EXAMINATIONS

LIFE INSURANCE — 1996 EXAMINATIONS
SPECIALIST LEVEL — PAPER TWO

Answer all 6 Questions

QUESTION 1 — 20 MARKS

(a) Provide a suitable definition for Capital Adequacy in the context of the Life Insurance Act 1995.

(2 marks)

(b) Set out the steps required to calculate the Capital Adequacy Reserve with reference to either GN255 or the draft LIASB Standards issued in January 1996, or July 1996, clearly identifying your source.

(6 marks)

(c) You have recently been recruited to the position of Appointed Actuary in a medium sized life office with two statutory funds.

One statutory fund contains managed investment products. There has been significant re-structuring and development of new products with some products having sold well on the back of good returns in the past. As a result the statutory fund containing this business has grown by 50% in the last three years.

The other statutory fund is composed mainly of traditional participating business (Whole of Life and Endowment) with the balance represented by immediate annuities, which the company no longer writes. Bonus rates have been reducing in the last two years.

The company sells business only through its tied agency salesforce. Due to the high turnover of actuarial staff in the last two years, records of previous expense analyses have been mislaid and there has been no analysis of mortality experience for two years.

You are recommending the margins to apply to experience assumptions for calculation of the Capital Adequacy reserve.

For the following parameters, indicate with reasons, whether you would tend towards a high or low margin to apply to best estimate assumptions (you are not required to state the high or low margins).

(i) Maintenance expenses
(ii) Investment earning rates
(iii) Mortality rates
(iv) Voluntary discontinuance rates

(12 marks)

QUESTION 2 21 MARKS

(a) A small life office is contemplating entering the term certain annuity market and wishes to concentrate its marketing efforts at terms around three years. An external mortgage origination company has offered a regular supply of three year fixed rate mortgages with a 1.5% margin over the redemption yield on a readily available supply of semi-government fixed interest securities. It is intended that upfront commission will be paid. In addition there is an attaching trail commission, payable annually in arrears, based on the value of all future policyholder payments discounted at the full initial interest rate. Residual cash values (the maturity payment) vary from 0% to 100% of the purchase price. Annuity payments are to be level. Surrenders or commutations are not allowed. You may assume for this exercise that all payments of annuities, trail commissions and any non-initial expenses are incurred at the end of each year.

Set out clearly, using formulae and appropriate definitions, a pricing basis for the product. Outline the margins that you would consider necessary to be built into the pricing basis, clearly identifying and explaining each item.

(10 marks)

(b) Explain the mismatching risks that you are exposed to in the above example and suggest how you would deal with this issue.

(6 marks)

(c) The Product Manager wants to expand the range to include life time annuities. Outline in a brief report the extra difficulties associated with such a move.

(5 marks)

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QUESTION 3 13 MARKS

The concept of an Appointed Actuary for each office has been included in the Life Act 1995.

(a) What are the main duties of the Appointed Actuary under the Life Act 1995?

(4 marks)

(b) The Appointed Actuary is specifically obliged under the Life Act 1995 to report certain matters to the company, its directors or an officer of the company.

(i) What type of matters would invoke this obligation?

(2 marks)

(ii) If the company fails to act within a reasonable period following a report of this nature, what actions are required by the Appointed Actuary?

(1 mark)

(iii) Qualified Privilege is granted to the Appointed Actuary under the Life Act 1995. What benefits does this provide to the Appointed Actuary?

(3 marks)

(iv) What advice must the directors be provided with, by the Appointed Actuary and the approved Auditor, in relation to the apportionment of expenses?

(3 marks)

QUESTION 4 17 MARKS

Expense analyses are carried out for a number of different purposes within a life office.

(a) Set out three uses for the results of an expense analysis and briefly explain why each is necessary.

(3 marks)

(b) Your life office is arranged so that different departments perform a particular function for the office (eg all underwriting is done by the underwriting department). What are the most likely methods you would use for allocating the following costs to different products:

(i) Underwriting department expenses
(ii) New business data processing and policy issue
(iii) Claim and surrender processing
(iv) Premium collection

(4 marks)

(c) An expense analysis of claims has assumed that a death claim takes the same administrative time to process as a TPD claim.

(i) Why might this not be a reasonable assumption?

(2 marks)

(ii) Given that all types of claims are processed by the same department, how would you go about determining a more reasonable allocation?

(2 marks)

(d) A number of your expenses do not obviously belong to any particular product.

What do you consider would be a reasonable method of allocation of expenses incurred between products for:

(i) Advertising
(ii) Sales management
(iii) Human resources
(iv) Managing Director’s department

Please explain your choice of allocation method in each case.

(6 marks)

QUESTION 5 15 MARKS

(a) State how Operating Profit is defined in the 1995 Life Act

(1 mark)

(b) List the constraints that Professional Standard 201 sets on using Best Estimate Assumptions, in respect of:

(i) the assumed investment earnings rate
(ii) the servicing expense assumptions

(4 marks)

(c) For a portfolio of regular premium unit-linked policies, Operating Profit is impacted by experience varying from that assumed. Outline the likely impact of the following variations (assuming you do not consider it necessary to change the Best Estimate assumptions as a consequence):

(i) The maintenance expense assumption is $57 per policy but actual experience was $62 per policy.

(ii) The investment return assumption was 10% (net of tax) while the actual net of tax return was 18%.

(4 marks)

(d) If as a result of investigations you decided to change the best estimate assumptions above to $60 per policy and 13% pa (net of tax), explain how you would re-calculate the profit margins for the portfolio.

How would your answer change if the change in the investment earnings assumption was due to a revised asset allocation strategy for the portfolio?

(6 marks)

QUESTION 6 14 MARKS

(a) Briefly explain how a life office is taxed on interest income and on realised capital gains for Ordinary and Superannuation business.

(6 marks)

(b) In setting its unit prices each day a life office needs to make an allowance for taxation. What is the purpose of a life office allowing in its unit pricing for taxation on unrealised capital gains?

(2 marks)

(c) Briefly describe the two main methods of allowing for tax on unrealised capital gains in unit pricing and comment upon the relative advantages and disadvantages of each method.

(6 marks)

END OF PAPER