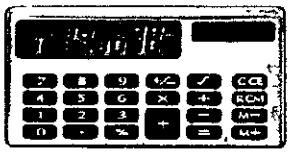
UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

UNISA university of south africa

FIN3701 (492333) May/June 2013
RFI3701 (475108)

FINANCIAL MANAGEMENT

Duration 2 Hours 70 Marks

EXAMINERS

FIRST	MS MD PHANGO
SECOND	MR MA PHENYA
EXTERNAL	PROF HP WOLMARANS

Use of a non-programmable pocket calculator is permissible

Closed book examination.

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This paper consists of 21 pages, including pages for rough work (pp 19-21) and interest tables (pp. i-iv), plus instructions for completion of a mark reading sheet.

INSTRUCTIONS:

SECTION A: Answer multiple choice questions on the mark reading sheet.

SECTION B: Answer the three long questions using the space provided below the questions. No rough work will be marked.

[TURN OVER]

SECTION A **[20 MARKS]**

Use the information provided below to answer questions 1 and 2.

City Fashion Ltd is considering expanding its range of clothing by introducing knit-wear to increase its market share The knitwear range will cost R200 000 and this project will run for five years to enable City Fashion to assess its viability The new range is expected to increase inventory by R3 000, accounts receivable by R2 000, accounts payable by R4 000 and accruals by R 6 000 The new range will be depreciated on a straight line method over its five year useful life and will have no residual value at the end of the five years

Revenue is expected to be R20 000 for the first year and is expected to increase by R5 000 per year thereafter. Operating costs, including market research costs of R5 000, are expected to be R15 000 in the first year and are expected to increase by R1 500 per year thereafter The company has cost of capital of 12% and pays 30% tax

1 Calculate the initial investment of the project

1 R200 000
2 R195 000
3 R152 000
4. R147 000

2 Calculate the net operating cash flow for the third year of the project

1 -R23 000
2 R17 000
3. R23 900
4. R30 000

3. Read the following statements and choose the correct one

1 For replacement projects, the installed cost of an asset is used as the cash outflow at the beginning of the investment period for the NPV calculation
2 The NPV of a relatively long-term project is more sensitive to changes in the cost of capital than the NPV of a short-term project
3 The NPV of a relatively short-term project is more sensitive to changes in the cost of capital than the NPV of a long-term project
4 Incremental cash flows are used in the NPV calculation for expansion and replacement projects

Use the information provided below to answer question 4.

Ivory Distributors Ltd is evaluating the replacement of a van with a truck The initial investment for the replacement is R220 000 The cost of capital to the company is 10% and the company is in the 30% tax bracket Depreciation per annum is R980 and R1 100 for the van and the truck respectively After-tax cash flows, including depreciation, are as follows

Year	Van	Truck
	R	R
1	6 000	7 500
2	5 100	7 500
3	6 500	8 000
4		6 000

4 The net present value (NPV) of the replacement project is closest to

1 -R212 477 58
2 -R211 427 84
3 -R205 447 03
4 -R196 874 87

Use the information provided below to answer questions 5, 6 and 7.

A company is evaluating two mutually exclusive projects (A and B). The company has a risk-free rate of 12%, a risk premium of 2% and is in the 30% tax bracket. Cash flows associated with the two projects are as follows

Year	Project A	Project B
	R	R
0	(500 000)	(325 000)
1	100 000	140 000
2	120 000	140 000
3	150 000	140 000
4	150 000	140 000

5 Calculate the internal rate of return (IRR) of project A and B respectively

1 10 48% and 25 97%
2 -10 48% and 25 97%
3 -1 48% and -4 77%
4 1 48% and 25 97%

6 Calculate the net present value (NPV) of project A and B respectively

1 -R129 886.83 and R82 919 72
2 -R112 956 27 and –R122 985 38
3 R112 956 27 and R82 919 72
4 R129 886 83 and R132 531 19

7 Which project should the company accept considering its IRR and NPV values?

1 Neither project should be accepted
2 Both projects should be accepted
3 Only project A should be accepted
4 Only Project B should be accepted

