EXAMINATION

16 April 2007 (pm)

Subject ST3 — General Insurance Specialist Technical

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.*

6. *Candidates should show calculations where this is appropriate.*

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 the 2002 edition of the Formulae and Tables and your own electronic calculator.

1 You are an actuary working for a general insurance company with a small book offering professional indemnity cover to solicitors through brokers. Your CEO has noted that a competitor has recently been successful in growing its book by selling professional indemnity policies direct to small firms of solicitors. He suggests that you could increase your book with a major campaign marketing professional indemnity cover direct to other professions.

(i) Outline the risks to the company of pursuing such a marketing campaign. [7]

(ii) Suggest how the risks identified in (i) could be mitigated. [5]
[Total 12]

2 A small general insurance company specialises in motor insurance.

(i) Outline the principles that you would consider in deciding in which assets the company should invest. [9]

(ii) Explain how these principles differ from those of a large general insurance company specialising in employers' liability. [3]
[Total 12]

3 You are the actuary of a large general insurance company. You have been asked to price a "cross-class" deal for a customer. The policy will cover the customer's motor fleet and public liability requirements. Another general insurance company has written the public liability cover in the past.

The proposed structure for the policy is as follows:

Motor: the general insurance company will provide unlimited cover for any individual loss.

Public liability: the limit of indemnity on any one individual loss is £250m.

The customer retains a deductible of £0.5m on each and every loss for the complete programme subject to an annual aggregate deductible of £15m.

(i) Outline the concerns you would have with this proposed structure. [3]

The customer has provided you with a large database of their individual claims data, as well as relevant exposure measures, for the past 10 years.

(ii) Explain how you would calculate a risk premium for this product using the information on this database. [10]
[Total 13]

4 A motor underwriter has approached you for assistance with a new business premium quote on a fleet of 100 heavy goods vehicles commencing 1 January 2008. She has supplied you with the following unprojected historical claims data from the existing insurer as at 31 October 2007.

Incurred Claim amounts in £000's

Accident Year	*Own Damage Incurred Costs*	*Third Party Damage Incurred Costs*	*Third Party Personal Injury Incurred Costs*	*Earned Vehicle Years*
2003	44	30	55	80
2004	56	32	61	88
2005	42	35	51	90
2006	70	50	35	92
2007	40	30	20	98

The following additional information is available:

The prospective insured has always renewed the policy on 1 January each year.

Damage inflation has been 4% p.a. for many years.

Personal Injury inflation has been 7% p.a. in each of the calendar years 2003 to 2005, then 9% p.a. from calendar year 2006.

Incurred Claims as a percentage of Annual Ultimate Projected Claims are estimated from internal data to be:

	As at development month				
	10	**22**	**34**	**46**	**58**
Own Damage	70%	95%	105%	102%	100%
Third Party Damage	45%	80%	95%	100%	100%
Third Party Injury	30%	55%	75%	85%	95%

Commission is 15%. Expenses are £100 per policy, £10 per vehicle and 7% of claims costs. Insurance Premium Tax can be ignored.

Profit and contingency loading is 5% of the overall gross written premium.

(i) Estimate the annual premium to charge the prospective client, using the data provided, stating any assumptions you make. [11]

You have predicted that the average annual premium charged per vehicle during January 2008 on your company's existing account of 25,000 heavy goods vehicles will be £3,750. You decide to recalculate the premium using a credibility approach.

(ii) Recalculate the annual premium assuming you use a credibility factor for the fleet's own experience as:

$$Z = \text{minimum}\ (1, 1 - \sigma/\mu)$$

where

σ = the standard deviation of the yearly projected burning cost per vehicle observed from the five year data

μ = the average of the yearly projected burning cost per vehicle observed from the five year data [4]

(iii) Explain why the premium charged in practice may not equal the premiums calculated in parts (i) or (ii). [5]

[Total 20]

5 You are the actuary of a large general insurance company that only sells insurance to large international companies. The underwriters are considering entering the smaller end of the commercial market through the creation of a new product that covers the insurance needs of construction and engineering tradesmen who are either sole traders, partnerships or limited companies with up to five employees.

(i) Describe the distribution channels through which this new product could be sold. [8]

(ii) Compare the marketing methods in part (i) to those which would be used for the insurer's existing business. [2]

(iii) Describe the types of commercial insurance that these tradesmen may wish to purchase. [10]

[Total 20]

6 You have been provided with the following financial information for general insurance companies X, Y and Z for the accounting year 2006. All amounts shown are in $millions.

	Company		
	X	*Y*	*Z*
Gross Written Premium	50	2,000	250
Additional Unexpired Risk Reserve c/f	15	100	0
Gross Outstanding Claims Reserve b/f	20	800	750
Gross Claims Paid	35	700	150
Gross Outstanding Claims Reserve c/f	30	850	700
Non Acquisition Expenses	5	250	30
Investment Income	3	100	16
Current Assets at 31/12/2006	5	80	30
Current Liabilities at 31/12/2006	11	100	40
Investments at year end	125	3,500	1,000
Share capital at 31/12/2006	15	500	125
Acquisition Costs as a % of Gross Written Premium	30%	15%	20%

(i) Construct the balance sheet for each of the three companies as at 31 December 2006, stating any assumptions made. [5]

(ii) Derive underwriting, solvency and return on capital employed ratios for all three companies, stating any assumptions made. Taxation should be ignored. [9]

(iii) Comment on the results in part (ii). [4]

(iv) Define five other insurance related ratios that could be derived from the data to compare the performance of the three companies and state each of their objectives. [5]

[Total 23]

END OF PAPER