Actuaries Institute

2013 PART III EXAMINATIONS

Subject Title:	**C2A Life Insurance (longer answer component)**
Date:	**Thursday, 2 May 2013**
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 Question 1 submit ONLY your Word document. For Question 2 you MUST submit both your Word document AND your Excel file.

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

Question	Marks
1	30
2	30
Total	**60**

Candidates are required to answer **ALL** questions.
This paper has **four** (4) pages (excluding this page).

COURSE 2A LIFE INSURANCE **MAY 2013 EXAMINATIONS**

Answer two questions.

QUESTION 1 **(30 MARKS)**

You are the Chief Actuary of Examlife, a medium sized life insurance company in Examland. It writes a full range of products.

Examlife has been well known, for many years, for its very conservative investment strategy. It has recently been acquired by an aggressive fund manager. The new management has decided to make material changes to Examland's investment strategy.

In a memo to you, the new CEO has asked for the following advice:

"Our intention is to use the asset allocations for each of our product liabilities as a source of profit not just as a minimizer of risk. Please provide me with your recommendations as to the asset allocations which will provide the optimum profit. The risk involved from asset value fluctuations should be a part of your advice."

a) Set out your recommended asset allocations for each product, showing your reasons in full. (20 Marks)

b) Discuss the risk involved from asset value fluctuations for each product's asset allocation. (10 Marks)

The following spreadsheets are attached:

1. C2A_LAQ_1_Examlife Product Liabilities.xlsx

2. C2A_LAQ_1_Australian Investment Data.xlsx

Note that for the purposes of the question only the asset classes shown in the Australian Investment Data spreadsheet are allowed.

Examlife Product Liabilities as at December 2012

Product	Policy Liability	Minimum Regulatory Capital Required	Actual Capital Allocated
	$ million	$ million	$ million
10 year Level Term	805	50	60
Yearly Renewable Term	345	12	18
Disability Income Active Lives	675	120	135
Disability Income Outstanding Claims	413	85	100
Participating WoL	349	35	42
Investment Linked - Balanced	1,698	4	5
Investment Linked - Capital Secure	2,314	6	7
TOTAL	**6,599**	**312**	**367**

The Disability Income product has the following key characteristics:

- Premiums are 10 year level
- All benefit payments are inflation indexed subject to a maximum of 4% p.a.

QUESTION 2 **(30 MARKS)**

You are the Actuary in a small Australian life insurance company. Being in a small company, your role covers all aspects of the actuarial function, including the Appointed Actuary and Product Actuary roles.

Your company sells, amongst other things, niche products for celebrities. Having been inspired by a recent deluge of direct mail offerings for funeral insurance from other insurers, the Product Manager at your company has proposed a funeral insurance product targeted at celebrities – "Celebrity Funeral Insurance". The Product Manager has been speaking with a particular funeral provider which has expressed an interest in entering into an alliance with your company. The proposal is as follows:

Product design:

- Level premiums are payable to age 90, and cover continues for free thereafter.
- Guaranteed acceptance: no underwriting at point of sale, but the death benefit is only payable on accidental death in the first policy year. The death benefit is payable on death from any cause from the second policy year onwards.
- On receiving satisfactory evidence of the death (or accidental death, if within the first policy year) of a life insured, your company will pay a lump sum to the funeral provider who will then take care of all the funeral arrangements. A referral fee is payable by the funeral provider to your company for each claim referred.
- The amount of the lump sum will be equal to cost of the funeral provider's top-of-the-range "Ultimate Deluxe" package, which, according to the funeral provider, will more than satisfy even the most discerning celebrity.
- The product will be sold through your company's existing adviser channel, as some of these advisers already have established relationships with celebrity agents and have been selling other life insurance products to celebrities in the past. Upfront and renewal commission will be payable at the same rate as what is currently paid on your company's existing "Celebrity Yearly Renewable Term – Death & TPD" product.
- Surrender and paid-up values are applicable after a policy has been in-force for three years. The basis is the minimum surrender value and minimum paid-up value as specified in LPS 360.

a) The CEO has asked for your initial comments on the proposal. In particular, she is questioning the need for surrender and paid-up values as none of the other level premium funeral insurance products on the market have this feature, and she is concerned that including it would make this product too expensive. Also, if surrender and paid-up values are payable, why would they only be applicable after three years?

   Draft your response, which should include:

   - your views on the general product design,
   - addressing the CEO's questions regarding surrender and paid-up values, and
   - identify any recommended changes to the product design.

(15 Marks)

b) Some time later, the product design and pricing have been finalised and, after receiving LPS 320 product advice from you, the Board has approved the "Celebrity Funeral Insurance" product.

You have decided that your mortality assumptions will be equal to the rates in the attached mortality tables.

Moving into the implementation stage, it is your responsibility to help out with some of the technical aspects of product implementation, such as how surrender values should be administered on the system. After some discussions with IT, it was agreed that you would provide samples of surrender values. These sample surrender values would be expressed as a surrender value per $1,000 of current sum insured, by age at entry and policy duration (in years). The sample set will show values for females only for ages at entry 50 to 59 and policy durations of 1 to 10. Only integer parameters will be shown.

Using Excel, build the surrender value sample values. Assume that policies will be sold as Ordinary non-participating business only. (15 Marks)

The following spreadsheet is attached:

1. C2A_LAQ_2_IA_90-92.xlsx

*You MUST submit both your Word document AND your Excel file.

END OF PAPER