8. A company has a share price of R45 and expected earnings per share (EPS) of R6 80 Flotation costs are estimated at R5 and past period earnings per share amounted to R5.90 Calculate the cost of a new share if the company pays all earnings as dividends and choose the correct option

1 32 25%
2 28 11%
3 17 00%
4 15.11%

9 HighTech Systems Ltd's preference share is trading at R30 and it has flotation costs of 2 5% The company pays a regular preference dividend of R2 52 and its expected EPS is estimated at R7 20 Calculate the cost of a preference share and choose the correct option

1 27 00%
2 24 62%
3 11 62%
4 8 62%

10 Brass Equipment Ltd nets R50 after flotation costs of R8 and is expected to pay dividends of R20 The growth rate of dividends is estimated at 3% Calculate the cost of retained earnings of Brass Equipment and choose the correct option

1. 50 62%
2 43.00%
3 44 20%
4 37 48%

11 The following statements about the business risks of the three structures are correct, EXCEPT

1 Companies with high business risk tend towards highly leveraged capital structures
2 The operating breakeven point is inversely related to the selling price
3 The operating breakeven point is directly related to variable costs
4 The operating breakeven point is directly related to fixed costs

Use the information provided below to answer questions 12, 13, 14, 15 and 16.

A company is evaluating three operating and financial structures The company is in a 30% tax bracket and the Chief Financial Officer (CFO) compiled the following information

Operating structure	A	B	C
Units sold	5 000	10 000	20 000
Fixed costs (R)	45 000	30 000	90 000
Selling price (R)	25 00	17 50	29 00
Variable costs (R)	13 90	10 00	12 00
Expected EPS	0 60	0 18	0 36
Standard deviation of EPS	0 760	1 138	1 560
WACC	11%	11%	11%

12 The operating breakeven point for structures A, B and C respectively, is

1 9 000, 3 000 and 4 500
2 4 054, 4 000 and 5 294
3 4 000, 4 000 and 5 294
4 1 800, 1 714 and 3 103

13 The operational risk of the three structures from least to most risky is

1 A, B, C
2 B, C, A
3 B, A, C
4 C, A, B

14 The following statements about the financial risks of the three structures are correct, EXCEPT

1 The financial risk of structure B is higher than that of structure C
2 The financial risk of structure B is higher than that of structure A
3 The financial risk of structure C is higher than that of structure B
4 The financial risk of structure C is higher than that of structure A

15 Earnings before interest and tax (EBIT) associated with structure B is

1 R20 000
2 R25 000
3 R30 000
4 R45 000

16 The value of the company under structure B is

1 R286 363 64
2 R190 990 09
3 R159 090 91
4 R127 272 73

17 Clark Removals has 1 200 000 ordinary shares trading at R1 50 par value Clark Removals seeks to lower its share price by declaring a 3-for-1 share split Assuming that there are no preference shares outstanding for the company, the number of shares and par value of the share after the split is

1 1 200 000 shares at R1 00 par value
2 1 200 000 shares at R2 25 par value
3 1 800 000 shares at R1 00 par value
4 3 600 000 shares at R0 50 par value

18 Advantages of leasing from a lessee's point of view include the following, EXCEPT

1 The benefit that comes with the lessor and lessee being in different tax brackets
2 The high profitability that comes with exercising the cancellation clause
3 Operating flexibility during changing market conditions
4 Reduction of technological obsolescence risk

19 What are the typical reasons for a company to undertake a merger?

1 Maximising earnings per share
2 Financial and strategic
3 Financial
4 Strategic

20 Advantages of a holding company include the following, EXCEPT

1 Failure of one company does not result in the failure of the entire holding company
2 The control of larger amounts of assets than could be acquired through a merger
3 Lawsuits against a subsidiary do not threaten the remaining companies
4 Financing package to be used by the acquirer

[20]

SECTION B **[50 MARKS]**

ANSWER THIS SECTION IN THE SPACES PROVIDED

QUESTION 1 **(22 marks)**

MediPharm Ltd has optimal capital structure weights of 40% debt and 60% equity MediPharm is in the 30% tax bracket and is evaluating four independent investment proposals

