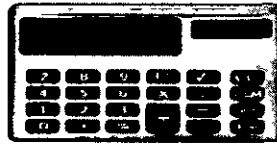


UNIVERSITY EXAMINATIONS



UNIVERSITEITSEKSAMENS

**UNISA**  university of south africa

**FIN3701**  
**MNF3015**

( 499405)

May/June 2012

( 480836)

**FINANCIAL MANAGEMENT**

Duration 2 Hours

70 Marks

**EXAMINERS**  
FIRST  
SECOND  
EXTERNAL

MS MD PHANGO  
MR AB SIBINDI  
PROF HP WOLMARANS

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Use of a non-programmable pocket calculator is permissible

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

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 40 multiple choice questions on the mark reading sheet.**

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

**SECTION A****[40 MARKS]****WRITE THE UNIQUE NUMBER IN THE MARK READING SHEET PROVIDED.**

- 1 A firm has contribution margin that amounts to R56 000, sales revenue of R67 000 and Net income of R90 000. The firm seeks to purchase a new machine at the cost of R500 000 and has a required return of 15%  
Calculate the simple rate of return to the firm

- 1 6,60%
- 2 14,20%
- 3 15,00%
- 4 18,00%

**Use the information given below to answer Question 23, 24, 25 and 26.**

Selby Industries is considering replacing its existing machine which was purchased 3 years ago at a cost of R1 million. The machine is depreciated at 20% per annum and can be sold today at R800 000. The new machine will cost R750 000 with R20 000 installation cost and R5000 transportation costs. The use of the new machine will decrease the working capital with R7 000. Assume a 40% capital gains tax per annum.

- 2 Calculate the book value of the existing machine

- 1 R200 000
- 2 R400 000
- 3 R640 000
- 4 R800 000

- 3 Calculate the tax implication from the sale of the existing machine

- 1 R156 000 tax liability
- 2 R156 000 tax benefit
- 3 R160 000 tax liability
- 4 R160 000 tax benefit

**[TURNOVER]**

4. Calculate the after-tax proceeds from the sale of the existing machine.
- 1 R120 000
  - 2 R640 000
  - 3 R840 000
  - 4 R920 000
- 5 Calculate the initial investment associated with the replacement of the existing machine
- 1 R 18 750
  - 2 R 25 750
  - 3 R142 000
  - 4 R577 000
6. What is the most common motive for adding fixed assets to the firm?
- 1 Renewal
  - 2 Expansion
  - 3 Replacement
  - 4 Transformation
- 7 When evaluating a capital budgeting project, the change in net working capital must be considered as part of ..
1. the initial investment
  - 2 the operating cash inflows
  - 3 the operating cash outflows
  - 4 the incremental operating cash inflows
- 8 What would be the tax treatment regarding the sale of existing assets that are sold for more than the book value and more than the original purchase price?
- 1 an ordinary tax benefit
  - 2 no tax benefit or liability
  - 3 recaptured depreciation taxed as ordinary income
  - 4 a capital gain tax liability and recaptured depreciation taxed as ordinary income

[TURNOVER]

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9. The rate of return that must be earned on investment projects in order for the firm to maintain the market value of its shares is called .

- 1 Cost of capital
- 2 Yield to maturity
- 3 Gross profit margin
- 4 Internal rate of return

10. A firm has investment capital of R1000 000 and is considering two projects, A and B. Project A cost R600 000 and has cash inflows of R500 000 in each of the next two years. Project B cost R600 000 and has cash inflows of R500 000 and R275 000 over the next two years. The firm has cost of capital of 10%. Which project should the firm choose?

1. Project A
2. Project B
3. Both projects are acceptable
4. Not enough information given to tell

**Use the information provided below to answer Question 11, 12 and 13.**

A firm with cost of capital of 10% is evaluating two projects, X and Y. The initial investment is R350 000 for project X and R425 000 for project Y. Cash inflows associated with the two projects are given below.

Year	Project X Cash inflows (R)	Project Y Cash inflows (R)
1	140 000	175 000
2	165 000	150 000
3	190 000	125 000
4		100 000
5		75 000
6		50 000

**[TURNOVER]**

- 11 Using the accept/reject approach or capital budgeting decision rules, which project would be regarded as acceptable if the firm is not subject to capital rationing?
- 1 Neither
  - 2 Project X
  - 3 Project Y
  - 4 Both projects
- 12 Assuming that the two projects are mutually exclusive, which project should the firm choose, based on the net present value (NPV) approach?
- 1 Neither
  - 2 Project X
  - 3 Project Y
  4. Both projects
- 13 Assuming that the two projects are mutually exclusive, which project should the firm choose, based on the Annualised NPV approach?
- 1 Neither
  - 2 Project X
  - 3 Project Y
  - 4 Both projects
- 14 A firm is considering investment in a project with an initial investment of R1 500 000. The project is expected to provide equal cash inflows of R400 000 over its 5 year useful life and has a risk index of 0.9. The firm's cost of capital is 9%, risk-free rate ( $R_f$ ) amounts to 6% and its Risk Adjusted Discount Rate (RADR) for all projects is calculated as follows  $RADR = R_f + \text{Risk Index} (\text{cost of capital} - R_f)$ . How much is the NPV of the project after adjusting for risk?
- 1 R 68 047,25
  2. R144 479,70
  3. R184 945,51
  - 4 R227 013,91

