



2012 PART III EXAMINATIONS

Subject Title: **C2A Life Insurance
(longer answer component)**

Date: **Friday, 19 October 2012**

Time: **1:00 pm – 4:00 pm**

Time allowed: Three (3) hours including reading time

Instructions: Type your answers to the longer answer component in a Word document and ensure that there is no data linked to spreadsheets.

For Q1 BOTH your Word document and your Excel Spreadsheet will be marked.

For Q2 ONLY your Word document will be marked. Your Excel file should also be saved as a backup.

Number of Questions: **Two (2)**

Question	Marks
1	30
2	30
Total	60

Candidates are required to answer **ALL** questions.
This paper has **three** (3) pages (excluding this page).

Answer both questions.

QUESTION 1
(30 Marks)

This question is set in a mythical country which is like Australia in every way except that risk insurances are sold mainly with a 5-year term and level premiums, and reserving and capital requirements are simplified as below.

The following averages have been derived from your company's existing large portfolio of death-only 5 year Level Premium Term insurances for the year to 30 June 2012.

Average sum insured	\$250,000
Smoothed mortality rates, from company's own experience for non-smoker males aged 30 to 50	50% of attached Standard Table
Mortality rates used 2 years ago for pricing this product	60% of Standard Table
Reinsurer current recommended mortality rates	59% of Standard table
Reinsurer mortality rates included in existing treaty	59% of Standard Table
Per-policy annual expenses	\$60.00
Initial expenses not related to commission	50% of new annual premium
Initial commission and commission overheads	100% of new annual premium
Renewal commission and commission overheads	10% of renewal annual premiums
Overhead expenses	10% of all premium income
Investment return (near-cash asset backing)	3% p.a.
Lapse rate year 1	20%
Lapse rate years 2+	10% pa
Policy liability to be reserved from start of each year	Present value of future expected claims plus expenses less premiums, discounting at the expected earning rate
Capital to be allocated at start of each year	10% of the present value of future expected claims

The company's required minimum pre-tax return on capital is 12% pa, but most risk products have been priced to include a pre-tax profit margin of 10% of gross premiums.

Your company has asked you to suggest a premium rate for a new 5-year level premium product to be used for nil-commission sales made by advisors charging a fee-for-service to the client. The Marketing Division is keen to have a very competitive rate for this new sales initiative. Using the data above and/or other assumptions that you specify, derive and justify a premium rate for non-smoker males aged 35 at entry. The Chief Actuary has

suggested you consider allowance for mortality selection, even though the company has not done that in the past.

Your answer should be in the form of a note to the Chief Actuary, as a basis for your discussions with him. It can be informal, but must be clear and complete so that his formal advice can be based on it. Different assumptions and premium rates can be discussed, but a single recommendation must be given in each case. A clearly labelled spreadsheet calculating the premium rate must be included and will be marked in addition to your note.

Attachments

1. 2A_LAQ1_October_2012_Data - Standard_Mortality_Table.xlsx

QUESTION 2**(30 Marks)**

You have managerial responsibility for the unit pricing backing the \$10 billion of retail investment products at your large, diversified financial institution. As part of month-end reconciliation, you have discovered an error in the daily Australian Equities unit prices. These prices have also been used in setting prices for the Growth, Balanced and Stable units. It appears the Australian Equity prices have been overstated by approximately 1% for the past 2 to 3 weeks. The error affects unit trusts, plus Ordinary and Superannuation policies within the life insurance company.

Your Line Manager has convened a meeting 1 hour from now to discuss the problem. Document the full extent of the problem and your recommended solutions. Your document does not need to be formal, but it should be suitable to be used as a handout at the meeting, which will include some non-technical Managers. It should include a list, with explanations and justifications, of actions you suggest should be performed. It should cover the who, what, why and when for your proposals in respect of all affected business lines and all affected transaction types. It should illustrate the problems with some numerical examples.

In addition to correcting the problem, describe the further investigations and other actions you would take to reduce the risk of recurrence, as you will bring this up at the end of the meeting.

END OF PAPER