PROJECT	INITIAL INVESTMENT (R)	INTERNAL RATE OF RETURN (IRR) (%)
A	100 000	17
B	200 000	15
C	125 000	14
D	100 000	11

MediPharm has no retained earnings and the senior financial analyst has gathered the following information

MediPharm can raise R150 000 through the sale of a R1 000 par value, 8% annual coupon rate and a ten-year debenture The debenture will be issued at 5% discount and R20 flotation cost per debenture Additional funds will be raised through the bank loan with an after-tax cost of 10%

R375 000 is available through retained earnings Additional funds will be raised through the issue of new ordinary shares The company pays a regular dividend of R10, has a growth rate of 3% and nets R87 30 after flotation costs The flotation costs are calculated at 3% of the par value (R90) of a share

1 1 Calculate the WACC associated with each range of financing/break-point (19)

1 2 In which project do you recommend that the company invest its funds? Give motivation for your choice (3)

QUESTION 2 **(10 marks)**

GoldStar Construction Ltd seeks to replace a grinding machine purchased two years ago for R76 000 with a new one The existing grinding machine has a useful life of four years and can be sold today for R55 000 with removal costs of R4 000 The machine was being depreciated over a four-year straight-line period

The cost price of the new grinding machine is R80 000 and will be depreciated over its five year useful life using a straight line method It will have no residual value and will be worth R0 at the end of its five year useful life The use of the new grinding machine is expected to increase current assets to R30 000 and current liabilities to R80 000
GoldStar Construction is in the 40% tax bracket

2 1 Calculate the terminal cash flow from the use of the new grinding machine Show all calculations (10)

QUESTION 3 **(18 marks)**

T & J Exporters has a total market value of R500 000 is currently evaluating three capital structures (30%, 40% and 50%-debt) without altering the total amount of financing required T & J Exporters' ordinary shares have a book value of R60 per share and the company has a dividend retention ratio of 70% Earnings available for ordinary shareholders are estimated at R35 000, R28 000 and R20 000 for the 30%, 40% and 50%-debt capital structures respectively

The corporate charter of the company authorises the issue of 5 000 ordinary shares internally and intends to use the same corporate charter for the next three years

3 1 Calculate the number of ordinary shares issued to existing ordinary shareholders for each of the capital structures under evaluation (9)

3 2 Calculate T & J Exporters' earnings per share (EPS) for each of the capital structures under evaluation (3)

3 3 Calculate the dividend per share each of the capital structures under evaluation (3)

3 4 Which capital structure would you recommend for T & J Exporters? Give motivation for your choice (3)

[50]
[TOTAL 70]

[TURN OVER]

ROUGH WORK

Interest tables

Table 1 Future-value interest factors for R1 compounded at k% 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% 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	*	*	*

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

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

Period	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14%	15%	16%	20%	25%	30%	35%
1	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	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	0 694	0 640	0 592	0 549
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	0 579	0 512	0 455	0 406
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	0 482	0 410	0 350	0 301
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	0 402	0 328	0 269	0 223
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	0 335	0 262	0 207	0 165
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	0 279	0 210	0 159	0 122
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	0 233	0 168	0 123	0 091
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	0 284	0 263	0 194	0 134	0 094	0 067
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	0 162	0 107	0 073	0 050
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	0 135	0 086	0 056	0 037
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	0 112	0 069	0 043	0 027
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	0 093	0 055	0 033	0 020
14	0 870	0 758	0 661	0 577	0 505	0 442	0 388	0 340	0 299	0 263	0 232	0 205	0 181	0 160	0 141	0 125	0 078	0 044	0 025	0 015
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	0 065	0 035	0 020	0 011
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	0 054	0 028	0 015	0 008
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	0 045	0 023	0 012	0 006
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	0 038	0 018	0 009	0 005
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	0 031	0 014	0 007	0 003
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	0 026	0 012	0 005	0 002
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	0 022	0 009	0 004	0 002
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	0 018	0 007	0 003	0 001
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	0 015	0 006	0 002	0 001
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	0 013	0 005	0 002	0 001
25	0 780	0 610	0 478	0 375	0 295	0 233	0 184	0 146	0 116	0 092	0 074	0 059	0 047	0 038	0 030	0 024	0 010	0 004	0 001	0 001
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	0 004	0 001	*	*
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	0 002	*	*	*
40	0 672	0 453	0 307	0 208	0 142	0 097	0 067	0 046	0 032	0 022	0 015	0 011	0 008	0 005	0 004	0 003	0 001	*	*	*
45	0 639	0 410	0 264	0 171	0 111	0 073	0 048	0 031	0 021	0 014	0 009	0 006	0 004	0 003	0 002	0 001	0 000	*	*	*
50	0 608	0 372	0 228	0 141	0 087	0 054	0 034	0 021	0 013	0 009	0 005	0 003	0 002	0 001	0 001	0 001	*	*	*	

