THE INSTITUTE OF ACTUARIES OF AUSTRALIA

LIFE INSURANCE **1999 EXAMINATIONS**
PAPER TWO

Answer all 6 Questions

QUESTION 1 (10 Marks)

You are the appointed actuary of a small life office transacting mainly individual risk business distributed through an affiliated financial institution.

Following concerns regarding the profitability of the disability income market, the marketing manager has put forward a proposal to market a disability policy with the following features:

- benefits are payable on disability caused by accident or sickness;
- benefits commence after the completion of the waiting period, and are payable for a defined benefit period or earlier recovery or death of the insured; and
- policy conditions and premium rates are not guaranteed and may be changed, or the policy cancelled, by giving three months' notice to the insured.

The marketing manager has argued that, due to the ability to change policy conditions and cancel the policy, premiums can be discounted by 40% from those of the company's standard product.

a) What are the legal and professional requirements for the advice that you must provide in respect of this new product? (4 Marks)

b) What are the major concerns that you would express regarding the proposal? Are there any ways that your concerns could be alleviated without major changes to the proposal? (4 Marks)

c) What action would you be required to take if the company refused to address your concerns? (2 Marks)

QUESTION 2 (20 Marks)

A large insurance company in Australia sells high volumes of an individual unit linked superannuation product with death and TPD riders. The commission on the policies is a level percentage on annual and one-off contributions and a level percentage on fund values.

The company sells a full range of financial services products, including traditional participating business, individual and group risk, individual and corporate superannuation, retirement products and unit trusts.

You are the product actuary responsible for the profitability of the individual unit linked superannuation product. The product's profit in 1998 was below the amount expected from the latest profit test.

As you have access to the company's detailed and up-to-date reports of the experience analyses, you decide to review the assumptions to discover where the problem lies.

a) For each of the following assumptions, explain what you would look for in the relevant experience analysis report to help identify the profitability problem:

(i)	Expenses	(4 marks)
(ii)	Voluntary discontinuances	(2 marks)
(iii)	Mortality	(2 marks)
(iv)	TPD experience	(2 marks)
(v)	Sales and inforce figures	(2 marks)

b) Other factors that may have influenced the low profit for the product are the unit pricing system, tax, interest rates and reinsurance. Briefly indicate how each of these four factors may be relevant. (8 marks)

QUESTION 3 (16 Marks)

You are the actuary of a medium-sized life office, selling only risk insurance business, that has a large portfolio of group death and TPD (total and permanent disablement) business. The business is distributed through brokers, with the majority of policies being issued to superannuation funds to provide cover to the funds' members.

Assume the federal government has announced that it will be introducing "Choice of Fund" legislation in respect of superannuation. Under this legislation, employers must offer their employees the choice of at least four (4) superannuation funds. The member may choose to have their superannuation contributions paid to any of these funds, and may elect to change funds at least once per annum.

Upon joining the employer, employees are placed into a nominated "default" fund. If, within the nominated time, they then choose to join a fund other than the default fund, all contributions made on behalf of the member are transferred to the nominated fund, without any deductions for administration expenses or insurance cover. This transfer could be up to 4 months after the member first joined the fund.

(a) The chief executive of your company has asked for a report setting out the major implications of this legislation for your company.

In particular, the chief executive has asked you to comment on the effect that the assumed new legislation will have on each of the following, assuming that no changes are made to products or practices:

(i) automatic acceptance (free cover) limits; (3 Marks)

(ii) continuation options; (3 Marks)

(iii) unit rating of schemes (the practice of applying a single premium rate to all members in a scheme, rather than rates specific to each member's age, sex, smoking status etc); and (3 Marks)

(iv) the attractiveness of funds that are nominated as a default fund; (3 Marks)

Discuss these particular issues.

(b) What practical solutions would you propose for addressing the issues that arise from the particular points discussed in (a)? Ensure that you consider the marketing and administrative implications of your suggestions, and the potential impact on premium rates.
(4 Marks)

QUESTION 4 **(16 Marks)**

Suppose you are doing a Margin on Services (MoS) valuation for a block of immediate annuity business.

