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OCT/NOV 2016

FINANCE FOR NON-FINANCIAL MANAGERS

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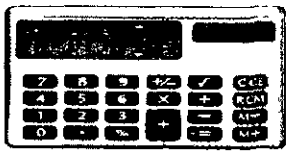

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UNISA university of south africa

FIN2603 (476984) October/November 2016

FINANCE FOR NON-FINANCIAL MANAGERS

Duration 2 Hours 70 Marks

EXAMINERS

FIRST	MR GPM GREBE
SECOND	MS L NGCOBO
EXTERNAL	MS ME DELPORT

Use of a non-programmable pocket calculator is permissible

Closed book examination

This paper consists of 21 pages, including interest tables on p i-iv, plus the instructions for the completion of the mark reading sheet.

SECTION A counts 50 marks and **SECTION B** counts 20 marks
ANSWER ALL THE QUESTIONS IN BOTH SECTIONS.
NO ROUGH WORK WILL BE MARKED.

[TURN OVER]

SECTION A: MULTIPLE-CHOICE QUESTIONS (50 MARKS)

1 The long-term financial goal of the firm may be achieved by

1 maximising revenue and minimising expenses
2 minimising the cost of capital and maximising return (IRR)
3 maximising the assets relative to the liabilities
4 accelerating cash inflows

2 The primary short-term financial goal of the firm may be best achieved by

1 maximising revenue and minimising expenses
2. minimising the cost of capital and maximising return (IRR)
3 increasing expenses in order to reduce the firm's tax liability
4 accelerating cash inflows and delaying cash outflows

3 The statement of financial performance measures . and it is also known as ..

1. sales revenue, gross profit and earnings-after-tax trial balance
2. gross profit, earnings before income and tax (EBIT) and net profit statement of financial performance
3 cost of goods sold, operating expenses and tax payable balance sheet
4 sales, EBIT and earnings-after-tax cash flow statement

4 A decrease in sales revenue as a result of a decrease in credit sales is recorded by

1 crediting cash
2 crediting sales
3 debiting cash
4 debiting sales

5 One method often used by companies to ensure that management decisions are in the best interest of the shareholders is to ..

1 remove prerequisites
2 threaten to fire managers who do not perform adequately
3 tie management compensation to the performance of the company share price
4 tie management compensation to the level of earnings per share

6 I &K Manufacturers Ltd has to raise an additional R1 500 000 in equity The firm should ideally finance itself by means of

1 R300 000 in cash, R1000 000 in accounts receivable and R200 000 of inventory
2 R1 480 000 in debentures, 10 000 ordinary shares at a par value of 100 cents each and R10 000 in retained earnings
3 500 000 ordinary shares at a par value of 300 cents each
4 R700 000 in debentures and 800 000 non-voting preference shares at 100 cents each

7 A firm's cash flow becomes more predictable as the

1 current ratio increases
2 return on owners' equity increases
3 current liabilities decrease
4 current assets decrease

African Enterprises Ltd is a newly listed company on the JSE Limited Please use the following information to answer questions 8 to 10·

Sales	R500 000
Earnings after interest	R250 000
Tax	38%
Preference dividends due	R50 000
Preference shares issued	5 000
Ordinary shares issued	10 000

8. Calculate the earnings after tax for African Enterprises Ltd

1 R102 000
2 R115 000
3 R155 000
4 R165 000

9. Calculate the earnings per share (EPS) for African Enterprises Ltd

1 R15,50
2 R16,50
3 R17,00
4 R18,50

10 Calculate the net profit margin for African Enterprises Ltd

1 12,00%
2 14,00%
3 25,00%
4 31,00%

11 If accounts receivable increase by R600, inventory increases by R100 and accounts payable increase by R300, net working capital would

1 decrease by R400
2 increase by R400
3 increase by R700
4 decrease by R700

12. At the operating breakeven point, equals zero

1 variable cost
2 fixed cost
3 net profit after tax
4 earnings before interest and tax (EBIT)

13 Waltons Ltd has fixed costs of R6 000 000. The company's products are sold at R5 000 per unit, while variable cost amounts to R1 000 per unit Calculate the company's breakeven point in units.

