

EXAMINATION

19 October 2021

Subject F203 — General Insurance Specialist Applications

Time allowed: Three hours and fifteen minutes, plus an additional five minutes to allow for uploading your file in the ASSA Exam Platform

Total marks: 100

INSTRUCTIONS TO THE CANDIDATE

1. *Ensure that you are logged in and authenticated through Examyty before you attempt the examination.*
2. *Ensure that you have your candidate number handy to input as part of the examination.*
3. *Questions are only available in the ASSA Exam Platform and may not be printed or copied outside of the ASSA Exam Platform.*
4. *You will be provided with a Word template to access and use to complete your questions. You may only use the file provided to you. No other file from your PC may be accessed.*
5. *Ensure that your Candidate number appears in the Header of your Word template. [Select “Insert”, then “Header”, input your candidate number on blank header template and select “Close Header”]. DO NOT USE YOUR NAME OR MEMBER NUMBER ON YOUR ANSWER SCRIPT.*
6. *You may not use any other computer program (e.g. Email or Excel), nor open any other browser during the examination.*
7. *You may not make use of a Formulae and Tables book during the examination. Any such information that may be required will be provided to you within the examination.*
8. *You are strongly encouraged to use the first 15 minutes as reading time only, however, you may commence answering the paper whenever you are ready.*
9. *Mark allocations are shown in brackets.*
10. *Attempt all questions.*
11. *Show calculations where this is appropriate. You may use blank paper to carry out rough work calculations. You may use a calculator from the approved list only.*
12. *Upload your answer file into the ASSA Exam Platform BEFORE the examination time expires.*
13. *Once you have added your file, you MUST click on FINISH ATTEMPT to save your file. You will still be allowed to go back and make changes (Review Attempt) if you have time.*

14. *Once you are satisfied with your uploaded file, click **FINISH ATTEMPT and FINISH ALL AND SUBMIT** whereafter you will not be able to make more changes. Take this into account when finishing early - once you have submitted, you will not be able to make any more changes to your answers.*
15. *It is the candidate's responsibility to ensure that all work is submitted **BEFORE** the end of the examination time. Take this into account when planning your review and submission. There will be no time announcements.*
16. *An option to opt out of the exam will become available 1 hour after the official exam start time. If you select the Opt-Out option, you agree and understand that your entire script/answers will be deleted and cannot be retrieved at a later stage and that your script or part thereof will not be put forward for marking.*

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.

END OF INSTRUCTIONS

QUESTION 1

You are the newly appointed actuary of a start-up non-life insurance company, Quicksure, that began operating in South Africa in 2019. Quicksure aims to take advantage of the increasing trend in online insurance sales activity by selling products through digital channels. The initial products that Quicksure has launched into the market have been a household contents product and a motor insurance offering.

The household contents product is priced based on geographical area, multiplied by a square meter sum insured factor (fixed per area), multiplied by the size of the property as an exposure measure.

- i. Explain the concept of average, and how this may be relevant in the context of Quicksure's household contents product.

[3]

- ii. Discuss further considerations which need to be made to the pricing of the household contents product, explaining how these could potentially be refined.

[5]

The pricing of the motor insurance product is based on offering a discount to the premium rate charged by the policyholder's current insurer. For policyholders who do not have an existing insurance policy, reference is made to Quicksure's existing portfolio.

Policies are sold with the same terms and conditions as the existing policy.

Additionally, policies have a fixed price guarantee where premiums are fixed for up to three years where no claim exceeding the deductible is made.

- iii. Outline potential problems with this pricing approach, suggesting potential solutions to each.

[8]

A quota share reinsurance treaty covering the motor product has been put in place which includes a loss participation clause. Effectively this means that if the ceded loss ratio on the motor portfolio exceeds 100%, the reinsurer will only reimburse 75% of the ceded claims above the 100% loss ratio limit. Where the loss ratio is below 100%, the quota share operates as per normal.

In addition to the loss participation feature listed above, the quota share treaty has a 60% base cession. Reinsurance commission is based on a sliding scale, with a minimum and maximum commission of 10% and 40% based on ceded loss ratios of 90% and 60% respectively. Commission is interpolated between these two figures.

An aggregate excess of loss reinsurance treaty in place has a cost of 5% of premium after the quota share (which applies before the excess of loss treaty), with a minimum deposit premium of R1.5m.

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- iv. For financial years 2019 and 2020, calculate the underwriting results for the motor portfolio, net of reinsurance, based on the figures provided below. Assume IBNR has not been taken into account, and can be estimated as 20% of incurred claims. Show all your calculations and state any additional assumptions that you make.