[TURNOVER]

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- 15 A capital investment is expected to have the following cash flows with associated certainty equivalents. If the risk-free rate ( $R_f$ ) is 10% and the Risk-adjusted discount rate (RADR) is 12%, use the certainty equivalents to determine the NPV

Year	Cash inflows (R)	Certainty equivalents
0	-100 000	1,0
1	30 000	0,2
2	40 000	0,4
3	50 000	0,6
4	9 000	0,8

- 1 R 4 043,44
  - 2 -R46 834,82
  3. -R53 865,17
  - 4 -R55 958,62
- 16 NPV is theoretically a better approach to capital budgeting due to all the following reasons EXCEPT
- 1 it maximises shareholder wealth
  - 2 for the reasonableness of the reinvestment rate
  - 3 it measures the benefits relative to the amount invested
  - 4 that there may be multiple solutions for an IRR computation
17. What is the theoretical basis from which the concept of risk-adjusted discount rate is derived?
- 1 The Gordon model
  2. Simulation theory
  - 3 The basic cost of money
  - 4 The capital asset pricing model

[TURNOVER]

**Question 18 and 19 are based on the information given below.**

Nigel Plumbing has beta of 0.4, risk-free rate of 2.5% and the market rate of return of 7%

18. Determine the risk premium of the market portfolio

- 1 2,50%
- 2 4,30%
- 3 4,50%
- 4 7,00%

19. Determine the cost of retained earnings for the firm

- 1 2,50%
- 2 4,30%
- 3 4,50%
- 4 7,00%

20. A firm has ordinary shares with a market price of R90 and an expected dividend of R5 per share next year. Dividends paid on ordinary shares over the past 3 years are given below

Year	Dividend (R/share)
2011	4,00
2010	2,00
2009	3,20

The cost of an ordinary share is

- 1 5,56%
- 2 13,60%
- 3 16,12%
- 4 17,36%

**[TURNOVER]**

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21. The firm has ordinary shares with market price of R50 each and has flotation costs of 3% per share. The firm expects to pay a dividend of 9 cents per share and dividend growth rate is expected to be 6%.

Calculate the cost of new ordinary shares

- 1 6,00%
- 2 6,19%
- 3 8,40%
- 4 25,00%

22. Magic Farming is in the process of incorporating debt into its totally equity financed capital structure. The company is considering an 80% debt ratio under which, a R25 000 loan will be provided by the Development Bank of South Africa (DBSA) at 7% interest rate. The company pays all earnings as dividends and has a share price of R20 per share. The company has expected earnings per share of R120 and is subject to 35% tax rate.

Calculate the weighted average cost of capital (WACC) of the company

- 1 4,42%
- 2 4,84%
- 3 6,80%
- 4 10,90%

23. Firms typically raise long-term funds ...

- 1 only at inception
- 2 on a continuous basis
- 3 in lump sums as needed
- 4 in proportion to the capital mixture of the target capital structure

24. A firm manufactures plastic belts and functions at full capacity. The price of one belt is R80 and variable cost for each belt is R50. The firm's fixed costs amount to R120 000. Calculate the break-even point in units.

- 1 900 units
- 2 2 400 units
- 3 1 500 units
- 4 4 000 units

[TURNOVER]



25. Zalu Cosmetics seeks to accumulate R120 000 in Net Profits. The firm has fixed operating costs of R81 000, sales price and variable cost per unit of R13 and R9, respectively. The operating break-even point in units amounts to .

- 1 9 750 units
- 2 1 240 units
- 3 10 300 units
- 4 20 250 units

**Use the information provided below to answer Question 26, 27 and 28.**

A firm has ordinary share price of R5 per share and pays all earnings as dividends. The firm is subject to 40% tax rate and has the following earnings and associated probabilities.

Earnings per share (R/share)	Probabilities
1 00	0.50
0 80	0 30
1 20	0.20

26. Determine the standard deviation of the earnings per share (EPS).

- 1 0,141
- 2 0,144
- 3 0,560
- 4 0,990

27 Determine the coefficient of variation of the earnings per share

- 1 0,141
- 2 0,144
- 3 0,560
- 4 0,990

28 Determine the cost of capital to the firm

- 1 5,10%
- 2 14,69%
- 3 19,60%
- 4 28,20%

**[TURNOVER]**

**Use the information provided below to answer question 29 and 30.**

A totally equity financed firm is considering introducing 10% debt into capital structure through issuing a R1 000 bond. The bond pays 14% coupon interest rate and has 10 years remaining to its maturity date. The yield to maturity of the bond is 12%.

