EXAMINATIONS

19 April 2004 (am)

Subject 402 — UK Fellowship Life Insurance

Paper One

You must answer this subject only, you may not attempt another subject in the 400 series.

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

2. *You have 15 minutes at the start of the examination in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*

3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all 6 questions, beginning your answer to each question on a separate sheet.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

In addition to this paper you should have available Actuarial Tables and your own electronic calculator.

© Faculty of Actuaries
© Institute of Actuaries

1 Describe the taxation of benefits arising from UK life assurance contracts in the hands of the policyholder. [5]

2 A UK life insurance company writes individual pensions contracts on a unitised with profits basis. The retirement age is chosen at outset and can be between 50 and 70. Policyholders can pay single premiums, monthly premiums, or both, and can vary the level of the premiums at any time.

Describe how the company could minimise its potential loss from each of the following product features, both through the product design and in other ways:

(i) Waiver of premium benefit that may be chosen at outset, for an additional charge. With this benefit, while the policyholder is disabled from his/her usual occupation for more than six months, monthly premiums will not be collected but units will still be credited as if the premiums had been received. [6]

(ii) Retirement may be deferred for up to five years from the chosen retirement age. The policyholder may choose to retire at any time within the five year period without a market value adjustment being applied. [5]

[Total 11]

3 A UK proprietary life insurance company publishes achieved profits results as supplementary information in its annual Report & Accounts.

For a number of years, the company has sold a unit-linked savings product with a guaranteed minimum benefit payable at maturity. In the past the guarantee has not been onerous, but it has now become more so due to poor equity market performance in the last two years. The company has calculated that it needs to earn between 6.75% p.a. and 7.25% p.a. on its investments to ensure that the unit fund at maturity is greater than the guaranteed benefit. The exact figure for each contract depends on the term to maturity.

The directors have decided that no allowance should be made within the published achieved profits result for the cost of the guaranteed maturity benefit. This decision was justified on the basis that the assumed future rate of return on linked assets within the achieved profits calculation is 7.5% p.a., and on this assumption no guarantees will bite.

(i) Discuss the directors' decision. [8]

(ii) Describe how the maturity guarantee would be valued. [4]

[Total 12]

4 A UK life insurance company has only ever written pensions business and is now closed to new business.

(i) Describe the factors influencing the change in shareholder value in any given year. [6]

The embedded value of the company is £5,000m, with a value of the future profits of in force business of £4,000m using a risk discount rate of 8% per annum. The annual expenses are £500m.

(ii) Outline, and provide a monetary estimate of, the impact of each of the following on the embedded value of the company. You should state any assumptions you make, and ignore tax.

(a) A change in risk discount rate to 7% per annum.

(b) A fall of 20% in the value of free assets.

(c) A decrease in the assumed future company expenses of 10%.

[8]

(iii) Outline the impact of each of the following on the embedded value of the company.

(a) An increase of 10% in the future pre-vesting mortality rates.

(b) An increase of 10% in future lapse rates.

[2]
[Total 16]

5 A UK life insurance company transacts all types of life assurance and pensions business.

(i) Describe the checks that would be made to verify the accuracy of the data for the supervisory valuation. [4]

(ii) Describe the method used for the supervisory valuation of the following types of contract and how the basis might be set.

(You do not need to give numerical values for the basis as part of your solution.)

(a) Contract A: A conventional with profits regular premium personal pension contract. The policyholder can take reduced early retirement benefits, calculated on a predetermined basis, at any time within five years of the originally selected vesting date. The contract contains a guaranteed minimum annuity rate for converting the cash amount at retirement to a pension. The guarantee applies to both early and normal retirements. [8]

(b) Contract B: An accumulating with profits regular premium endowment assurance contract. The premiums paid, less expense charges and a deduction for the cost of mortality, purchase units with a guaranteed accumulation rate, a bonus accumulation rate, and also the ability to apply terminal bonuses or a market value adjustment factor at any time other than on death. The guaranteed accumulation rate only applies to premiums already paid, and has been 2% for all past years. [7]

(iii) Suggest a supervisory valuation basis that would be appropriate for Contract A. [7]

[Total 26]

6 A UK life insurance company sells all types of non-linked life insurance and pension deferred annuity contracts through independent intermediaries.

Volumes of new business have fallen over the last three years. Over the same period, stock market levels have been falling and some investment losses have been realised. As a result, the company’s tax position has moved from an XSI to an XSE basis for the most recent financial year, but no products have been repriced.

(i) Discuss the impact of these factors on the profitability of the company’s new business. [8]

(ii) Describe how the future tax position of the company could be estimated. [12]

The managing director has stated publicly that the company’s aim is to maintain the profitability of new business.

(iii) Describe the possible courses of action open to the company in order to try to achieve this. [10]
[Total 30]

END OF PAPER