1 1 000 units
2 1 200 units
3 1 500 units
4 1 667 units

14 A company has fixed operating costs of R100 000 Its products are sold at R15 per unit and the variable cost per unit is R5 Calculate the company's breakeven point, in rand

1. R 50 000
2 R100 000
3 R150 000
4 R200 000

15 Refer to question 14 above and calculate the marginal income for the year if the company sold 20 000 units during the year

1 R120 000
2 R150 000
3 R180 000
4 R200 000

Use the following information for Sea Kay Limited to answer questions 16 to 22.

Opening inventory	R70 000
Closing inventory	R40 000
Cash	R30 000
Accounts receivable	R50 000
Long-term assets	R500 000
Accounts payable	R90 000
Long-term debt	R300 000
Sales	R500 000
Cost of goods sold	R200 000
Profit before tax	R80 000
Tax	40%

16 The gross profit margin for Sea Kay Limited is closest to .

1 20%
2 50%
3 60%
4 200%

17 The net profit margin for Sea Kay Limited is closest to

1 9 6%
2 11 3%
3 13.4%
4 18 6%

18 The current ratio for Sea Kay Limited is closest to

1 1,22
2 1,33
3 1,83
4 2,44

19. The inventory turnover for Sea Kay Limited is closest to ..

1 2,86 times pa
2 3,63 times pa
3 3,92 times pa
4 4,23 times pa

20. The average collection period for Sea Kay Limited is closest to

1 36 days
2. 80 days
3 180 days
4 360 days

21 The return on investment (ROI) for Sea Kay Limited is closest to

1 6,39%
2 7,74%
3 9,12%
4 11,00%

22 A firm can best improve its return on equity (ROE) by increasing the ..

1 sales and decreasing expenditure
2 asset turnover and financial leverage
3 net profit margin
4 net profit margin, asset turnover and financial leverage

23. A current ratio of 5,2.1 may indicate that the firm has too much

1 cash
2 inventory
3 accounts receivable
4 all of the above

24 Calculate the growth rate of the following stream of cash flows

2013 R3 600

2012· R3 000

2011 R1 900

2010 R1 000

1 23%
2 26%
3 43%
4 53%

25 Calculate the future value (FV) of R20 000 invested for six years at an interest rate of 8%, compounded semi-annually

1 R14 026
2 R14 106
3. R24 015
4. R32 020

26 Calculate the present value (PV) of R150 000 received eight years from today at an interest rate of 10 5%

1 R67 483
2 R77 061
3 R89 980
4. R99 613

27 How much should Johnathan invest today at 9% interest per annum, compounded monthly, to be able to buy a house worth R2 600 000 six years from today?

1. R 672 971,33
2 R1 518 201,44
3 R1 765 616,71
4 R1 985 789,23

28 Find the present value of the following stream of cash flows by assuming that the organisation has an opportunity cost of 11%.

Years	Amount (R)
1–3	25 000
4–7	75 000

1 R 71 203,41
2 R156 268,41
3 R225 268,41
4 R231 228,98

29 If Lesley invests R100 000 in an unit trust offering a rate of return of 15% per annum, calculate how long it will take for the investment to double in value

1 5 years
2 7 years
3 9 years
4. 13 years

30. If Samantha invests R10 000 at the beginning of each year at an interest rate of 6% over a six-year period, the future value of the investment would be

1. R58 687,43
2 R60 000,00
3 R73 938,38
4 R81 854,50

31 Grivalo Gold Ltd has determined its optimal capital structure, which comprises the following.

Form of capital	Weight	After-tax cost
Long-term debt	50%	4%
Preference shares	30%	13%
Ordinary shares	20%	10%

The weighted average cost of capital is

1. 5,3%
2 7,9%
3 8,4%
4 9,1%

32 The before-tax cost of debt for a firm, which has a 32% marginal tax rate, is 15% Calculate the after-tax cost of debt

1 4,8%
2 8,4%
3 9,6%
4 10,20%

33 The after-tax cost of debt for a firm, which has a marginal tax rate of 35%, is 6% Calculate the before-tax cost of debt

