Actuarial Society of South Africa

EXAMINATION

30 MAY 2011(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 for a medium sized South African short term insurance company writing personal lines business (motor own damage, and household buildings and contents), commercial lines business (property), marine property business, personal accident business and forestry insurance.

The management philosophy of the insurance company is to ensure that each class of business is profitable on a stand alone basis. Also the company aims to limit income statement volatility as much as possible throughout the year in order to generate stable shareholder return.

Personal lines:
Annual premium income: R1 billion (R300 million motor and R700 million property)
Maximum sums insured: R4 million (motor); R40 million (buildings and contents combined)
Reinsurance:

- Motor risk excess of loss: R3 million in excess of R1 million;
- Property risk excess of loss: R35 million in excess of R5 million;
- Reinsurance premium: 12% of original gross premium income.

Commercial lines:
Annual premium income: R500 million
Maximum sum insured: R100 million
Reinsurance:

- 9 line surplus with line size and net retention of R10 million, with 20% total commission
- Reinsurance premium: proportional, currently R375 million

Marine property:
Annual premium income: R100 million
Maximum sum insured: R50 million
Reinsurance:

- 90% quota share treaty, with 25% return commission, including override commission, plus a profit commission clause
- Underlying risk excess of loss: R3 million in excess of R2 million
- Reinsurance risk excess of loss premium: 5.5% of original gross premium income

Personal accident business:
Annual premium income: R75 million
Maximum sum insured: R5 million
Reinsurance:

- Risk and Catastrophe excess of loss: R4.5 million excess R500 000 each and every loss and R45 million excess R5 million each and every event.
- Reinsurance premium: 26% of original gross premium income

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Forestry insurance:
Annual premium income: R250 million
Maximum sum insured: R350 million
Reinsurance:

- 75% Quota Share, with 30% return commission, including override commission
- Stop loss covering 95% of 400% of net written premium in excess of 100% of net written premium
- Reinsurance stop loss premium: 32% of net premium

Additional Reinsurance protection:

- Catastrophe excess of loss covering all classes of business : R1 billion in excess of R50 million
- Reinsurance premium: 2.5% of original gross premium income

Additional information:

- Management expenses: 10% of gross written premium
- Commissions are paid at the maximum legislative levels

i. Explain the following terms:
   a. Original gross premium income
   b. Net premium income
   c. Overriding commission

[4]

ii. Calculate the premium net of reinsurance and all expenses for each class of business.

[9]

iii. Evaluate the appropriateness of the company's reinsurance cover, given its management philosophy.

[16]

The finance director is concerned about the current levels of reinsurance spend (approximately 45% of gross written premium). He believes that it would be far cheaper to self insure by creating a notional internal reinsurance programme which covers the first R10 million of each and every individual claim. Individual and catastrophe claims in excess of R10 million would then be protected by the external reinsurance market.

The finance director is considering drafting a financial plan.

iv. Outline the general components that should be considered when drafting a financial plan.

[5]

v. Explain the factors that need to be considered in deciding whether or not to implement the reinsurance proposal.

[13]

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The marine product manager is concerned about the new proposal as he is sceptical about the level of cover, the cost and the fact that his product will no longer benefit from the reinsurance return commission or the profit share.

vi. Explain the DFA stress testing scenarios you would carry out to address his concerns for this class of business.

[8]

[Total 55]

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QUESTION 2

You are an actuary employed by the FSB. You have been asked to review an application from a short term insurance company to reduce its IBNR (including IBNER) from the current statutory required level of 7% of net written premium.

The application included a very short report compiled by their actuary containing only the following sections.

Purpose and scope of the report

This section briefly outlined that the report was written with the purpose of applying for dispensation from the FSB to lower the IBNR reserves.

The calculated IBNR reserves

The table below was included in this section.

	IBNR Based on Net Incurred Claims (R'000)			
	Mean	**75% Sufficiency**	**99.5% Sufficiency**	**Net Written Premium**
Property	3,881	6,345	18,588	265,543
Motor	1,500	4,346	7,381	150,153
Liability	4,343	12,218	54,886	62,043
Engineering	18,735	23,388	40,314	312,250
Total	**28,459**	**46,297**	**121,169**	**789,989**

Data

For each of the classes of business run-off triangles of incurred claims containing five years of history and development were given in this section.

Recommendation

The actuary recommended that the reserves should be lowered to 5% of NWP and be annually reviewed to test the adequacy of the 5%.

i. Discuss the adequacy of the report with regard to GN12 [7]

ii. Discuss

a. the IBNR results as presented in the report; [4]
b. all additional information and analyses that you would request to enable you to make a decision. [8]

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On further inquiry you learn the following about the company's assets.

Cash and near cash	R50 million
Bonds	R20 million
Listed equities	R150 million
Unlisted preference shares and associates	R150 million
Property	R12 million

The unlisted preference shares are invested in underwriting managers.

The associates are insurance companies domiciled in neighbouring African countries.

The financial statement also shows the following:

UPR	R63.2 million
Outstanding claims reserves	R45.8 million
All other liabilities (excluding IBNRs)	R20 million
Gross written premium	R1.58 billion

Premium projections for the next 3 years show planned growth of 20% per annum.

The reinsurance treaties are mostly proportional.

Assume that that the IBNR reserve remains at 7% of net written premium.

iii. Discuss the following:

a. The principles that should be considered in selecting assets to back the reserves and solvency margin. [3]

b. The suitability of the assets and the reasonability of the match between assets and liabilities, suggesting improvements where necessary. [7]

As part of the decision making process to decide whether the company's request should be granted, you are asked by the senior FSB actuary to assess the potential risks inherent in this business.

iv. Discuss the potential risks. [10]

v. Discuss the strategies that the company can employ to mitigate the risks identified. [6]

[Total 45]

END OF PAPER

