EXAMINATION

28 May 2012 (am)

Subject F202 — Life Insurance Specialist Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

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 writing your answers in the booklet until instructed to do so by the supervisor.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all questions, beginning your answer to each sub question on a separate sheet.*

6. *Candidates should show calculations where this is appropriate.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

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.

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QUESTION 1

A large South African proprietary life insurer sells a wide range of products, including individual risk only policies and unit linked retirement annuities.

The Marketing Director has suggested that risk only policies and unit linked retirement annuities be packaged together as single policies, with the aim of improving tax efficiency. The combined policies would therefore be retirement annuities that provide risk benefits in addition to unit linked savings benefits.

i. Explain how the tax treatment would be altered under this proposal (both in respect of the company and clients), and outline the issues to consider in assessing the proposal. [11]

ii. Describe the maximum commission payable on a combined policy as described above. Ignore clawing back of commission. [4]

[Total 15]

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QUESTION 2

You are a consulting actuary working in the South African life insurance industry. You specialise in financial soundness valuation and embedded value reporting and you have consulting relationships with a number of life insurers.

i. When reporting on embedded values describe how you would distinguish between new business premiums and renewal premiums for a reporting period when calculating the value of new business and the value of in-force business respectively. [5]

One of your clients is a life insurer that has a large portfolio of non-profit annuities. The company uses a yield curve in performing its valuations. The company does not write inflation linked annuities. The company is considering how to perform an analysis of change on its embedded value for the reporting period.

ii. Explain which assumptions could give rise to experience variations and which of these are likely to be most significant. Discuss possible reasons for the experience variation for each of the assumptions. [14]

A second client is a listed life insurer that writes risk only products offering disability benefits. The company noticed significant adverse experience variation due to disability claims. The company is considering adjusting the disability decrement assumptions used in calculating the embedded values to move in line with this experience.

iii. Discuss the factors the statutory actuary needs to consider before making such a change. [8]

After taking into consideration the factors discussed in iii (above) the statutory actuary decides to increase the disability decrement assumptions. Assume that the negative experience variation was R 10 m in the last year and that the risk only product offering the disability benefits is valued on a prospective basis.

iv. Estimate the impact you expect on the embedded value. How would the impact differ if the company zeroised its negative rand reserves? [8]

[Total 35]

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QUESTION 3

You are the consulting actuary to a life insurer in South Africa which has a subsidiary in a neighbouring territory with a similar regulatory framework to South Africa. The subsidiary writes a range of unit linked and smoothed bonus savings products, together with non-profit annuities and pure risk products. The territory has experienced severe economic instability to the extent that the currency has recently been rebased to be linked to the Rand.

The implication of this is that the existing currency falls away and becomes worthless and the economy starts trading in Rand. Consequently all assets require new values expressed in Rand.

Prior to the rebasing the economy was characterised by hyperinflation and an extreme devaluation of the currency against the Rand. As a result all the assets of the subsidiary have been re-valued in Rand terms. In particular the assets were affected as follows:

Property: Re-valued based on independent valuators' assessment in Rand. Considerable loss in value.

Equity: Market value of stock based on Rand value of shares as local stock exchange now quoted in Rand.

Government bonds: The government has defaulted and no recovery is expected.

Cash: No value.

[You can assume these were the only asset classes held by the subsidiary]

You have been asked by the company to determine the solvency position of the subsidiary in Rand, and rebase all policy values in Rand terms.

i. Explain how you would go about equitably allocating the Rand valued assets to shareholders and individual policyholders and accordingly how you would determine the new benefit value for individual policyholders? [17]

As expected a number of the individual annuity values are very low in Rand terms and management has proposed implementing a minimum annuity amount on conversion. They further suggested that the cost of the minimum be funded from the bonus stabilisation reserve (BSR) available in the smoothed bonus portfolio.

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ii. Outline how you would go about determining the cost of implementing the minimum and discuss the suggestion, mentioning potential alternatives to funding the cost. [11]

The company decides not to implement any minimum annuity on conversion.

iii. Explain how you would manage the level of the BSR going forward and discuss the factors that you would take into account when setting bonus rates. [22]

[Total 50]

Grand Total [100]

END OF PAPER

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