Actuarial Society of South Africa

EXAMINATION

2 November 2010 (am)

Subject F203 — *General Insurance* Specialist Applications

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 both 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 from the approved list.

QUESTION 1

You are an actuary working in a small South African short term insurance company writing personal lines business (motor own damage and household buildings, contents and all risks). The company is looking for opportunities to grow and has been approached by an Underwriting Managers Agency (UMA) that has the expertise to write commercial business (property, business interruption, liability and motor fleet). The current UMA split of business, based on gross written premium, is as follows: Property: 49%; Business interruption: 10%; Liability (employers and public): 40%; Motor fleet: 1%.

The UMA is dissatisfied with its current contract with another insurance company in the market and is looking for a different insurance company to partner with. Your insurance company currently does not have any contracts with other UMAs.

The financial results (amounts shown in Rands, where applicable) of the UMA's insurance portfolio for the previous 3 years are shown in the table below:

	Year ending 31.12.2009	Year ending 31.12.2008	Year ending 31.12.2007
Total Number of clients on risk	2,000	2,000	1,000
Average sum insured	75,000,000	30,000,000	30,000,000
Average premium rate	0.080%	0.075%	0.080%
Gross written premium income (gwp)	120,000,000	45,000,000	24,000,000
Risk XL Reinsurance	38,400,000	9,000,000	4,800,000
Risk XL Reinsurance rate	32%	20%	20%
Catastrophe reinsurance	4,500,000	2,250,000	600,000
Catastrophe reinsurance rate	3.75%	5%	2.5%
Net premium income	**77,100,000**	**33,750,000**	**18,600,000**
Claims cost - including claims handling cost	26,985,000	20,250,000	9,300,000
Incurred but not reported claims (10% of nwp)	7,710,000	3,375,000	1,860,000
Underwriting profit	**42,405,000**	**10,125,000**	**7,440,000**
Management expenses	41,010,000	13,331,250	6,660,000
Sales Cost (20% of gwp)	24,000,000	9,000,000	4,800,000
Advertising cost	7,710,000	843,750	-
Policy administration expenses (5% of gwp)	6,000,000	2,250,000	1,200,000
Head office costs (2.75% of gwp)	3,300,000	1,237,500	660,000
Investment Income (10% of statutory capital per annum)	1,927,500	843,750	465,000
Net profit	**3,322,500**	**-2,362,500**	**1,245,000**
Royalty to UMA (25%)	830,625	-	311,250
Income tax	-	-	261,450
Profit after tax	**2,491,875**	**-2,362,500**	**672,300**

Your insurance company is considering entering into a contract with the UMA which will give the UMA the ability to move its entire book to your company and sever all ties with its existing insurance company.

The finance general manager has asked you to analyse this financial information to assess whether or not this is a worthwhile opportunity for your insurance company.

PLEASE TURN OVER

i. Comment briefly on the appropriateness of the information provided in order to answer the finance general manager's question discussing additional information that you would require.

[18]

The finance general manager has confirmed that this is the only information available at this stage of the discussions.

ii. Interpret the financial information provided explaining the potential risks and concerns that you have with regards to this UMA proposal, given your interpretation.

[16]

The current UMA remuneration model is as follows:

- 25% of net profits, where positive, are returned to the UMA.
- Management Expenses, excluding advertising costs, are covered by a flat fee of 27.5% of gwp, payable to the UMA.
- In addition, actual advertising costs are reimbursed to the UMA

iii. Evaluate the current UMA remuneration model and recommend potential improvements.

[5]

The UMA has also suggested that instead of a contract, the insurance company does a management buyout at a Price/Earnings Ratio of 5 for the UMA as a whole, based on the 2009 financial year information.

The insurance company currently has sufficient capital to make the investment. The insurance company currently achieves a return on equity rate of 18%, which is in line with shareholder expectations.

iv. Comment on the financial attractiveness of this proposal for the insurance company.

[4]

v. Ignoring underwriting risk only, explain the risks that the insurance company will need to consider in its internal capital model calculation (for FCR purposes) as a result of taking on the UMA portfolio in its entirety, as originally intended.

[10]

Total [53]

PLEASE TURN OVER

QUESTION 2

You are an actuary working for a South Africa subsidiary of a global consulting firm. You have been approached by Rail Insurance Solutions, a Lloyd's syndicate specialising in providing comprehensive insurance solutions for train operators and rail networks, to assist them with a proposal. Rail Insurance Solutions currently only underwrites risks in the United Kingdom and certain European countries. They think that the Gautrain project in South Africa represents a potential growth opportunity for their company. The Gautrain project includes:

- construction of the infrastructure
- managing the stations
- managing the railway lines
- managing the trains
- managing the transportation around the stations, and
- ensuring the safety of the passengers using the facilities.

The Gautrain project is funded by the South African Government and will initially be owned by the government.

i. Discuss the insurance risks the Gautrain project faces recommending suitable insurance products to remove or reduce these risks.

[10]

One of the covers they propose offering to the South African government is cover against physical damage to the train carriages.

ii. Discuss the risk factors affecting the cover, and how you would approach calculating a gross premium for the cover.

[20]

Rail Insurance Solutions has a surplus treaty covering losses in excess of £500 000, and a catastrophe treaty covering catastrophes in excess of £5 000 000. In addition, it has a risk excess of loss treaty to protect its net retention. This treaty is written on an EML basis.

iii. Define EML explaining how an EML basis would differ from a sum insured basis for a treaty covering property damage to train carriages.

[3]

PLEASE TURN OVER

iv. Discuss the potential risks that Rail Insurance Solutions is exposed to by writing the risk excess of loss on the above EML basis explaining how you would mitigate these risks.

[4]

The strategy of Rail Insurance Solutions is to maximise its profits, subject to earning a return on equity of 15%. Your manager has asked you to review whether the current reinsurance arrangement will still be appropriate if they write the Gautrain train carriages.

v. Discuss the factors you should take into consideration in your review.

[10]

Total [47]

Total [100]

END OF PAPER