* PVIF = 000 when rounded off to three decimal place

Table 4 Present-value interest factors for a R1 annuity discounted at k% 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

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PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e g PSY100 X
STUDIE-EENHEID bv PSY100-X

1

PAPER NUMBER
VRAESTELNOMMER

2

INITIALS AND SURNAME
VOORLETTERS EN VAN

3

DATE OF EXAMINATION
DATUM VAN EKSAMEN

4

EXAMINATION CENTRE (E G PRETORIA)
EKSAMENSENTRUM (BV PRETORIA)

5

STUDENT NUMBER
STUDENTENOMMER

6

7

UNIQUE PAPER NO
UNIEKE VRAESTEL NR

8

9

For use by examination invigilator

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1 USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
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6 CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
7 CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
8 DO NOT FOLD

BELANGRIK

1 GEBRUIK SLEGS N HB-POTLOOD OM HIERDIE BLAD TE VOLTOOI
2 MERK AS VOLG ■
3 KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
4 VUL U STUDENTENOMMER VAN LINKS NA REGS IN
5 KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
6 KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
7 MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
8 MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

10

1	c1 c2 c3 c4 c5	36	c1 c2 c3 c4 c5	71	c1 c2 c3 c4 c5	106	c1 c2 c3 c4 c5
2	c1 c2 c3 c4 c5	37	c1 c2 c3 c4 c5	72	c1 c2 c3 c4 c5	107	c1 c2 c3 c4 c5
3	c1 c2 c3 c4 c5	38	c1 c2 c3 c4 c5	73	c1 c2 c3 c4 c5	108	c1 c2 c3 c4 c5
4	c1 c2 c3 c4 c5	39	c1 c2 c3 c4 c5	74	c1 c2 c3 c4 c5	109	c1 c2 c3 c4 c5
5	c1 c2 c3 c4 c5	40	c1 c2 c3 c4 c5	75	c1 c2 c3 c4 c5	110	c1 c2 c3 c4 c5
6	c1 c2 c3 c4 c5	41	c1 c2 c3 c4 c5	76	c1 c2 c3 c4 c5	111	c1 c2 c3 c4 c5
7	c1 c2 c3 c4 c5	42	c1 c2 c3 c4 c5	77	c1 c2 c3 c4 c5	112	c1 c2 c3 c4 c5
8	c1 c2 c3 c4 c5	43	c1 c2 c3 c4 c5	78	c1 c2 c3 c4 c5	113	c1 c2 c3 c4 c5