1 6,0%
2 8,1%
3 9,2%
4 17,1%

34 A firm can best improve its ROE by increasing its

1 cash sales and decreasing liabilities
2 net profit and using assets needed for core business only
3 profitability, asset turnover and financial leverage
4 sales and decreasing expenditure

35. ABC Limited purchased raw materials on account and paid for them within 30 days The raw materials were used in the manufacturing of finished goods that were sold on account 100 days after the raw materials had been purchased The customer paid for the finished goods 60 days later Calculate the company's cash conversion cycle

1 10 days
2 70 days
3 130 days
4 190 days

36 William, the export manager of an international company, wishes to replace a machine five years from now with a new machine that will cost R500 000 in five years' time If equal end-of-year deposits are made into an account paying an annual interest of 9%, calculate the size of each deposit

1 R23 535,24
2 R49 382,38
3 R83 546,23
4 R95 345,78

37. The financial manager is evaluating a proposal for a new project with the following cash flows

Year	Net cash flows
0	–R1 000 000
1	R500 000
2	R500 000
3	R490 000

The payback period is

1 two years
2 between one and two years
3. three years
4 more than three years

38 Growthpoint Ltd has made an initial investment of R5 000 000 in a new project The firm's cost of capital is 10 50% The investment is expected to generate the following cash inflows over the next five years

Year 1	R500 000
Year 2	R600 000
Year 3	R950 000
Year 4	R1 100 000
Year 5:	R3 000 000

The profitability index (PI) is , therefore, the investment should

1 0,84, be undertaken
2 0,84; not be undertaken
3 1,09, be undertaken
4 1,09, not be undertaken

39 The present value of the cash flows of an investment is expected to total R180 000 The profitability index is calculated at 1,40 Calculate the initial investment

1 R127 562,43
2 R128 571,43
3 R142 857,14
4. R147 857,14

40 A firm with a cash conversion cycle of 40 days can stretch its average payment period from 15 days to 30 days This will result in a/an .

1 decrease of 15 days in the cash conversion cycle
2 increase of 10 days in the cash conversion cycle
3 decrease of 30 days in the cash conversion cycle
4 increase of 15 days in the cash conversion cycle

41. A company has a cash conversion cycle of 50 days Annual outlays are R10 million and the cost of negotiated financing is 9% Calculate its annual savings if the company reduces its average age of inventory by 15 days Assume 360 days per year

1. R15 679
2 R17 778
3 R37 500
4 R52 500

42. The cost of giving up a cash discount under the terms of sale 3/10 net 30 is (Assume a 360-day year)

1 37,11%
2 55,67%
3 58,99%
4 111,34%

43 Calculate the difference between the following two investment proposals
(a) R1 401,82 invested annually for five successive years at 9% per annum
(b) R5 209,22 invested for a term of five years at 10% per annum compound interest

1 R0
2 R36,10
3. R80,25
4 R100,35

44 A firm has annual sales of 80 000 units Carrying costs as a percentage of inventory value is 15% The purchase price per unit is R200, while the fixed costs of placing an order is R20 per order The economic order quantity (EOQ) is . units

1 145
2 327
3 456
4. 897

45. Assume the sales of the above-mentioned firm are expected to increase by 20% and the purchase price per unit increases to R250 Calculate the new EOQ.

1 160 units
2 320 units
3 580 units
4 660 units

46 Philip Maree has arranged for a 60-day loan at an annual interest rate of 7,5% If the loan amount is R1 000 000, how much interest will Mr Maree pay in rand terms? (Assume a 360-day year.)

1 R0
2 R12 500
3 R25 000
4 R75 000

47 Calculate the EOQ given the following information

18 506 units used annually, purchased at R55 per unit
Order cost is R336 per order
Carrying cost is 9% of inventory value

1 1 585 units
2 1 599 units
3 1 614 units
4 1 633 units

48 Credit terms of 2/10/30 are set for a business These terms imply

1 a 2% discount if paid within 10 days, otherwise, the balance is due in 30 days
2. that the bond must be amortised before 2 October 2030
3 that the lease agreement expires on 10 October 2030
4 a 2% discount if paid within 30 days, otherwise, the balance is due in 10 to 30 days

