semi-annually compounded interest and your friend earns monthly compounded interest, you will have more money in the bank, relative to your friend, at the end of two years assuming not you or your friend makes any additional deposits.		
G. Fads or rumours may be reflected in the price of a share.		
H. Quoted interest rate is known as the nominal rate.		
I. Expense costs include the cost of obtaining the materials and receiving them within the organisation.		
J. Cost accounting mainly relates to the determination of the total cost of a product, from the purchase of raw materials to delivery to the consumer.		

K. The return on an investment represents the compensation for taking on a certain degree of risk. Return measures the increase in wealth of the holder of the particular instrument.		
L. Two assets with different expected returns and different standard deviations can be compared to one another by calculating and comparing their coefficient of variation.		
M. Depreciation is the loss of value of a fixed asset such as equipment, machinery, motor vehicles, etc., through age.		
N. The line of best fit method is a method that can be used to establish the trend in a time series		
O. Standard deviation (or σ) measures the expected return of an asset.		

Section three: time value of money calculations (14)

QUESTION 29 (2)

Assume that Mrs. Kumalo deposits R2 500 into an account today, what is her account balance at the end of 10 years if she earns 4% interest p.a., compounded quarterly?

QUESTION 30 (8)

Complete the following table by solving the missing values **A** – **D**:

Present value	Interest rate	Number of years	Compounding method	Future value
R4 821	8%	12	Monthly	**A**
R9 182	**B**	4	Quarterly	R11928
R3 372	12%	**C**	Annually	R6884
D	21%	3	Monthly	R3029

QUESTION 31 (2)

How much would I have to deposit in an account today, that pays 12% interest p.a. compounded quarterly, so that I may have a balance of R20 000 in the account at the end of 10 years?

QUESTION 32 (2)

How long does it take for your money to grow to ten times its original value if the interest rate is 5% compounded annually?

Section four: risk and return calculations and cumulative frequencies (20)

QUESTION 33 (14)

Mr. Zulu is an asset manager at one of South Africa's largest asset management firms. Mr. Zulu receives R100 000 from a client whom wants to invest the funds in an asset that provides an optimal risk/return profile. There are two possible investment options, asset A or B. The following two tables depicts the possible returns and the probability associated with each return for each of the two assets. Help Mr. Zulu determine the optimal asset to invest in by calculating the expected return for each asset, the risk (variance) of each asset, and the coefficient of variation of each asset.

Return profile for asset A:

Possible return *(R_i)*	**Probability of return *(P_i)***
8%	55%
12%	21%
-10%	16%
18%	8%
Expected return: (A)	
Risk: (B)	
Coefficient of variation (C)	

Return profile for asset B:

Possible return *(R_i)*	**Probability of return *(P_i)***
1%	21%
19%	40%
41%	8%
-21%	11%
Expected return: (D)	
Risk: (E)	
Coefficient of variation (F)	

Based on your results, advise Mr. Zulu on which asset will be optimal to invest in and state why (G).

QUESTION 34 (6)

Complete the cumulative frequency column in the table for the data provided.

Examination score (*x*)	**Frequency (*f*)**	**Cumulative frequency (*cf*)**
$30 \leq x < 40$	8	8
$40 \leq x < 50$	20	**A**
$50 \leq x < 60$	16	**B**
$60 \leq x < 70$	9	**C**
$70 \leq x < 80$	21	**D**
$80 \leq x < 90$	11	**E**
$90 \leq x < 100$	9	**F**

Section five: Linear regression analysis (9)

QUESTION 35 (9)

You are given the following regression line:

$$South\ African\ top\ 40\ index = 489 - 1.5 US\ Dollar/South\ African\ Rand$$

A. Which variable in the regression is the dependent variable?
B. What is the intercept value of this regression line?
C. What is the slope of this regression line?
D. If the US Dollar/South African Rand goes up with one unit, what will happen with the South African Top 40 Index?
E. Report on the relationship between the South African top 40 index and the US Dollar/South African Rand.
F. If we expect the future South African Rand to trade at 14.56 against the US Dollar, what should the value of the South African top 40 index be given the provided regression line?

Section six: horizontal statement analysis (9)

QUESTION 36 (9)

Consider the following extract from company ABC's Statement of Comprehensive Income:

	2019 (R'000)	2018 (R'000)
Sales	18 273	17 367
Cost of sales	8 817	8 099
Gross profit	9 456	9 268

Convert the statement so that a horizontal analysis can be conducted.

	2019 (R'000)	2018 (R'000)
Sales	**D)**	**A)**
Cost of sales	**E)**	**B)**
Gross profit	**F)**	**C)**

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Formula sheet

$$R = D_t + \frac{(P_t - P_{t-1})}{P_{t-1}} \times \frac{100}{1}$$

$$R_e = \sum (R_i)(P_i)$$

$$\sigma = \sqrt{\sum^{n} (R_i - R_e)^2 \times P_i}$$

$$CV = \frac{\sigma}{R_e}$$

$$r = \frac{n\sum xy - \sum x \sum y}{\sqrt{\left(n\sum x^2 - \left(\sum x\right)^2\right)\left(n\sum y^2 - \left(\sum y\right)^2\right)}}$$

$$b = \frac{n\sum xy - \sum x \sum y}{n\sum x^2 - \left(\sum x\right)^2}$$

$$a = \frac{\sum y}{n} - b\frac{\sum x}{n} = \bar{y} - b\bar{x}$$

$$\mathrm{FV}_n = \mathrm{PV}_0 \times (1+i)^n$$

$$\mathrm{i_e} + 1 = \left(1 + \frac{i}{m}\right)^m$$

Factor tables

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%
0	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	1.0000
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

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%
0	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	1.0000
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

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

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