Actuarial Society of South Africa

EXAMINATION

28 October 2013 (am)

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 your computers' hard drive that you have been provided.

4. 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.

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.

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.

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.

Question 1

You recently resigned from an actuarial consultancy firm to take up a position as a lecturer at RTG. One of the conditions of employment at RTG is that membership of their retirement fund is compulsory.

RTG contributes 15% of your monthly pensionable salary to the RTG Retirement Fund each month. Pensionable salary is set at 75% of an employee's gross monthly income.

You received an e-mail, dated 1 October 2013, from the RTG Retirement Fund. An excerpt of the contents is as follows:

Members will have the opportunity to make additional member contributions of up to 5% of their pensionable salary from 1 January 2014.

Members should note that additional contributions are made by the member and not, as is the case with existing contributions, by the employer. They are therefore made on an after-tax basis as an ordinary salary deduction.

No administration fees will be levied on additional member contributions. Investment charges will be levied on the additional member contributions.

The country in which RTG operates has a tax scale that varies according to income. No tax is recovered from those with a gross total income less than \$120 000 a year. A tax rate of 25% is applied to the taxable income of those with a gross total income between \$120 000 and \$300 000 (inclusive) a year. A tax rate of 40% is applied to the taxable income of those with a gross total income in excess of \$300 000 a year.

There are three categories of employees at RTG. There are prescribed gross monthly income bands for each category, as follows:

Employee Category	**Income band (monthly)**	**Minimum age**	**Maximum age**
Support staff	\$3 000 to \$4 500	20	65
Administrators	\$10 000 to \$15 000	20	65
Lecturers	\$30 000 to \$50 000	25	65

An alternative to making additional contributions to the RTG Retirement Fund is for an individual to contribute monthly to a retirement annuity. Such contributions enjoy a special tax status, in that they are excluded from taxable income and do not incur any other tax pre-retirement. This special tax status is limited to contributions of up to 15% of non-pensionable salary.

PLEASE REMEMBER TO SAVE

T Woodard's research paper, entitled "*The impact of administration fees on retirement savings*", states that administration fees charged by retirement annuity providers eat into retirement savings. This results in a reduction in retirement benefits. The effect of these fees is larger for shorter periods of regular contributions than for longer periods. The effect of fees is illustrated by calculating the equivalent reduction in monthly contributions, which would be 30% for those contributing for 20 years and 18% for those contributing for 40 years.

In the light of this article, you feel that it is imperative for the trustees to recommend that some RTG employees receive individual advice before deciding to place any additional retirement savings in the RTG Retirement Fund. After considering your circumstances, you have decided to invest 3% of your monthly pensionable salary in a retirement annuity.

Draft an email of 450 to 550 words explaining your concern to Koos van Rooyen, a colleague from the Agricultural Department who is Chairman of the Board of Trustees of the RTG Retirement Fund. Explain logically why you feel that certain staff members would be better off investing additional retirement savings in a retirement annuity than the RTG Retirement Fund.

The only differences that need to be considered between paying additional contributions to the RTG Retirement Fund and investing in an individual retirement annuity are the relative tax treatment of such payments and the administration costs.

Notes:

- Post retirement income from any source is taxed in the same manner.
- Assume that any additional contributions will be made on a regular basis until retirement.

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PLEASE REMEMBER TO SAVE

Question 2

You are an actuary working in a non-traditional field who has not written the statutory exams required to give actuarial advice. However, that does not stop family and friends from asking for your opinion.

Mrs Good, one of the secretaries at your firm, recently asked what she should do with about R20 000 of 'spare' money that she has available to invest. You successfully redirected the question. The next day she asked "What does investment risk mean? Can I ever lose everything I have invested?" Questions on RSA Retail Savings bonds came two days later.

You now have some spare time and wish to provide more information than office chat has allowed so far. You have decided to compile and e-mail to her fact sheets on various types of investments. You decide to start with RSA Retail Savings Bonds (RSBs).

Draft a fact sheet on RSBs of between 450 and 550 words. Create a table comparing the main features of RSBs at the end of the fact sheet.

The draft should briefly cover RSBs' income, costs, accessibility of invested capital, maturity proceeds and default risk. You are still contemplating how to state and compare expected returns on the various instruments. Exclude this information from your draft.

You have downloaded various excerpts of information from the government's RSA Retail Savings Bonds website:

To finance the government's budget deficit, the National Treasury issues various types of financial instruments to the capital and money market. Investors, including individuals, may buy Fixed Rate or Inflation Linked Retail Savings Bonds. Capital and income proceeds are guaranteed as such instruments are tied to the South African government.

Fixed Rate Retail Savings Bonds earn a market-related fixed interest rate and bi-annual interest is payable on the interest payment dates until maturity. Different interest rates apply to each of the maturities in the series consisting of 2-year, 3-year and 5-year terms.

Capital amounts invested in Inflation Linked Retail Savings Bonds are inflation adjusted over the term, and a floating interest rate (derived from the government inflation linked bond yield curve) is payable every 6 months on the interest payment dates. The capital amount is inflation adjusted bi-annually on the interest payment dates until maturity. Interest is payable until maturity. Bonds of 3-year, 5-year or 10-year maturity are issued. The date of issue is termed the base date.

Interest rates for RSA Retail Savings Bonds are priced off the RSA Government Bond yield curve. New interest rates for Fixed Rate Retail Savings Bonds are determined by interpolating the equivalent yields of the 2-year, 3-year and 5-year government bonds on the last business day of each month. The interest rates of new Inflation Linked Retail Savings Bonds are based on 3-year, 5-year and 10-year government inflation linked bonds on the date of issue.

PLEASE REMEMBER TO SAVE

For Inflation Linked RSBs, interest payments are determined according to the following formula:

$$(\frac{c}{2}) \times index\ ratio$$

'c' is the coupon rate
'index ratio' is the reference Consumer Price Index on the calculation date divided by the base rate Consumer Price Index

Investors in Fixed Rate RSBs may choose not to receive their interest payments on the payment dates, but rather to reinvest the payments. Such reinvestments then form part of the capital balance and attract interest at the same rate as the capital amount. This option is not available for Inflation Linked RSBs. Investors have the option of reinvesting the amount due to them on maturity in any RSBs at the prevailing interest rate.

An investor may make a withdrawal of his/her capital balance after 12 months from the base date. A penalty is imposed on the withdrawal amount. The penalty is equal to approximately the last interest payment made and will be deducted from the withdrawal amount before being repaid to an investor. Payment of the remaining withdrawal amount will be made into the investor's designated bank account within 20 business days of the date of receipt of the application.

There are no charges, commission or costs associated with RSB investments.

Notes:

1. You looked at the above Government excerpts on their website and decide to re-write these so that they'll make sense to a lay investor like Mrs Good.
2. You may assume that the final interest payment coincides with the maturity date of the investment.
3. You may assume that the only technical aspect of the fact sheet that Mrs Good understands is the term 'consumer price inflation' as you have previously explained it to her.
4. Do not include any facts not provided in the above box.
5. Do not create items in the summarising table not covered in the above box.

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