49 Which one of the following statements is incorrect?

1 Relaxation of credit standards will cause an increase in sales volume
2 Relaxation of credit standards will cause an increase in accounts receivable
3 Relaxation of credit standards will cause a decrease in bad debt costs
4 Tightening of credit standards will cause a decrease in bad debt costs

50 Which stakeholders have the first claim on assets when a firm enters bankruptcy?

1 Creditors
2 Top management
3 Debtors
4 Shareholders

SECTION B: LONG QUESTIONS **[20 MARKS]**

QUESTION 1 **(10 MARKS)**

The forecasted sales for BBP Limited for January to April 2016 appear in the table below

Month	January	February	March	April
Sales (R)	150 000	170 000	95 000	200 000

- The company receives 50% of all sales in the month of sale, 30% one month later, and 15% two months later Five per cent of the company's sales are written off as bad debts
- Purchases are valued at 50% of each month's projected sales
- The following cash receipts and cash disbursements should also be taken into account.
    - Rental income for January and February amounted to R10 000 each, while a 15% increase is forecasted for March and April
    - Depreciation on the company's vehicles amounts to R10 000 per month
    - In April, the company made a cash contribution of R15 000 to a local charity
    - Telephone expenses vary each month The telephone costs for February, March and April are expected to amount to R1 000, R1 200 and R1 400, respectively
    - Salaries are paid as commission, which is calculated at 15% of each month's sales value
    - In March, payment for delivery vehicles becomes due and the company needs to pay R15 000 to its supplier
    - The retrenchment of two employees in March will cost the company R35 000.
    - The closing cash balance on 31 January 2016 is R20 000

REQUIRED

Prepare a cash budget for the months of February, March and April

	February (R)	March (R)	April (R)
Opening cash balance			
Cash receipts			
Total cash receipts			
Cash payments			
Total cash payments			
Closing cash balance			

ROUGH WORK – (will not be marked)

ROUGH WORK- (will not be marked)

QUESTION 2 **(10 MARKS)**

Opum Inc considers investing in a new project The initial outlay of the project will be R2 000 000 The financial manager of the company has estimated the cash inflows associated with this new project as follows

Year	Cash inflow
1	R200 000
2	R400 000
3	R800 000
4	R800 000
5	R1100 000

The firm's cost of capital is 10%

2 1 Calculate the net present value (NPV) of investing in the proposed project (4)

2 2 Calculate the internal rate of return (IRR) of the proposed investment, rounded off to the nearest whole percentage (4)

2 3 Evaluate the acceptability of the proposed investment based on your calculations of the NPV and IRR What recommendation would you make regarding the implementation of the project? (2)

ROUGH WORK- (will not be marked)

ROUGH WORK- (will not be marked)