Motor portfolio (ZAR m)	2019	2020
Gross Written Premium	100	100
Gross Earned Premium	60	
Gross Paid Claims	30	60
Gross Claims Reserve (Closing balance)	30	35
Gross Commission	10	20
Gross Expenses	20	20

[12]

- v. Why might a reinsurer insist on a loss participation clause? Refer to calculations made in part iv.

[2]

The CFO has come to you with a question regarding the aggregate excess of loss arrangement. She does not see the sense in paying for cover which does not seem to be used in a normal year of claims.

The treaty has the following features:

- One reinstatement at 50%, pro rata to amount only
- Covers event losses of R8m in excess of R2m

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You perform stress tests on the 2020 financial year, assuming an event loss of R30m in 2020 in addition to the information provided in (iv). To illustrate the impact of the treaty the first test assumes that the XoL treaty is not in place whilst the second test includes the current XoL treaty. You can ignore any knock-on IBNR impacts.

vi. Calculate the revised net underwriting result under both scenarios, showing your workings.

[6]

vii. Discuss whether the current excess of loss treaty is as ineffective as the CFO suggests by referring to your calculations in part vi.

[2]

viii. Describe your approach to providing a definitive opinion on the effectiveness of the excess of loss treaty for Quicksure, with potential amendments which could be made based on your findings.

[8]

The household product has been performing well, and management senses an opportunity for cross selling homeowners cover into the product base.

ix. Discuss the impact of this product on the reinsurance arrangements that you require.

[4]

[Total 50]

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QUESTION 2

You are the chief actuary of a medium sized short-term insurer which only operates in the South African market. The insurer only writes personal lines business.

Your financial year end coincided with South Africa emerging from a hard lockdown, implemented in an effort to reduce the spread of the SARS-COV-2 virus.

During the hard lockdown only essential workers were allowed to leave their houses for work purposes while the rest of the population could only leave their houses in order to buy essential products.

Your motor portfolio showed a sharp decline in claims frequency during the lockdown and as a result an increase in profitability.

i. Describe how the frequency and severity of a personal lines class of business are calculated by peril as well as illustrating the formula for the calculation for the frequency and severity.

[5]

ii. Discuss how you would expect the overall frequency and severity of the following personal lines classes of business to change during lockdown:

- a. Motor Comprehensive
- b. Buildings Insurance
- c. Personal Accident
- d. Hospital Cash Plan

[9]

Your reserving actuary has approached you for advice, in finalising the year end provisions. She calculates the personal lines Incurred But Not Reported (IBNR) reserves based on monthly accident date triangles with monthly development. She is concerned that the latest diagonals of especially the motor triangles are showing very low development and that this will lead to a substantial decrease in IBNR reserves.

iii. a. Explain why a short term insurer establishes IBNR reserves.

b. How does IFRS 4 view a change in the level of reserves that have been established?

[4]

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Your reserving actuary has outlined three options that she is considering for setting the reserves. The three options are:

- Allowing full credibility for the latest development in establishing the level of reserves using the Chain Ladder Method
- Ignoring all the diagonals that emerged during the lockdown period and using an expected ultimate loss ratio approach for those months
- Including the diagonals that emerged during the lockdown period but weighting the results using the Bornhuetter Ferguson (BF) method

iv. Outline the advantages and disadvantages of each approach that she is suggesting.

[10]

After consulting with your Chief Financial Officer (CFO) you have decided to implement the third approach which is weighting the results using the BF method. This has resulted in a release of IBNR reserves at year end.

v. What do you think the income statement effect will be for the insurer's reserves over the next financial year as South Africa emerges from hard lockdown and how can this be prevented?

[4]

Six months after hard lockdown has ended, you request your pricing actuary to do a review of your motor comprehensive pricing structure as you have noticed that your sales conversion rates have dropped and you are experiencing high levels of lapses. The recent claims frequencies for the portfolio are still slightly lower than pre-lockdown levels. Your pricing is generally based on 4 – 5 years of experience.

Your pricing actuary has expressed his concern regarding the inclusion on all the data in the pricing exercise.

vi. a. Outline three alternative approaches to the ranges of data that you could include in the exercise and describe the expected market competitiveness of each of these approaches?

[8]

b. Are there any motor comprehensive rating factors that you suspect would become more explanatory in a post hard lockdown environment?

[2]

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Your Chief Marketing Officer (CMO) has approached you with a proposal to enter the Heavy Commercial Vehicle space as she feels this would be a good opportunity to do so in view of the lighter traffic volumes on South Africa's roads. She feels that this would be an excellent opportunity to build market share in this segment of the insurance market.

vii. Draft a response to your CMO considering the following aspects of a product launch:

- Pricing
- Operations
- Capital Implications

[8]

[Total 50]

END OF PAPER