THE INSTITUTE OF ACTUARIES OF AUSTRALIA

LIFE INSURANCE **2001 EXAMINATIONS**
PAPER ONE

Answer all 6 Questions

QUESTION 1 **(16 Marks)**

You are an actuary who has been engaged by an auditor to assist in the audit of a large Australian life office. Your brief is to review and report on the calculation of policy liabilities and analysis of profit. You have received information from the valuation actuary, including summaries of the policy liabilities and analysis of profit.

(a) Identify and explain the main components/sources of profit that you would expect to see analysed for individual risk insurance.

(6 marks)

(b) Outline the steps you would take, and the information you would review in order to gain comfort over the validity of the policy liabilities.

(10 marks)

QUESTION 2 **(20 Marks)**

A medium-sized life insurance company has a portfolio that covers a range of products including traditional participating whole of life insurance, unit linked superannuation, yearly renewable term, immediate annuities and group life insurance. The company has been operating for 40 years and has taken over the businesses of several small insurers. Each product has many series or variations.

You are the valuation actuary and have established projection models for each product, to be used for margin on services policy liabilities and embedded value calculations. You have decided not to model all policies in force and instead will model representative samples for each product.

(a) In general and specifically for each product, explain the key issues in the creation and validation of model point files.

(16 Marks)

(b) If the company also administered disability income insurance business, what are the product specific variables (premium rating factors) to be modelled? What cash flows and balances would be included in the projections for this product?

(4 Marks)

QUESTION 3 **(10 Marks)**

You are the new appointed actuary of a small life office. The company only has one statutory fund, which contains participating whole of life contracts and a new participating Investment Account contract. The fund contains significant policyowner retained earnings, which have allowed the company to adopt a high growth investment strategy, predominantly invested in Australian equities.

At the beginning of the year, a new marketing manager was employed with a brief to develop the new Investment Account product. Prior to that, the fund had been closed to new business for five years. The product was successfully launched, and sales have exceeded expectations. The new money received has been placed in a sub-fund of the statutory fund, but because of the strong position of the fund, a similar investment strategy has at this stage been adopted for this sub-fund.

The year just completed has been a record year for Australian share markets, and the investment return on Australian equities has been 36%, with the growth being quite uniform throughout the year. Interest rates have been steady, with the yield on 10 year government bonds being 6% per annum.

The fund has a 'buy and hold' strategy with only a small amount of asset turnover. Consequently, most of the growth is unrealised capital gains.

(a) What factors will you consider in making your crediting rate recommendation for the investment account contracts? (8 marks)

(b) How would your recommendation differ if the capital gains were realised rather than unrealised? (2 marks)

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QUESTION 4 **(16 Marks)**

As appointed actuary, you have just finished a meeting with the company's auditor to discuss the first draft of your company's year end accounts.

At the meeting, the auditor stated that a large asset of the company's statutory fund is inadmissible under Actuarial Standard 2.02, and the company is therefore insolvent.

(a) Outline the provisions of the Life Insurance Act 1995 that apply in this situation. (Note, you are not required to identify section numbers of the Act.)
(6 marks)

(b) Outline the actions that you should take over the next 2 days, giving reasons.
(10 marks)

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QUESTION 5 **(13 Marks)**

You are a consulting actuary advising a client on their potential entry into the Australian income protection market. They note that income protection products offered in Australia seem to have different features from those offered in some other countries. They have requested that you draft a short report outlining the features of the market.

(a) Comment on the considerations in measuring income protection experience and how the results observed may be affected by Australian product conditions. (5 marks)

(b) Your client ultimately decides that they want to purchase an Australian life insurer that offers a broad range of products. They are conducting due diligence on such a company and engage you to assist them in reviewing the portfolio experience. What investigations would you expect the company would have available for you to review? (2 marks)

(c) The expense analysis for the last two years is provided to you and shows a significant increase in expenses over the period. Your client is very concerned about what this implies about the company. Draft a response for your client which considers both:

- What are the appropriate uses of such analyses?
- What range of factors should be considered as to whether the increase is a cause for concern given the factors that may impact on the expenses of a life company?

(6 marks)

QUESTION 6 **(25 Marks)**

You are the appointed actuary of a medium sized Australian life insurance company that is part of a multi-national broad based financial services group. The life insurance company has in force business covering all of the major product lines. The company has recently appointed a new Finance Director, who is not familiar with the statutory or management reporting commonly used by life insurance companies.

It's a little after 8am and you have just arrived at work. There is a voicemail message for you from the Finance Director from 2 hours ago. The message mentioned that he:

- has been asked by the company's regional manager for an overview of key performance indicators of the life company for the previous year;
- wants to see you at 9am to discuss the company's performance;
- couldn't understand why it is necessary for there to be so many different financial reports about the life insurance company;
- has a preference to utilise the returns as per Prudential Rule 35 (PR35) as much as possible to fulfil management information needs; and
- wants your urgent assistance to understand the PR35 returns as well as any other management reporting for which you are responsible.

You need to prepare for the meeting so that you can take the opportunity to build your credibility with the new Finance Director.

(a) Identify key performance indicators (KPI) relating to profitability, return on equity, expense management and capital position that could be adequately assessed by reference to one or more years' PR35 returns. For each KPI briefly state the reason why your proposal is sensible and any shortcomings it may have.
(16 marks)

(b) List and explain the advantages and disadvantages of trying to assess company performance purely on the basis of information contained in the PR35 returns.
(5 marks)

(c) Suggest alternative sources of information or methods to overcome the disadvantages identified in (b).
(4 marks)

END PAPER ONE