Appendix A: Interest tables

Table 1 Future-value interest factors for R1 compounded at k per cent 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%	25%	30%	35%
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	1 200	1 250	1 300	1 350
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	1 440	1 563	1 690	1 823
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	1 728	1 953	2 197	2 460
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	2 074	2 441	2 856	3 322
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	2 488	3 052	3 713	4 484
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	2 986	3 815	4 827	6 053
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	3 583	4 768	6 275	8 172
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	4 300	5 960	8 157	11 03
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	5 160	7 451	10 60	14 89
10	1 105	1 219	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	6 192	9 313	13 79	20 11
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	7 430	11 64	17 92	27 14
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	8 916	14 55	23 30	36 64
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	10 70	18 19	30 29	49 47
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	12 84	22 74	39 37	66 78
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	15 41	28 42	51 19	90 16
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 75	18 49	35 53	66 54	121 7
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 76	12 47	22 19	44 41	86 50	164 3
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 58	12 38	14 46	26 62	55 51	112 5	221 8
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 20	12 06	14 23	16 78	31 95	69 39	146 2	299 5
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 52	13 74	16 37	19 46	38 34	86 74	190 0	404 3
21	1 232	1 516	1 860	2 279	2 786	3 400	4 141	5 034	6 109	7 400	8 949	10 80	13 02	15 67	18 82	22 57	46 01	108 4	247 1	545 8
22	1 245	1 546	1 916	2 370	2 925	3 604	4 430	5 437	6 659	8 140	9 934	12 10	14 71	17 86	21 64	26 19	55 21	135 5	321 2	736 8
23	1 257	1 577	1 974	2 465	3 072	3 820	4 741	5 871	7 258	8 954	11 03	13 55	16 63	20 36	24 89	30 38	66 25	169 4	417 5	994 7
24	1 270	1 608	2 033	2 563	3 225	4 049	5 072	6 341	7 911	9 850	12 24	15 18	18 79	23 21	28 63	35 24	79 50	211 8	542 8	1343
25	1 282	1 641	2 094	2 666	3 386	4 292	5 427	6 848	8 623	10 83	13 59	17 00	21 23	26 46	32 92	40 87	95 40	264 7	705 6	1813
30	1 348	1 811	2 427	3 243	4 322	5 743	7 612	10 06	13 27	17 45	22 89	29 96	39 12	50 95	66 21	85 85	237 4	807 8	2620	8129
35	1 417	2 000	2 814	3 946	5 516	7 686	10 68	14 79	20 41	28 10	38 57	52 80	72 07	98 10	133 2	180 3	590 7	2465	9728	36449
40	1 489	2 208	3 262	4 801	7 040	10 29	14 97	21 72	31 41	45 26	65 00	93 05	132 8	188 9	267 9	378 7	1470	7523	36119	•
45	1 565	2 438	3 782	5 841	8 985	13 76	21 00	31 92	48 33	72 89	109 5	164 0	244 6	363 7	538 8	795 4	3657	22959	•	•
50	1 645	2 692	4 384	7 107	11 47	18 42	29 46	46 90	74 36	117 4	184 6	289 0	450 7	700 2	1084	1671	9100	70065	•	•

FVIF > 99999

Table 2 Future-value interest factors for a R1 annuity compounded at k per cent for n periods.

