

# Actuarial Society of South Africa

## EXAMINATION

19 May 2014 (a.m.)

### Subject A302 — Communications

*Time allowed: Three hours*

#### **INSTRUCTIONS TO THE CANDIDATE**

1. Candidates will be issued with instructions to log-in using a password (which you will be provided with at the exam center).
2. 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”].
3. Save your work continuously throughout the exam, on the provided computer’s hard drive.
4. You have 15 minutes at the start of the examination 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.
5. You must not start typing your answers until instructed to do so by the invigilator/supervisor.
6. Mark allocations are shown in brackets on exam papers.
7. Attempt all questions, beginning your answer to each question on a new page.
8. Candidates should show calculations where this is appropriate.
9. Candidates are required to do a word count – don’t forget to show this at the end of each question.

**Note: The Actuarial Society of South Africa will not be held responsible for loss of data where candidates have not followed instructions as set out above.**

#### **AT THE END OF THE EXAMINATION**

***Save your answers on the hard drive.***

<p><i>In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.</i></p>
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## Question 1

You work as a junior actuary in the benefits division within the Human Resources department of a large mining company. The company operates a defined contribution pension scheme for all its employees. Every employee receives a benefit statement at the beginning of every year which includes the fund value, the employee's chosen asset mix and a pension quotation should they choose to retire immediately. The employee also gets an opportunity to change the asset mix of the underlying fund at the beginning of each year.

Your colleague from the marketing department has written an email to you to query her pension quotation. She is currently 59 and has an accumulated pension fund of R1.8m. Her recent quotation revealed that this would provide an immediate pension of R11,000 per month.

Four years ago, when her pension fund was R1.4m and she was considering retiring at 55, she was quoted an immediate pension of R11,250 per month.

Your colleague wants to know why she doesn't get a better pension now (or a greater amount per month) given that she has a bigger fund to start with, and a pension at the age of 59 will be paid for fewer years than if it had commenced at age 55.

Draft an email to your colleague in 500 to 550 words to explain why the monthly pension amount has not grown.

### Notes:

- The quotations are based on open market annuity rates that are publicly available.
- New legislation that introduced a compulsory minimum guarantee period of 5 years and maximum 10 years was passed into law two years ago. The quotation from four years ago did not have a guarantee period while the recent quotation has a 5-year guarantee period.
- The pension is a single-life pension with no escalation. Apart from the guarantee period mentioned above, your answer should ignore other types of pension, alternatives to pension and any option to transfer fund proceeds to another company or commuting part of the fund to cash.
- It is compulsory for all employees to contribute a minimum of 5% of their cost to company salary as pension contribution. They have an option of paying an additional 10% into the fund.

**PLEASE TURN OVER**

- Interest rates used to calculate the cost of the pension are lower than they were four years ago. Equity markets have experienced a bull run with very good investment returns, while both the Reserve Bank's repo rate and bond yields available in the market have reduced.
- AIDS-related mortality has steadily improved over the past 10 years and the life insurance industry has reviewed the mortality bases to lower mortality rates.
- You should assume that your colleague is expected to experience standard mortality.
- Early retirement is permissible from the age of 50 for all employees.
- Ignore the effects of taxation.

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## Question 2

The government has recently launched a scheme to provide affordable housing for essential services workers (teachers, nurses, police officers and military personnel). The scheme offers preferential interest rates for interest-only and repayment mortgages, with the applicable interest being the repo rate, currently 5%. The terms of the mortgages are over 20 years or until retirement age of 65 for those who have less than 20 years until retirement. In addition, transfer duties are waived for mortgages of up to R1.5m.

You work as head of product development at Union Life Assurance Company. Union Life only sells non-profit life insurance contracts. The current suite of products comprises the following:

- Whole of life assurances;
- Level and decreasing term assurances;
- Level and escalating annuities; and
- Endowment assurances.

Union Life's controlling shareholder is Allied Teachers' Union, a trade union representing the majority of primary and secondary school teachers in government schools. The union has decided to support the government scheme by increasing union members' awareness of the scheme and providing premium discounts to its members who take up policies with Union Life.

You have been asked to draft an informative leaflet to union members explaining the scheme, its advantages and how Union Life's products can be used to support the scheme. A more detailed booklet and application forms are available on request.

Draft the text of the leaflet in 500 to 550 words. You should cover the following points:

- The mechanics of the government's key workers' scheme.
- The mortgage options available.
- The outstanding loan profiles under each mortgage option.
- How Union Life Assurance's products can be used to pay off the mortgage.

**PLEASE TURN OVER**

**Notes:**

1. With an interest-only mortgage, the monthly payment is simply interest on the loan. The loan itself is then repaid at the end of the mortgage term in a single payment - usually from the proceeds of a savings or investment plan. If the savings or investment plan does not produce a sufficient return to repay the loan, the customer will have to find the shortfall required.
2. With a repayment mortgage, the monthly repayments consist of repaying the capital amount borrowed as well as the accrued interest, so that the amount borrowed decreases throughout the term and by the end of the loan term has been fully repaid.
3. The Prime Rate is currently 9%. The business practice in the banking sector is to offer prime rate to customers with good credit records. Impaired credit records attract higher interest rates.
4. Ignore the impact of paying a deposit towards the mortgage.
5. All members of the union are eligible to join the government scheme.
6. Assume there are no penalties for early repayment of mortgages – members can repay the loan capital at any time without incurring early redemption penalties.
7. There are no plans to extend the current product range. You can ignore critical illness and disability/dread disease products in your presentation.
8. The retirement age is the same for both males and females.
9. There are no restrictions on the advice that you can provide in the leaflet.

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**END OF EXAMINATION**