EXAMINATIONS

14 September 2001 (am)

Subject 302 — Life Insurance

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *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.*

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

3. *Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all 8 questions, beginning your answer to each question on a separate sheet.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet and this question paper.

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

1 Describe the aim and main features of catastrophe reinsurance from the point of view of a ceding life insurance company. [5]

2 State the basic features of an actuarial model to be used to determine the annual premium rates for a new life insurance product. [5]

3 A life insurance company currently sells only without profits term assurance business. All the contracts are sold through its own salesforce.

In order to diversify its product range, it plans to launch a regular premium unit-linked pension contract. The only charge levied under the contracts will be an annual amount equal to 1% of the value of the units.

Discuss the principal risks the company faces in relation to the new pension product. [8]

4 A life insurance company calculates the surrender values under its with profits endowment assurances using a prospective method, based on the guaranteed benefits at maturity. It has been suggested that the surrender value should be increased by the addition of terminal bonus and that the rate of terminal bonus to be applied on surrender should be the same as that which applies to maturing policies of the same duration.

Discuss the issues that should be considered before making the change, outlining any investigations that would be required. [11]

5 (i) State the principles of setting supervisory reserves. [8]

(ii) Explain how the net premium method for valuing conventional with profits life assurance contracts meets these principles. [6]

[Total 14]

6 A life insurance company has an established portfolio of income protection business, which provides an income to policyholders during periods of incapacity due to sickness. It is considering implementing a claims management process, where health professionals are used soon after a claim is notified to the insurer to treat the claimants and help them back to work. The process will also be used on the claims currently in payment.

Describe:

(i) The potential impact on the claim inception and termination rates. [6]

(ii) How the claims experience could be analysed and how the results could be used to amend the pricing basis. [10]
[Total 16]

7 (i) State the principles of investment that apply to a life insurance company. [2]

(ii) Describe how the regulatory framework might impact on the company's investment decisions. [4]

(iii) State, with reasons, the types of investments a life insurance company might use to back a portfolio of level without profits immediate annuities. [8]

(iv) Describe how your answer to part (iii) would differ if the annuity instalments:

(a) increase in line with an index of retail prices; or

(b) increase or decrease in line with an index of equity market values [5]
[Total 19]

8 A proprietary life insurance company markets unit-linked single premium whole of life investment contracts, which it distributes through intermediaries who receive initial commission on the sale of each contract but no renewal commission.

The contracts all have 100% allocation to units with no bid/offer spread and an annual management charge of 1% per annum of the unit value.

The sales director has suggested that in order to increase sales, the company should increase the rate of initial commission it pays to certain intermediaries that have satisfied the following criteria:

- The persistency of their business is better than average.

- The profitability of their business is higher because of a significantly higher than average case size.

(i) Discuss the sales director's suggestion. [10]

(ii) Describe the persistency and expense investigations that would be performed in order to determine the amount of additional commission that could be paid. [12]
[Total 22]