9	c1 c2 c3 c4 c5	44	c1 c2 c3 c4 c5	79	c1 c2 c3 c4 c5	114	c1 c2 c3 c4 c5
10	c1 c2 c3 c4 c5	45	c1 c2 c3 c4 c5	80	c1 c2 c3 c4 c5	115	c1 c2 c3 c4 c5
11	c1 c2 c3 c4 c5	46	c1 c2 c3 c4 c5	81	c1 c2 c3 c4 c5	116	c1 c2 c3 c4 c5
12	c1 c2 c3 c4 c5	47	c1 c2 c3 c4 c5	82	c1 c2 c3 c4 c5	117	c1 c2 c3 c4 c5
13	c1 c2 c3 c4 c5	48	c1 c2 c3 c4 c5	83	c1 c2 c3 c4 c5	118	c1 c2 c3 c4 c5
14	c1 c2 c3 c4 c5	49	c1 c2 c3 c4 c5	84	c1 c2 c3 c4 c5	119	c1 c2 c3 c4 c5
15	c1 c2 c3 c4 c5	50	c1 c2 c3 c4 c5	85	c1 c2 c3 c4 c5	120	c1 c2 c3 c4 c5
16	c1 c2 c3 c4 c5	51	c1 c2 c3 c4 c5	86	c1 c2 c3 c4 c5	121	c1 c2 c3 c4 c5
17	c1 c2 c3 c4 c5	52	c1 c2 c3 c4 c5	87	c1 c2 c3 c4 c5	122	c1 c2 c3 c4 c5
18	c1 c2 c3 c4 c5	53	c1 c2 c3 c4 c5	88	c1 c2 c3 c4 c5	123	c1 c2 c3 c4 c5
19	c1 c2 c3 c4 c5	54	c1 c2 c3 c4 c5	89	c1 c2 c3 c4 c5	124	c1 c2 c3 c4 c5
20	c1 c2 c3 c4 c5	55	c1 c2 c3 c4 c5	90	c1 c2 c3 c4 c5	125	c1 c2 c3 c4 c5
21	c1 c2 c3 c4 c5	56	c1 c2 c3 c4 c5	91	c1 c2 c3 c4 c5	126	c1 c2 c3 c4 c5
22	c1 c2 c3 c4 c5	57	c1 c2 c3 c4 c5	92	c1 c2 c3 c4 c5	127	c1 c2 c3 c4 c5
23	c1 c2 c3 c4 c5	58	c1 c2 c3 c4 c5	93	c1 c2 c3 c4 c5	128	c1 c2 c3 c4 c5
24	c1 c2 c3 c4 c5	59	c1 c2 c3 c4 c5	94	c1 c2 c3 c4 c5	129	c1 c2 c3 c4 c5
25	c1 c2 c3 c4 c5	60	c1 c2 c3 c4 c5	95	c1 c2 c3 c4 c5	130	c1 c2 c3 c4 c5
26	c1 c2 c3 c4 c5	61	c1 c2 c3 c4 c5	96	c1 c2 c3 c4 c5	131	c1 c2 c3 c4 c5
27	c1 c2 c3 c4 c5	62	c1 c2 c3 c4 c5	97	c1 c2 c3 c4 c5	132	c1 c2 c3 c4 c5
28	c1 c2 c3 c4 c5	63	c1 c2 c3 c4 c5	98	c1 c2 c3 c4 c5	133	c1 c2 c3 c4 c5
29	c1 c2 c3 c4 c5	64	c1 c2 c3 c4 c5	99	c1 c2 c3 c4 c5	134	c1 c2 c3 c4 c5
30	c1 c2 c3 c4 c5	65	c1 c2 c3 c4 c5	100	c1 c2 c3 c4 c5	135	c1 c2 c3 c4 c5
31	c1 c2 c3 c4 c5	66	c1 c2 c3 c4 c5	101	c1 c2 c3 c4 c5	136	c1 c2 c3 c4 c5
32	c1 c2 c3 c4 c5	67	c1 c2 c3 c4 c5	102	c1 c2 c3 c4 c5	137	c1 c2 c3 c4 c5
33	c1 c2 c3 c4 c5	68	c1 c2 c3 c4 c5	103	c1 c2 c3 c4 c5	138	c1 c2 c3 c4 c5
34	c1 c2 c3 c4 c5	69	c1 c2 c3 c4 c5	104	c1 c2 c3 c4 c5	139	c1 c2 c3 c4 c5
35	c1 c2 c3 c4 c5	70	c1 c2 c3 c4 c5	105	c1 c2 c3 c4 c5	140	c1 c2 c3 c4 c5