

EXAMINATION

28 October 2015

Subject F202 — Life Insurance Specialist Applications

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. Candidates are required to submit their answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*
- 3. Save your work continuously throughout the exam, on your computer's 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.*

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.

Hand in your question paper with any additional sheets firmly attached.

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

An established South African Life Assurance company sells a wide range of risk, savings and annuity products. The annuity book consists of conventional annuities (including fixed increases) and investment-linked annuities (Living Annuities).

One of the European directors has commented that unisex annuity rates are currently in use in Europe through an EU ruling. He is interested in the implications of this ever occurring in South Africa.

- (i) Describe how the company would implement this if necessary for the annuity products and the implications thereof. [10]
- (ii) Describe how the annuity book contributes to the company's overall Capital Adequacy Requirements (CAR) and how this contribution will change under the Solvency Assessment and Management (SAM) regime? [10]
- (iii) Discuss the differences in the features and risks of non-profit annuities with fixed increases and investment-linked annuities. [10]

A new type of annuity product has been proposed within the company. Annuitants will purchase a guaranteed number of retirement income units, that are payable for life. The number of retirement income units is calculated and fixed at inception. The price of the units changes in line with the investment performance of the annuitant's chosen investment portfolio (after investment and management fees). On each policy anniversary, the annual amount of the annuity payable is calculated as the number of units multiplied by the unit price. A joint-life option is also offered.

- (iv) Discuss the advantages and disadvantages of this product for both the policyholder and the company. (Assume a compulsory purchase annuity.) [15]

Feedback from the marketing department is that the initial pension payable may be too low to meet the immediate needs of some retirees. An income acceleration option is proposed. In return for a higher starting number of units, an additional fee of 3% per annum is deducted from the investment performance.

- (v) Describe how the acceleration option affects the factors in (iv) above as well as any other considerations that need to be taken into account. [5]

[Total 50]

REMEMBER TO SAVE

PLEASE TURN OVER

QUESTION 2

A South African life insurance company currently uses traditional measures such as value of new business and new business profit margin to assess the shareholder value added to the company by new business. The financial director is concerned that these measures are not appropriate.

- (i) Define “new business profit margin” and describe the purpose of this measurement. [7]
 - (ii) Discuss the appropriateness of using the “new business profit margin” as a measure to assess the contribution to profit (for risk and savings products) as well as practical reasons why the company may be concerned with finding a better measure for new business profit contribution. [10]
 - (iii) Propose a more useful measure of profitability for assessing the value added by new business. This proposal should address any shortfalls of the current measures being used, specifically for savings products, and include the advantages of your proposal. [5]
- [Total 22]

QUESTION 3

A South African life insurance company writes regular premium unit-linked endowment business. The benefit payable on death, surrender and maturity is the value of the units.

- (i) A financial soundness valuation needs to be performed.
 - Describe the principles for setting a best estimate assumptions basis and set out, with reasons, a suitable best estimate basis that can be used for calculating the non-unit reserve.
 - Describe the adjustments required to the best estimate assumption basis to arrive at a financial soundness valuation basis. (Ignore any references to discretionary margins)[23]

Another SA life insurance company writes only single premium unit linked investment policies. A typical policy has a current unit value of R100 000. The death benefits are 101% of the value of units, and the surrender benefits are 100% of the value of units, but a surrender penalty of 5% of the fund applies during the first five years. The annual management charge is 1% of the fund.

- (ii) Explain why the non-unit reserve for a typical policy is likely to be zero. [5]
- [Total 28]
[Grand Total 100]

END OF PAPER