

EXAMINATION

17 May 2019

Subject F203 — General Insurance Specialist Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. Follow log in and saving instructions issued to you at the exam venue.
2. Save your work throughout the exam.
3. You are required to submit your answers in Word format only using the template provided. You **MAY NOT** use any other computer program (e.g. Excel) during the examination.
4. 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.
5. You must not start typing your answers until instructed to do so by the invigilator/supervisor.
6. Mark allocations are shown in brackets.
7. Attempt all questions, beginning your answer to each question on a new page.
8. You should show calculations where this is appropriate. If necessary, an answer book may be used for this purpose.

Note: The Actuarial Society of South Africa will not be held responsible for loss of data where candidates have not followed instructions as set out above.

AT THE END OF THE EXAMINATION

**Check that you have saved your work as per instructions given to you.
Hand in your question paper with any additional sheets firmly attached.**

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 the newly employed appointed actuary of a medium to large sized South African short-term insurer writing 3 classes of personal lines insurance:

1. Personal Motor
2. Houseowners and Householders
3. Personal Liability

The insurer is a wholly owned subsidiary of a very strong financial services conglomerate.

The technical accounting team has shared the following background information regarding International Financial Reporting Standards (“IFRS”) and Actuarial Practice Note 401 (“APN 401”)

Fair Value Accounting

Amount for which an asset could be exchanged, or a liability settled, between knowledgeable, willing parties in an arm’s length transaction.

Prudence

An insurer need not change its accounting policies for insurance contracts to eliminate excessive prudence. However, if an insurer already measures its insurance contracts with sufficient prudence, it should not introduce additional prudence.

Components of Technical Provisions

Provisions relating to past events may include but are not limited to:

- *Claims that have been reported*
- *Future development on reported claims (incurred but not enough reported – IBNER)*
- *Claims incurred but have not yet been reported (Incurred but not reported – IBNR)*
- *Reopened claims*
- *Profit commission and/or sliding scale contingent commission*
- *Claims handling expenses.*

Claims Settlement Expenses (SAM simplification)

An estimate for the provision for claims settlement expenses may be simplified by using a percentage of the provisions for claims outstanding. That is, the provision for claims settlement expenses may be simplified by applying the following formula to each line of business:

$ULAE = R \times [IBNR + 0.5 \times OCR]$ where $ULAE =$ unallocated loss adjustment expenses

$R =$ Expenses/Paid Claims

$IBNR =$ Best estimate of the IBNR claims provision ($IBNR + IBNER$)

$OCR =$ Best estimate Reported outstanding Claims Provision

PLEASE TURN OVER

- i. Discuss the difference between unallocated loss adjustment expenses and allocated loss adjustment expenses, giving examples of each. [5]
- ii. a. Discuss possible methods for calculating the ULAE outlining the steps taken to arrive at the final estimate.
b. Briefly describe the advantages and disadvantages of each method discussed in part a. [12]
- iii. Discuss possible differences when calculating the ULAE for a going concern versus a non-going concern entity. [3]
- iv. a. Discuss two possible approaches and the steps required for determining the risk margin for IFRS purposes.
b. Discuss the practical implications of each method. [10]

Following your year-end review, you have determined the following:

	2017	2018
Gross written premium	1 500m	1 725m

	2017	2018
Reinsurance written premium (Proportional)	300m	258.75m
Reinsurance written premium (Non-proportional)	100m	100m

	Expected 2017 (1 year forward)	Actual 2017 (1 Year forward)
Actual vs Expected Development	390m	325m

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Gross	2017	2018
OCR (System Generated)	300m	305m
Best estimate IBNR/IBNER Provision	125m	85m
ULAE	0m	25m
Discounting	0m	0m
Risk margin	64m	30m
Total claims provision	489m	445m

Reinsurance results (Asset)	2017	2018
Reinsurance OCR	60m	45.75m
Reinsurance IBNR (Proportional)	37.8m	17.25m
Reinsurance IBNR (Non-proportional)	8.33m	0m

- Best Estimate is calculated using triangulation-based methods, with the final result being a selected combination approach between the chain ladder and Bornhuetter Ferguson estimates. (From the documentation that you reviewed, this is consistent to the methodology followed at the 2017 year-end)
 - No large claims (i.e. claims that will breach the non-proportional reinsurance limits) have been recorded in the last two years.
 - Your review focused on removing some of the implicit margins in the prior year's technical provisions. The adjustments and removal of implicit margins include:
 - Allowing for third party recovery estimates.
 - No zeroising of negative development factors.
 - Calculating the risk margin at entity level (75th percentile) versus 75th percentile for each insurance class of insurance written.
 - Generally, loss ratios (incurred claims/earned premium) have dropped over the period, from 70% in 2017 to 64.5% in 2018.
- v. Outline and discuss the main items you would include in a report to the Actuarial Committee following your year-end reserving review, giving emphasis to the changes you made in 2018 and their impact on the results.

[17]

- vi. Discuss three benefits of peer review in the above context.

[3]

[Total 50]

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QUESTION 2

You are the chief actuary of a long-established, large South African short-term insurer writing significant volumes of most lines of business. The business is mainly distributed via intermediated channels. The insurer has a small personal lines portfolio that is distributed via a direct channel.

The insurer administers about 60% of policies on their policy administration system with the balance of the policies being administered by brokers and UMAs. The insurer only receives bordereau type information regarding the policies administered by the brokers and UMAs. This information is too limited to include in the insurer's reserving triangles.

- i. a. Discuss alternative techniques to setting the Incurred But Not Reported (IBNR) reserves for the policies that are not administered by the insurer.
b. What are the advantages and disadvantages of the alternative techniques?

[11]

The Insurer has struggled to increase market share in recent years with policy volumes remaining constant and gross written premium only increasing at a level slightly lower than inflation. The Board is not satisfied with this low level of growth. They have recommended investigating whether a more scientific pricing structure for the heavy commercial vehicle portfolio that is administered by one of your UMAs could lead to an increase in market share.

The UMA currently uses quite a simple rating structure that considers the sum insured of the vehicle and trailer separately as well as the past claims experience of the fleet being underwritten. This rating structure is standard market practice in the heavy commercial vehicle industry. The Board believes that using a more scientific rating structure such as a generalised linear model may lead to a competitive advantage and an increase in market share.

- ii. Explain how you would go about performing this pricing exercise with particular reference to the following:
 - a. Collection and checking of available data
 - b. Any adjustments to the data that may be required
 - c. Selection of appropriate rating factors
 - d. Market considerations
 - e. Practical implementation of the new pricing model

[25]

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The Board has also suggested that you consider selling the heavy commercial vehicle product via your direct channel too.

iii. Discuss why the rating structure that you have developed may not be appropriate for use in your direct channel and the implications thereof should this be implemented.

[7]

iv. Outline practical implications for the insurer in distributing this product via its direct channel.

[7]

[Total 50]

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END OF EXAMINATION