$$FVIFA_{k\,n} = \sum_{t=1}^{n} (1+k)^{t-1}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
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	2 200	2 250	2 300	2 350
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	3 640	3 813	3 990	4 173
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	5 368	5 766	6 187	6 633
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	7 442	8 207	9 043	9 954
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	9 930	11 259	12 756	14 438
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	12 916	15 073	17 583	20 492
8	8 286	8 583	8 892	9 214	9 549	9 897	10 26	10 64	11 03	11 44	11 86	12 30	12 76	13 23	13 73	14 24	16 50	19 84	23 86	28 66
9	9 369	9 755	10 16	10 58	11 03	11 49	11 98	12 49	13 02	13 58	14 16	14 78	15 42	16 09	16 79	17 52	20 80	25 80	32 01	39 70
10	10.46	10 95	11 46	12 01	12 58	13 18	13 82	14 49	15 19	15 94	16 72	17 55	18 42	19 34	20 30	21 32	25 96	33 25	42 62	54 59
11	11 57	12 17	12 81	13 49	14 21	14 97	15 78	16 65	17 56	18 53	19 56	20.65	21 81	23 04	24 35	25 73	32 15	42 57	56 41	74 70
12	12 68	13 41	14 19	15 03	15 92	16 87	17 89	18 98	20.14	21 38	22 71	24 13	25 65	27 27	29 00	30 85	39 58	54 21	74 33	101 8
13	13 81	14 68	15 62	16 63	17 71	18 88	20 14	21 50	22 95	24 52	26 21	28 03	29 98	32 09	34 35	36 79	48 50	68 76	97 63	138 5
14	14 95	15 97	17 09	18 29	19 60	21 02	22 55	24 21	26 02	27 97	30.09	32 39	34 88	37 58	40 50	43 67	59 20	86 95	127 9	188 0
15	16 10	17 29	18 60	20.02	21 58	23 28	25 13	27 15	29 36	31 77	34 41	37 28	40 42	43 84	47 58	51 66	72 04	109 7	167 3	254 7
16	17 26	18 64	20 16	21 82	23 66	25 67	27 89	30 32	33 00	35 95	39 19	42 75	46 67	50 98	55 72	60 93	87 44	138 1	218 5	344 9
17	18 43	20 01	21 76	23 70	25 84	28 21	30 84	33 75	36 97	40 54	44 50	48 88	53 74	59 12	65 08	71 67	105 9	173 6	285 0	466 6
18	19 61	21 41	23 41	25 65	28 13	30 91	34 00	37 45	41 30	45 60	50.40	55 75	61 73	68 39	75 84	84 14	128 1	218 0	371 5	630 9
19	20 81	22 84	25 12	27 67	30.54	33 76	37 38	41 45	46 02	51 16	56 94	63 44	70 75	78 97	88 21	98 60	154 7	273 6	484 0	852 7
20	22 02	24 30	26 87	29 78	33 07	36 79	41 00	45 76	51 16	57 27	64 20	72 05	80 95	91 02	102 4	115 4	186 7	342 9	630 2	1152
21	23 24	25 78	28 68	31 97	35 72	39 99	44 87	50.42	56 76	64 00	72 27	81 70	92 47	104 8	118 8	134 8	225 0	429 7	820 2	1556
22	24 47	27 30	30 54	34 25	38 51	43 39	49 01	55 46	62 87	71 40	81 21	92 50	105 5	120 4	137 6	157 4	271 0	538 1	1067	2102
23	25 72	28 84	32 45	36 62	41 43	47 00	53 44	60 89	69 53	79 54	91 15	104 6	120.2	138 3	159 3	183 6	326 2	673 6	1388	2839
24	26 97	30 42	34 43	39 08	44 50	50 82	58 18	66 76	76 79	88 50	102 2	118 2	136 8	158 7	184 2	214 0	392 5	843 0	1806	3834
25	28.24	32 03	36 46	41 65	47 73	54 86	63 25	73 11	84 70	98 35	114 4	133 3	155 6	181 9	212 8	249 2	472 0	1055	2349	5177
30	34 78	40 57	47 58	56 08	66 44	79 06	94 46	113 3	136 3	164 5	199 0	241 3	293 2	356 8	434 7	530 3	1182	3227	8730	23222
35	41 66	49 99	60 46	73 65	90.32	111 4	138 2	172 3	215 7	271 0	341 6	431 7	546 7	693 6	881 2	1121	2948	9857	32423	*
40	48 89	60 40	75 40	95 03	120.8	154 8	199 6	259 1	337 9	442 6	581 8	767 1	1014	1342	1779	2361	7344	30089	*	*
45	56 48	71 89	92 72	121 0	159 7	212 7	285 7	386 5	525 9	718 9	986 6	1358	1874	2591	3585	4965	18281	91831	*	*
50	64 46	84 58	112 8	152 7	209 3	290 3	406 5	573 8	815 1	1164	1669	2400	3460	4995	7218	10436	45497	*	*	*

* VIFA > 99999

Table 3 Present-value interest factors for R1 discounted at k per cent for n periods

