EXAMINATIONS

19 September 2002 (am)

Subject 303 — General Insurance

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 8 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.

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1 Explain why it is important to understand the nature of any flaws, inconsistencies, errors and omissions within a set of data that is to be used for a review of pricing of a general insurance policy. [3]

2 (i) Explain what is meant by moral hazard. [2]

(ii) Describe the various moral hazards associated with household buildings and contents insurance. [7]
[Total 9]

3 Describe briefly the factors that should be taken into account when determining the allowance that should be made for future investment return when pricing a general insurance product. [9]

4 A general insurance company writes only Public Liability business.

(i) (a) Describe the characteristics of the liabilities that you would expect for this class of business.

(b) Suggest, with reasons, suitable assets that could be used to match these liabilities. [6]

(ii) State the factors that will influence whether the company decides to match liabilities and assets. [3]
[Total 9]

5 (i) Explain what is meant by the terms case estimation and statistical estimation. [3]

(ii) Compare and contrast these two methods of estimation. [6]

A general insurance company writes a large book of household buildings insurance business. It is considering switching from a case estimated approach to a statistical approach for assessing the cost of outstanding claims.

(iii) Explain, giving reasons, which of the two methods in (i) is likely to be the most appropriate for this book of business. [3]
[Total 12]

6 You are the Actuary to a general insurance company which started transacting household buildings and contents insurance on 1 January 1998. All business written in a year is based on the same premium rating basis. All reinsurance is on a quota share basis. The only accounting information available to you is:

Year	*1998*	*1999*	*2000*	*2001*
Net Written Premium*	25	50	100	200
Net Earned Premium*	10	35	70	140
Net Loss Ratio*	150%	130%	100%	75%

* the loss ratio is calculated on an occurrence basis and premiums are net of reinsurance ceded

(i) Calculate the gross loss ratio for each of the four underwriting years, stating any assumptions that you make. [7]

(ii) Explain why the figures in (i) are unlikely to occur in practice. [4]

(iii) Discuss the effects that such rapid premium growth may have on an insurer's balance sheet and future business plans. [5]

[Total 16]

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7 You are the Actuary for a medium sized general insurance company that writes mainly commercial property business. Much of the property insured is in the North Eastern area of the country in which it operates.

The company has the following two reinsurance treaties, one with Company A, the other with B and C, which have been in place since 1 January 1997:

A 4 line surplus treaty with maximum retention of 500,000
B 200,000 xs 500,000 individual risk excess of loss
C 300,000 xs 700,000 individual risk excess of loss

The treaties operate in the order above. A stability clause provides for the indexation of the limits for the treaty with Company C only. This index started at a value of 100 on 1 January 1997. To date six claims have arisen from risks written in 1997 (amounts shown in 000s).

Claim Number	*Expected Maximum Loss*	*Total Paid*	*Index*
1	1,000	500	102
2	2,300	3,500	104
3	1,600	300	101
4	2,800	1,600	105
5	1,200	800	108
6	1,500	4,000	101

(i) Describe briefly the main features of surplus reinsurance. [4]

(ii) Discuss briefly the features of an individual risk that your company should consider when deciding how much of that risk it should cede to company A. [3]

(iii) For risks written in 1997, the company retained the maximum proportion allowable under the terms of the surplus reinsurance treaty.

Calculate the amounts payable by your company and by each of companies A, B and C in respect of claim 2, stating any assumptions you make. [4]

(iv) Comment on problems that the insurer may face with the existing reinsurance programme for the above six claims, suggesting alternative reinsurance arrangements that would address these problems for future business. [6]
[Total 17]

8 You are the Actuary for a small general insurance company writing only personal lines motor insurance business.

(i) Discuss the areas of risk and uncertainty inherent in the claims experience of this insurer. [18]

(ii) Describe the business risks to which this insurer may be exposed. [7]
[Total 25]