# EXAMINATION

6 October 2009 (pm)

# Subject *SA3RSA — 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 all 3 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 have recently been employed as the Chief Actuary by a non-listed proprietary general insurance company, Star Insurance. Eighty percent of the shares are held by a family owned trust and management holds the other twenty percent.

The table below depicts the following information for Star Insurance:

- The lines of business written,
- the net written premiums (NWP) for the 2006 financial year,
- the net written premium (NWP) for the 2008 financial year,
- the loss and expense ratios for the 2008 financial year. The loss ratio is defined as net incurred claims divided by net written premium.

| **Line of Business** | **Net Written Premiums 2006 R'000,000** | **Net Written Premiums 2008 R'000,000** | **Loss Ratios 2008** | **Expense Ratio 2008** |
|---|---|---|---|---|
| Cell Phone Insurance | 0 | 25 | 65% | 8% |
| Commercial Property | 150 | 300 | 60% | 13% |
| Commercial Motor | 100 | 250 | 70% | 15% |
| Engineering | 160 | 300 | 77% | 15% |
| Liability | 90 | 150 | 58% | 7% |

Star Insurance has recently changed its reinsurance to a pure non-proportional programme and a substantial part of the reinsurance is placed with non-approved foreign reinsurers.

Twenty percent of the assets of Star Insurance are invested in cash. An amount of R60 million is invested in a wholly-owned subsidiary, with a current net asset value of R35 million, that specializes in underwriting engineering business. The engineering subsidiary generates all of Star Insurance's engineering premium income. Star Insurance also owns property to the value of R50 million and the rest of the assets are invested in listed equities.

Star Insurance holds IBNR at 7% of NWP and its surplus assets equal R260 million. Commission is payable at 20% of NWP for all classes apart from Commercial Motor for which commission is 12.5%.

i Describe the current statutory solvency requirements of a general insurer. [4]

ii Outline the principles that should be taken into account to determine the investment strategy for a general insurance company. [6]

**PLEASE TURN OVER**

iii The Chief Risk Officer asks you to do an assessment of the risks inherent in the business of Star Insurance and to summarise your findings in a formal report to the Board. Discuss the findings and recommendations that you would include in the report. [20]

At the Board meeting a director made the following comment:
"Any solvency strain that the company might suffer is irrelevant because once FCR is introduced, our company will have excess capital that we can utilise to expand the business."

iv Comment on the validity of the director's statement. [7]

The financial director of the company asks you to determine if it will be possible to increase the solvency margin by 10 percentage points by the end of 2009 financial year through retained income.

The following are your assumptions:

a) The loss ratios are expected to stay the same for all classes apart from engineering.
b) There will be 5% annual growth in net written premiums for all classes of business, except engineering.
c) Engineering premiums are expected to reduce by 10% over the year and the loss ratio is expected to improve by 5 percentage points.
d) The cell phone business is all monthly premiums. Forty percent of all other premium income is earned in the year that it is written and 60% in year two.
e) The expected interest income on the assets backing the technical reserves is 10% and the expected investment income on the shareholders' funds is 15%.
f) The outstanding claims reserve is 20% of the net incurred claims.

v Derive a projected income statement for 2009 and state whether it will be possible to achieve the solvency goals through retained earnings.

[10]

[TOTAL 47]

**PLEASE TURN OVER**

## Question 2

Ajax Insurance Company is a small multi-line insurer writing the following lines of business:

- Personal Property
- Small Commercial Property
- Personal Motor
- Commercial Motor
- General liability

Ajax Insurance Company currently only writes business in Gauteng. Its premium volume is growing rapidly, and the company expects the growth to continue. Ajax is specifically interested in growth in the small commercial market.

Ajax Insurance has net written premiums of R300 million and statutory net assets of R80 million (including the contingency reserve). Eighty percent of its investments are in listed equities and twenty percent in cash. It writes to limits of R20 million per policy on liability, R5 million on motor physical damage and R50 million on property. The company has been moderately profitable once investment income is included.

ABC Insurance Company is a small insurer writing only Professional Indemnity cover. ABC's statutory net assets (including the contingency reserve) are R50 million and its gross premium volume is R100 million. Twenty percent of its investments are in listed equities and property and the rest is in cash. It writes to a R30 million limit per policy.

ABC's premium volume has been fairly stable over the last three years and this is expected to continue, but the management would like to see less volatility in the underwriting results.

i. Compare the reinsurance needs of Ajax Insurance Company with those of ABC Insurance Company.

[11]

ii. Describe the type or types of reinsurance that would be suitable for each of the insurers.

[4]

iii. Describe how the cost of reinsurance should be allowed for in the pricing of Ajax's premiums.

[6]

[TOTAL 21]

**PLEASE TURN OVER**

## Question 3

You are a product development and pricing actuary for a large short term insurance company. Your company is developing a new low-income Mzanzi product, providing contents and buildings cover. Your company wishes to attract the previously untapped low-income segment of the market through this product. The policyholders being targeted typically have not had insurance in the past.

Your company aims to capture a significant proportion of this market through aggressive marketing.

The product will only be available for individuals with a gross monthly income below R3000.

i. Describe the main challenges and risks in providing this product to the market. [26]

ii. Describe the points you would take into consideration regarding the Sasria component of cover during the design of the Mzanzi product [2]

The additional risk involved with the product will lead to additional capital requirements. The managing director has suggested that you load the premium and so build up the required additional capital over time.

iii. Comment on the suggestion, suggesting an alternative approach to allowing for the additional capital. [4]

[TOTAL 32]

# END OF PAPER