$$PVIF_{kn} = \frac{1}{(1+k)^n}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
1	0990	0980	0971	0962	0952	0943	0935	0926	0917	0909	0901	0893	0885	0877	0870	0862	0833	0800	0769	0741
2	0980	0961	0943	0925	0907	0890	0873	0857	0842	0826	0812	0797	0783	0769	0756	0743	0694	0640	0592	0549
3	0971	0942	0915	0889	0864	0840	0816	0794	0772	0751	0731	0712	0693	0675	0658	0641	0579	0512	0455	0406
4	0961	0924	0888	0855	0823	0792	0763	0735	0708	0683	0659	0636	0613	0592	0572	0552	0482	0410	0350	0301
5	0951	0906	0863	0822	0784	0747	0713	0681	0650	0621	0593	0567	0543	0519	0497	0476	0402	0328	0269	0223
6	0942	0888	0837	0790	0746	0705	0666	0630	0596	0564	0535	0507	0480	0456	0432	0410	0335	0262	0207	0165
7	0933	0871	0813	0760	0711	0665	0623	0583	0547	0513	0482	0452	0425	0400	0376	0354	0279	0210	0159	0122
8	0923	0853	0789	0731	0677	0627	0582	0540	0502	0467	0434	0404	0376	0351	0327	0305	0233	0168	0123	0091
9	0914	0837	0766	0703	0645	0592	0544	0500	0460	0424	0391	0361	0333	0308	0284	0263	0194	0134	0094	0067
10	0905	0820	0744	0676	0614	0558	0508	0463	0422	0386	0352	0322	0295	0270	0247	0227	0162	0107	0073	0050
11	0896	0804	0722	0650	0585	0527	0475	0429	0388	0350	0317	0287	0261	0237	0215	0195	0135	0086	0056	0037
12	0887	0788	0701	0625	0557	0497	0444	0397	0356	0319	0286	0257	0231	0208	0187	0168	0112	0069	0043	0027
13	0879	0773	0681	0601	0530	0469	0415	0368	0326	0290	0258	0229	0204	0182	0163	0145	0093	0055	0033	0020
14	0870	0758	0661	0577	0505	0442	0388	0340	0299	0263	0232	0205	0181	0160	0141	0125	0078	0044	0025	0015
15	0861	0743	0642	0555	0481	0417	0362	0315	0275	0239	0209	0183	0160	0140	0123	0108	0065	0035	0020	0011
16	0853	0728	0623	0534	0458	0394	0339	0292	0252	0218	0188	0163	0141	0123	0107	0093	0054	0028	0015	0008
17	0844	0714	0605	0513	0436	0371	0317	0270	0231	0198	0170	0146	0125	0108	0093	0080	0045	0023	0012	0006
18	0836	0700	0587	0494	0416	0350	0296	0250	0212	0180	0153	0130	0111	0095	0081	0069	0038	0018	0009	0005
19	0828	0686	0570	0475	0396	0331	0277	0232	0194	0164	0138	0116	0098	0083	0070	0060	0031	0014	0007	0003
20	0820	0673	0554	0456	0377	0312	0258	0215	0178	0149	0124	0104	0087	0073	0061	0051	0026	0012	0005	0002
21	0811	0660	0538	0439	0359	0294	0242	0199	0164	0135	0112	0093	0077	0064	0053	0044	0022	0009	0004	0002
22	0803	0647	0522	0422	0342	0278	0226	0184	0150	0123	0101	0083	0068	0056	0046	0038	0018	0007	0003	0001
23	0795	0634	0507	0406	0326	0262	0211	0170	0138	0112	0091	0074	0060	0049	0040	0033	0015	0006	0002	0001
24	0788	0622	0492	0390	0310	0247	0197	0158	0126	0102	0082	0066	0053	0043	0035	0028	0013	0005	0002	0001
25	0780	0610	0478	0375	0295	0233	0184	0146	0116	0092	0074	0059	0047	0038	0030	0024	0010	0004	0001	0001
30	0742	0552	0412	0308	0231	0174	0131	0099	0075	0057	0044	0033	0026	0020	0015	0012	0004	0001	•	•
35	0706	0500	0355	0253	0181	0130	0094	0068	0049	0036	0026	0019	0014	0010	0008	0006	0002	•	•	•
40	0672	0453	0307	0208	0142	0097	0067	0046	0032	0022	0015	0011	0008	0005	0004	0003	0001	•	•	•
45	0639	0410	0264	0171	0111	0073	0048	0031	0021	0014	0009	0006	0004	0003	0002	0001	0000	•	•	•
50	0608	0372	0228	0141	0087	0054	0034	0021	0013	0009	0005	0003	0002	0001	0001	0001	•	•	•	•

* PVIF = 000 when rounded off to three decimal places

Table 4: Present-value interest factors for a R1 annuity discounted at k per cent for n periods