The following table gives the expected future benefit outflows and expenses using the MoS best estimate assumptions. Payments are fixed in dollar terms and paid only if the annuitant is still alive.

Year	Expected Benefit Payments $000	Expected Expenses $000
1	1200	12
2	900	9
3	600	6
4	300	3
5	0	0

Assume all benefit payments are made at the end of the year and all expenses are incurred at the end of the year. From the valuation at the end of the previous year, the MoS profit margin is 1% of benefit payments. The net earnings rate for this business is 10% per annum.

For this block of business:

a) what is the current best estimate liability? (1 mark)

b) what is the current present value of future profit margins? (1 mark)

c) what is the current MoS policy liability? (1 mark)

d) what is the profit margin released over the next 12 months and what is the expected present value of future profit margins in 12 months time for this block of business, assuming it is closed to new business and annuitants cannot vary their benefits? (4 marks)

e) why might the actual present value of future profit margins in 12 months differ from the expected value? (5 marks)

f) Suppose that during the year there were no deaths and that the actual payments for the year was $1.3m and the actual expenses were $0.012m.

   The following table gives the projected future annuity payments and expenses, based on the assumptions as at the start of the year and the actual annuitants still alive at the end of 2001.

Year	**Expected Benefit Payments $000**	**Expected Expenses $000**
2002	1200	12
2003	800	8
2004	400	4
2005	0	0

   If all other experience items, except the mortality experience, are the same as the best estimate assumptions, what is the impact of the mortality experience on the MoS profit in the year 2001? (4 marks)

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QUESTION 5 **(26 Marks)**

You are the new Appointed Actuary to an Australian Life Office, OddCo Life, which is a recently acquired fully owned subsidiary of an Australian Life Office, TypicalCo Life, itself part of a larger financial services group. OddCo Life has a broad range of distinctive products, including blocks of participating business, annuity and unit linked products.

Your CEO has been recently appointed and is not familiar with any aspects of life insurance business. The end of the financial year is approaching, and OddCo's profit results to date have been significantly below those expected by TypicalCo.

Your CEO has just held a meeting with you, and has suggested a number of mechanisms he feels could be utilised to improve the dividend payable to TypicalCo at year end. Assess the following suggestions from the CEO, providing the main points on which your analysis is based and, where appropriate, recommending the actions you should take regarding the following suggestions:

a) best estimate assumptions should be reviewed and, as a minimum, in the case(s) where they are more conservative than those used by TypicalCo, the TypicalCo assumptions be used, and adjusted to reflect potential experience improvements wherever possible. (5 Marks)

b) Discretions permitted by Solvency and Capital Adequacy should be fully exercised. (2 Marks)

c) Apportionments: All allocations required should be reviewed and to the extent possible, be adjusted. (6 Marks)

Further, from your perspective, discuss the following issues.

d) Obligations: appraise your position and professional responsibilities in the context of the role of the Appointed Actuary and the process of distribution of profits. (8 Marks)

e) Management of the situation: evaluate how you can manage the situation. (5 Marks)

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QUESTION 6 **(12 Marks)**

You are the Appointed Actuary of an Australian Life Office, which has a significant (recently closed to new business) block of participating business, as well as other types of business, including Unit Linked business.

You are currently operating in a declining interest rate environment, and the expectation is that interest rates will continue to decline for several years into the future. The Marketing Manager has indicated his opposition to decreasing the dividend scale on the grounds that the policy illustrations used on sales of the participating products will not be met, hence Policyholder Reasonable Expectations will not be met.

Formulate the main points of a response to this position, addressing:

a) the issues and responsibilities involved in determining bonus declarations; (4 Marks)

b) any relevant equity issues and principles; and (6 Marks)

c) providing a suggested course of action. (2 Marks)

END PAPER TWO