29. Calculate the current price at which the bond can be issued (assume semi-annual interest payments)

1. R 930
2. R1 000
3. R1 070
4. R1 115

30. The bond sells at .

1. par
2. premium
3. discount
4. Book value

31. Shareholders generally dislike dividends that

1. increase
2. are fixed
3. are continuous
4. fluctuate with earnings

32. What is the effect of paying a share dividend on the retained earnings account of a firm?

1. It increases the account
2. Decreases the account
3. It has no effect on the account
4. It has an undetermined effect

**[TURNOVER]**

33 The problem with the regular dividend policy is that .

1. there is no informational content
2. it increases shareholder's uncertainty
3. if the firm's earnings drop so does the dividend payment
4. the company must pay a fixed dividend, even when the earnings are low

34 Dividend policy is a form of ...

1. financing policy
2. working capital policy
3. capital budgeting policy
4. dividend reinvestment policy

35. A firm has an optimal capital structure of 50% debt and 50% equity and it follows the residual theory of dividends. The capital budget of the firm for the following year is R400 000 and the retained earnings for the year are R310 000. How much is the retention rate of the firm?

1. 20%
2. 35%
3. 50%
4. 65%

36 A firm has issued warrants that are exercisable at R4 per share to purchase 6 ordinary shares of the firm with a market price of R5. The theoretical value of the warrant is closer to . .

1. R 2,50
2. R 4,60
3. R 6,00
4. R10,00

37 Which factor is most important when formulating the dividend policy?

1. Maximising shareholder wealth and providing for sufficient financing
2. Delaying the tax liability of the shareholder and the information content
3. Maintaining liquidity and minimising the weighted average cost of capital
4. Maximising shareholder wealth and delaying the tax liability of a shareholder

**[TURNOVER]**

38. What is the result when a firm acquires its supplier or a customer?

- 1 Vertical merger
- 2 Horizontal merger
- 3 Congeneric merger
- 4 Conglomerate merger

39 What are the typical reasons for undertaking mergers?

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

40 A firm is considering leasing equipment costing R50 000, with a useful life of two years and a zero residual value. If the annual interest rate on this type of financing is 24%, how much are the monthly payments?

1. R2 592
- 2 R2 644
- 3 R2 660
- 4 R2 698

[40]

[TURNOVER]

**SECTION B****[30 MARKS]****ANSWER THIS QUESTION ON THE SPACE PROVIDED.****QUESTION 1****(14 marks)**

Mason Ltd is currently considering the purchase of a new asset replace the existing one The company requires a return of 10% on all investments and is taxed at 30% The company is currently using an asset purchased at R810 000 and depreciated on straight line method for 4 years The existing asset will be sold for R75 000 if the replacement decision is successful.

The company must purchase either equipment A or equipment B

The following information relates to the two assets.

**Asset A**

The asset cost R750 000 and will have a useful life of not more than 8 years The company has a Net Income of R350 000 for the current year and will only purchase the asset if it has a payback period of not more than 5 years

**Asset B**

The asset cost R425 000 and the simple rate of interest to the company is 8% The company will use this asset for one year and sell it at R600 000. The asset will be depreciated at 20% for a year

The expected cash inflows associated with the asset are given below

<b>Year</b>	<b>Cash flow (R)</b>
1	175 000
2	150 000
3	125 000
4	100 000
5	75 000
6	50 000

**[TURNOVER]**

11 Compute the net present value for both assets and explain your findings to the management of the company and give recommendation(s) (7)

[illegible]

[TURNOVER]

1.2 Should the company decide to purchase asset B, what will the terminal cash flow associated with the purchase be? (7)

[illegible]

**[TURNOVER]**

## QUESTION 2

**(16 marks)**

A totally equity financed company with 10 000 outstanding ordinary shares, each with a book and market value of R35 is in the process of introducing debt into its capital structure. Funds raised through debt will be used to retire some of the shares and the company's aim is to maintain the same total amount of financing required. The company pays all its earnings as dividends and is subject to 30% tax rate. The expected sales are R530 000, fixed costs are estimated at R251 000 and variable costs are estimated at 30%.

The following capital structures are being considered

### Capital structure A at 40% debt ratio

**A loan provided by Standard Bank at 20 % per annum interest rate.**

### Capital structure B at 50% debt ratio

A loan provided by Capitec Bank at 18% per annum interest rate.

