EXAMINATION

17 May 2019

Subject F202 — Life Insurance Specialist Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Follow log in and saving instructions issued to you at the exam venue.*

2. *Save your work throughout the exam.*

3. *You are required to submit your answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*

4. *You have 15 minutes at the start of the exam 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.*

7. *Attempt all questions, beginning your answer to each question on a new page.*

8. *You should show calculations where this is appropriate. If necessary, an answer book may be used for this purpose.*

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

Check that you have saved your work as per instructions given to you.
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

A South African life insurer has the following portfolios of business:

- Annually renewable group risk business. The group insurance provides Death and Income Protection cover.
- Term assurance business.
- A portfolio of conventional with profit endowment business which has been closed to new business for 15 years (the other portfolios are still open to new business). The funding ratio at the previous valuation was 95%.

i. Describe the reserving methodology that would be used to determine the liabilities for each of the three lines of business and list the different reserves that should be considered (valuation basis not required). [6]

The matching strategy of the business is reviewed on an annual basis before the financial year end.

ii. Outline the approach that would be used to match the liabilities. [13]

Over the last three months the entire yield curve has shifted downwards, more significantly at the longer durations. During the nine months prior to the yield curve shift, the duration of the assets supporting the long-term liabilities became much shorter than the duration of the liabilities for all lines of business.

The change in the matching position over the year is being reviewed.

iii. Highlight possible reasons for the mismatch before the downward shift in the yield curve. [4]

iv. Discuss the likely impact on the following components of the valuation result due to the noted asset-liability mismatch and the change in yield curve:

- Surplus
- Best estimate supportable bonus rate [8]

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Over the course of the financial year, risk experience losses were made on the Group Income Protection business. This needs to be considered in the setting of the reserves, financial reporting and a possible review of the pricing assumptions.

v. Explain the likely impact of higher claims experience on reserves and the Embedded Value calculations (Income Protection business only). [7]

With the deterioration in experience, a review of the risk assumptions in the pricing basis of the Income Protection business is being considered.

vi. Describe how the risk assumption review should be performed as well as the factors that should be considered when performing the review. [12]

[Total 50]

QUESTION 2

A proprietary life insurance company has written accumulating with profits policies for the last ten years. It manages bonus declarations using both regular and terminal bonuses, which are normally declared annually. The company may apply a market value adjuster, if the investment market circumstances justify it and the policy contract allows it. The assets backing the policyholder liabilities are invested in equities, fixed interest investments and a small portion in cash. Business is sold largely through insurance intermediaries.

i. Distinguish between the appropriate use of regular and terminal bonuses when distributing surplus. Also state the sources of surplus that are likely to be distributed by regular bonus and those that are likely to be distributed by terminal bonus. [6]

ii. Describe the factors that the company is likely to have considered when setting the level of regular bonus when it first decided to offer accumulating with profits business. [7]

After many years of steady equity growth, the equity market has now fallen for three years in a row.

iii. Discuss the factors that would have been considered in determining the declarations of regular bonus over the last three years. [12]

iv. Set out the benefit payments for the with profits business, considering both the payments at contractual payment dates as well as discretionary payments. Discuss how these different benefit payments would have been managed over the last three years. [5]

[Total 30]

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QUESTION 3

A South African proprietary life insurance company with a significant with profit portfolio of products is considering options to maximize the value it generates for its shareholders.

i. Explain the difference between the free assets of the life insurance company and the bonus stabilisation reserve (BSR) [also known as the bonus stabilisation account (BSA)] of the with-profit products. [4]

ii. Describe the bonus stabilisation reserve (BSR) and how it is used to manage the solvency of a with-profits portfolio. [5]

iii. Describe how the BSR and the free assets can be used as part of the financial management of the life insurance company to increase the value of the company to its shareholders. [11]

[Total 20]

[Grand Total 100]

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END OF PAPER

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