

EXAMINATION

21 May 2012

Subject A302 Communications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details at the beginning of each question. Ensure that your candidate number appears at the top of each page handed in. [Select “Insert”, then “Header”, input your candidate number on blank header template and select “Close Header”.]*
2. *You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*
3. *You must not start typing your answers until instructed to do so by the supervisor.*
4. *Mark allocations are shown in brackets.*
5. *Attempt both questions, beginning your answer to each question on a new page*
6. *Candidates should show calculations where this is appropriate.*
7. *Candidates are required to do a word count.*

AT THE END OF THE EXAMINATION

Save your answers with the password provided and hand in your question paper.

<i>In addition to this paper you should have available the 2002 edition of the Formulae</i>

Question 1

Your brother, Peter, e-mailed you yesterday after reading a financial column in Farmer's Weekly. His e-mail included the following text extracted from the article:

Limiting bank service charges

It may be possible to reduce monthly bank charges by keeping a minimum balance in your bank account at all times. However, the opportunity cost of keeping such a balance should be borne in mind.

Debank specifics

The opportunity cost of keeping a minimum balance of R10 000 in their current account amounts to at least R40 p.m. for Debank home loan clients. Debank's home loan interest rate of 4,9% p.a. is the lowest available in the market.

Peter and his wife hold a joint current account at Basicbank. Their home loan is registered at Debank. Peter is considering moving their current account to Debank.

His e-mail concluded with "A reduction in bank charges sounds good, but what on earth is an opportunity cost? Would it be better for us to move to Debank or not? It would take at least 3 hours to sort out the paper work needed for such a move. A bit of sisterly analysis would be appreciated."

You needed some more information to be able to answer him. Since he is away for the next couple of days, you contacted his wife, Daphne. She sounded pleased at the prospect of no longer standing in long queues at Basicbank. After digging through their bank statements, she e-mailed you the following information:

- A normal month's bank account shows the following use of bank services: 2 cash withdrawals, 3 debit card payments, 4 stop orders, 5 payments via internet banking and 1 debit order.
- The pattern of monthly banking service use remained stable over the last 2 years. Daphne thinks that this pattern is likely to continue in future.
- They keep a negligible balance in their current account, regularly transferring excess funds to their home loan account. They are focussing on debt reduction before turning their attention to investment possibilities.
- At least R50 000 more than the amount required to keep up with bond repayments has been paid into their flexible home loan over the last 2 years.

Draft an e-mail to Peter in 400 to 500 words that will help him decide whether or not to transfer his current account to Debank. Focus on financial aspects of the decision, but briefly cover non-financial aspects. Include an explanation of the term 'opportunity cost'.

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Notes:

- Debank offers a R45 pm rebate on bank charges to clients who maintain a minimum balance of R10 000 in their account. Basicbank does not offer this option.
- No interest is earned on current account balances, including the minimum balance required by Debank under their rebate option.
- Basicbank and Debank charge a monthly administration fee of R80 and R90 respectively on their current accounts. Any fee rebate would reduce these amounts.
- You may assume that Debank's home loan interest rate will remain unchanged in future.
- The R40 quoted is correct and is based on the assumption that all months consist of 30 days. The amount need not be explained.
- Debank has just won the 2011/2012 customer service award.
- Peter and Daphne are equally knowledgeable about their financial affairs and share information to improve their financial situation. They both use the same e-mail address.
- Confine your consideration of opportunity cost to deposits into their flexible home loan account.
- Wikipedia defines opportunity cost as follows: the cost of any activity measured in terms of the value of the next best alternative forgone (that is not chosen). It is the sacrifice related to the second best choice available to someone, or group, who has picked among several mutually exclusive choices.
- Service charges at the two banks are as follows:

Transaction type	Fee per transaction (in R's)	
	Basicbank	Debank
Cash withdrawals	15	10
Debit card payments	4	5
Stop orders	15	15
Internet banking	5	35*
Debit orders	4	6

* Debank charges this flat fee for offering the facility, rather than a fee per transaction

- Create e-mail addresses where required.
- Indicate word count on your draft solution. Count your words from the subject line to the closing sentence without counting addresses or complimentary close/signature.

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Question 2

You live on Blissful, a small island in the Indian Ocean. Mr Marvin Green, a member of the Blissful Retirement Fund, is a week away from compulsory retirement at age 65 on 1 January 2013. He has written to you, the actuarial consultant for Blissful Retirement Fund, asking about his retirement choices.

Marvin revealed in his letter that he had just been diagnosed with a virulent type of cancer. He stated that there is only a 5% chance that he will live beyond 67 years. All previous patients with this type of cancer have passed away within 5 years of being diagnosed.

In the light of his diagnosis, Marvin wishes to know if he can do anything to maximise the amount of money he can expect to receive from the Blissful Retirement Fund during his lifetime.

Blissful Retirement Fund is a defined contribution scheme. Marvin's accumulated retirement money will be calculated at age 65. It is expected to amount to around B\$300 000. Blissful Retirement Fund members purchase annuities from The One Insurer, the only insurer on the island.

Marvin is permitted to take up to one third of his accumulated retirement money as a cash lump sum on retirement. The remainder of the money must be used to purchase an annuity which provides a pension in retirement.

Pensions are paid annually in advance. Fixed nominal pensions may be purchased, as may pensions which increase at a rate of 2% or 4% per annum. It is possible to buy a pension which ceases on death of the insured or one which ceases on the later of the insured's death or the end of a guaranteed period. Guaranteed periods of 5 or 10 years are offered.

Government regulations require The One Insurer to determine annuity prices using an investment return assumption of 6% per annum and longevity assumptions derived from a recent mortality study of Blissful residents. This mortality study confirmed that Blissful residents tend to live for a long time. An extract from the results of the study is shown in the table below:

Age (x)	\ddot{a}_x at 0%	\ddot{a}_x at 2%	\ddot{a}_x at 4%	\ddot{a}_x at 6%	\ddot{a}_x at 8%	l_x
65	18.276	16.569	14.513	12.077	9.044	8 821,2612
70	15.875	14.640	13.045	11.391	9.151	8 054.0544
75	13.524	13.179	12.409	11.567	8.243	6 879.1673

Write a letter of between 450 and 550 words to Marvin. Explain the options that are available to him on retirement and advise him as to how he can maximise his expected retirement income from the Fund. Marvin does not wish to be confused by too many numbers, but would like to know the rationale for your advice. Include a brief explanation of a fixed nominal annuity.

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Notes:

- You may give advice to Marvin and feel competent to do so.
- Marvin is a widower with no children.
- The Blissful government set a target range for inflation of between 4% and 6% p.a. in 1982. It has successfully constrained inflation to this range since then. Expected future Inflation is around 4% p.a.
- The Blissful government does not tax retirement savings or benefits (irrespective of the form of the benefit).
- You may ignore an insurer's profit, expenses and risk margins in any calculations that you make.
- The mortality information provided about patients who have been diagnosed with Marvin's type of cancer is accurate.
- Impaired life annuities are not available.
- You need not make up address details.
- Indicate word count on your draft solution. Count your words from the subject line to the closing sentence without counting addresses or complimentary close/signature.

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