SA stage subjects

Actuarial Society of South Africa

EXAMINATION

13 May 2010 (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 question on a separate sheet.*

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.

QUESTION 1

You are the recently appointed statutory actuary to a proprietary life insurance company that underwrites a block of credit life insurance. This particular block of business has the following features:

- The sum assured is equal to the outstanding balance on the insured's credit card.
- The sum assured is payable on the death or permanent disability of the insured.
- Premiums are payable monthly, based on the outstanding balance at the start of the month.
- The premiums are reviewable and set to realise a reasonable profit margin.
- The insurance cover terminates with the termination of the credit card facility.
- The credit card business represents around 20% of the insurers business (measured using premium volume).
- There is no profit sharing arrangement with the credit provider.

The previous statutory actuary has to date used a retrospective valuation method to establish reserves on the business and has in the past indicated to management that not enough experience data have been collected to perform a prospective valuation.

i. Briefly explain why a retrospective valuation method may be appropriate under these circumstances and describe how you would establish an appropriate retrospective reserve for this block of business.

[9]

The company informs you that they have collected at least 4 years of credible experience data.

ii. Describe how you would establish an appropriate prospective reserve and outline the experience investigations you would perform to inform the valuation assumptions.

[14]

iii. Discuss the factors that you will need to consider before deciding on an appropriate valuation methodology.

[8]

[Total 31]

PLEASE TURN OVER

QUESTION 2

A South African proprietary life insurance company, Company A, has for many years sold mainly whole life risk only products. The risk only product range currently consists of death cover with dread disease and disability benefits which are sold as accelerators.

Company A currently does not offer premium or cover growth features on its risk only products (i.e. all policies provide level cover for a level premium.) The company plans to market, in addition to its existing offering, a compulsory premium growth product where premiums grow at 5% per annum, while cover remains level.

i. Discuss the advantages and disadvantages of a compulsory premium growth product, as compared to the existing product. [10]

Company A intends to offer its dread disease benefit in a non-accelerator form (i.e. as a standalone benefit).

ii. Discuss the key considerations for the company in pricing the new benefit. [10]

Company A wishes to implement a risk premium reinsurance treaty for its dread disease benefits, with no profit-sharing. All dread disease cover above a specified retention limit will be ceded. The treaty will apply to new and existing business.

iii. Discuss how the company may determine an appropriate retention limit. [10]

A reporter has read about an ASISA agreement on standard definitions of dread disease conditions and severity levels for all life offices. He has written an article describing this as anti-competitive behaviour.

iv. Discuss whether an industry agreement on definitions of dread disease conditions and severity levels is anti-competitive. [5]

[Total 35]

PLEASE TURN OVER

QUESTION 3

As an experienced consulting actuary you have been approached by an investment bank which has decided to invest in a growing private life insurance company in South Africa. The company writes unit linked, risk only and with profit endowment business. The profits in the with profit fund are split 90:10 between with profit policyholders and shareholders. Surplus distribution is done using a reversionary bonus and a terminal bonus. They intend to invest in the life company by purchasing 10% of the existing shareholding (you can assume there is a willing seller for this proportion of the business) and disinvesting again after 5 years.

At the first meeting with the client she wants to understand how one would go about valuing a life company and how the value would change over time.

i. Describe how you would calculate the value of the life company for purposes of this investment assuming you have full access to all policy information. [13]

ii. Describe how the value determined in (i) above is expected to develop over time. [6]

The investment bank seems keen to go ahead with the investment and have indicated that they require a return of 20% p.a. on the 5 year investment.

iii. Discuss the factors that the investment bank needs to take into account when deciding on the whether or not to go ahead with the investment. [10]

You have completed your calculations and presented the results to the investment bank. They analyse your results and notice that you have used a different basis when compared to that contained in the previous Embedded Value report of the company.

iv. Give reasons why you may have used a different basis when compared to the basis used by the internal actuary preparing the embedded value report for the management of the life company. [5]

[Total 34]

[Grand Total 100]

END OF PAPER