$$PVIFA_{k\,n} = \sum_{t=1}^{n} \frac{1}{(1+k)^t}$$

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
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	0.833	0.800	0.769	0.741
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736	1.713	1.690	1.668	1.647	1.626	1.605	1.528	1.440	1.361	1.289
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	2.106	1.952	1.816	1.696
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	2.589	2.362	2.166	1.997
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	2.991	2.689	2.436	2.220
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	3.326	2.951	2.643	2.385
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868	4.712	4.564	4.423	4.288	4.160	4.039	3.605	3.161	2.802	2.508
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	3.837	3.329	2.925	2.598
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759	5.537	5.328	5.132	4.946	4.772	4.607	4.031	3.463	3.019	2.665
10	9.471	8.983	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	4.192	3.571	3.092	2.715
11	10.37	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495	6.207	5.938	5.687	5.453	5.234	5.029	4.327	3.656	3.147	2.752
12	11.26	10.58	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814	6.492	6.194	5.918	5.660	5.421	5.197	4.439	3.725	3.190	2.779
13	12.13	11.35	10.63	9.986	9.394	8.853	8.358	7.904	7.487	7.103	6.750	6.424	6.122	5.842	5.583	5.342	4.533	3.780	3.223	2.799
14	13.00	12.11	11.30	10.56	9.899	9.295	8.745	8.244	7.786	7.367	6.982	6.628	6.302	6.002	5.724	5.468	4.611	3.824	3.249	2.814
15	13.87	12.85	11.94	11.12	10.38	9.712	9.108	8.559	8.061	7.606	7.191	6.811	6.462	6.142	5.847	5.575	4.675	3.859	3.268	2.825
16	14.72	13.58	12.56	11.65	10.84	10.11	9.447	8.851	8.313	7.824	7.379	6.974	6.604	6.265	5.954	5.668	4.730	3.887	3.283	2.834
17	15.56	14.29	13.17	12.17	11.27	10.48	9.763	9.122	8.544	8.022	7.549	7.120	6.729	6.373	6.047	5.749	4.775	3.910	3.295	2.840
18	16.40	14.99	13.75	12.66	11.69	10.83	10.06	9.372	8.756	8.201	7.702	7.250	6.840	6.467	6.128	5.818	4.812	3.928	3.304	2.844
19	17.23	15.68	14.32	13.13	12.09	11.16	10.34	9.604	8.950	8.365	7.839	7.366	6.938	6.550	6.198	5.877	4.843	3.942	3.311	2.848
20	18.05	16.35	14.88	13.59	12.46	11.47	10.59	9.818	9.129	8.514	7.963	7.469	7.025	6.623	6.259	5.929	4.870	3.954	3.316	2.850
21	18.86	17.01	15.42	14.03	12.82	11.76	10.84	10.02	9.292	8.649	8.075	7.562	7.102	6.687	6.312	5.973	4.891	3.963	3.320	2.852
22	19.66	17.66	15.94	14.45	13.16	12.04	11.06	10.20	9.442	8.772	8.176	7.645	7.170	6.743	6.359	6.011	4.909	3.970	3.323	2.853
23	20.46	18.29	16.44	14.86	13.49	12.30	11.27	10.37	9.580	8.883	8.266	7.718	7.230	6.792	6.399	6.044	4.925	3.976	3.325	2.854
24	21.24	18.91	16.94	15.25	13.80	12.55	11.47	10.53	9.707	8.985	8.348	7.784	7.283	6.835	6.434	6.073	4.937	3.981	3.327	2.855
25	22.02	19.52	17.41	15.62	14.09	12.78	11.65	10.67	9.823	9.077	8.422	7.843	7.330	6.873	6.464	6.097	4.948	3.985	3.329	2.856
30	25.81	22.40	19.60	17.29	15.37	13.76	12.41	11.26	10.27	9.427	8.694	8.055	7.496	7.003	6.566	6.177	4.979	3.995	3.332	2.857
35	29.41	25.00	21.49	18.66	16.37	14.50	12.95	11.65	10.57	9.644	8.855	8.176	7.586	7.070	6.617	6.215	4.992	3.998	3.333	2.857
40	32.83	27.36	23.11	19.79	17.16	15.05	13.33	11.92	10.76	9.779	8.951	8.244	7.634	7.105	6.642	6.233	4.997	3.999	3.333	2.857
45	36.09	29.49	24.52	20.72	17.77	15.46	13.61	12.11	10.88	9.863	9.008	8.283	7.661	7.123	6.654	6.242	4.999	4.000	3.333	2.857
50	39.20	31.42	25.73	21.48	18.26	15.76	13.80	12.23	10.96	9.915	9.042	8.304	7.675	7.133	6.661	6.246	4.999	4.000	3.333	2.857