**2.1 Which capital structure would you advise the company to choose if its objective is to maximise earnings per share (EPS)? (8)**

[illegible]

**[TURNOVER]**



2.2 Calculate the weighted average cost of capital (WACC) for both 40% and 50% debt structures (4)

[TURNOVER]

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2 3 Which capital structure would you advise the company to choose if the aim is to maximise shareholder wealth? (3)

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2 4 Comment on the rationale for incorporating debt into a totally equity financed company (1)

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[30]

TOTAL [70]

[TURNOVER]

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## ROUGH WORK

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**[TURNOVER]**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**[TURNOVER]**

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[illegible]

[TURNOVER]

## Interest tables

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

$$FVIF_{kn} = (1 + k)^n$$

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 &gt; 99999

[TURNOVER]

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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	9 389	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	*	*	*

[TURNOVER]

Table 3 Present-value interest factors for R1 discounted at k% 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	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 = 0.000 when rounded off to three decimal place

[TURNOVER]



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

**PART 1 (GENERAL/ALGEMEEN) DEEL 1**

STUDY UNIT e.g. PSY100-X  
STUDIE-EENHEID by PSY100-X

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PAPER NUMBER  
VRAESTELNOMMER

STUDENT NUMBER  
STUDENTENOMMER

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c0	c0	c0	c0	c0	c0	c0	c0	c0	c0
c1	c1	c1	c1	c1	c1	c1	c1	c1	c1
c2	c2	c2	c2	c2	c2	c2	c2	c2	c2
c3	c3	c3	c3	c3	c3	c3	c3	c3	c3
c4	c4	c4	c4	c4	c4	c4	c4	c4	c4
c5	c5	c5	c5	c5	c5	c5	c5	c5	c5
c6	c6	c6	c6	c6	c6	c6	c6	c6	c6
c7	c7	c7	c7	c7	c7	c7	c7	c7	c7
c8	c8	c8	c8	c8	c8	c8	c8	c8	c8
c9	c9	c9	c9	c9	c9	c9	c9	c9	c9

INITIALS AND SURNAME  
VOORLETTERS EN VAN

DATE OF EXAMINATION  
DATUM VAN EKSAMEN

EXAMINATION CENTRE (E.G. PRETORIA)  
EKSAMENSENTRUM (BY PRETORIA)

UNIQUE PAPER NO  
UNIEKE VRAESTEL NR

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c0	c0	c0	c0	c0	c0	c0	c0	c0	c0
c1	c1	c1	c1	c1	c1	c1	c1	c1	c1
c2	c2	c2	c2	c2	c2	c2	c2	c2	c2
c3	c3	c3	c3	c3	c3	c3	c3	c3	c3
c4	c4	c4	c4	c4	c4	c4	c4	c4	c4
c5	c5	c5	c5	c5	c5	c5	c5	c5	c5
c6	c6	c6	c6	c6	c6	c6	c6	c6	c6
c7	c7	c7	c7	c7	c7	c7	c7	c7	c7
c8	c8	c8	c8	c8	c8	c8	c8	c8	c8
c9	c9	c9	c9	c9	c9	c9	c9	c9	c9

For use by examination invigilator  
Vir gebruik deur eksamenopsiener

**IMPORTANT**

1. USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
2. MARK LIKE THIS ➡
3. CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
4. ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
5. CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
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. GEBUIK 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**

1	c1	c2	c3	c4	c5
2	c1	c2	c3	c4	c5
3	c1	c2	c3	c4	c5
4	c1	c2	c3	c4	c5
5	c1	c2	c3	c4	c5
6	c1	c2	c3	c4	c5
7	c1	c2	c3	c4	c5
8	c1	c2	c3	c4	c5
9	c1	c2	c3	c4	c5
10	c1	c2	c3	c4	c5
11	c1	c2	c3	c4	c5
12	c1	c2	c3	c4	c5
13	c1	c2	c3	c4	c5
14	c1	c2	c3	c4	c5
15	c1	c2	c3	c4	c5
16	c1	c2	c3	c4	c5
17	c1	c2	c3	c4	c5
18	c1	c2	c3	c4	c5
19	c1	c2	c3	c4	c5
20	c1	c2	c3	c4	c5
21	c1	c2	c3	c4	c5
22	c1	c2	c3	c4	c5
23	c1	c2	c3	c4	c5
24	c1	c2	c3	c4	c5
25	c1	c2	c3	c4	c5
26	c1	c2	c3	c4	c5
27	c1	c2	c3	c4	c5
28	c1	c2	c3	c4	c5
29	c1	c2	c3	c4	c5
30	c1	c2	c3	c4	c5
31	c1	c2	c3	c4	c5
32	c1	c2	c3	c4	c5
33	c1	c2	c3	c4	c5
34	c1	c2	c3	c4	c5
35	c1	c2	c3	c4	c5

36	c1	c2	c3	c4	c5
37	c1	c2	c3	c4	c5
38	c1	c2	c3	c4	c5
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