

EXAMINATION

30 May 2025 (am)

Subject F103 — General Insurance Fellowship Principles

Examination time: Three hours and fifteen minutes (includes reading time)

Upload time: Five minutes

[Total time on examination countdown clock: Three hours and twenty minutes]

Total marks: 100

INSTRUCTIONS TO THE CANDIDATE

Failure to adhere to any of these instructions could incur examination sanctions including disqualification from the examination.

1. The question paper is only available on the ASSA Exam Platform as a PDF download and may not be printed. Copy/paste of questions or parts thereof is allowed from the question paper to your Word answer document only.
2. Download the Word answer document template from the ASSA Exam Platform. Save this Word answer document on your desktop using your **full Candidate Number**, which starts with "F103-exa-2025-...", as filename. **Do not name your answer script with your name or member number.**
3. You are required to submit your answers in Word format **ONLY** using this document. No answers in any other format (e.g. handwritten) will be accepted. Save work regularly.
4. Ensure that your **full Candidate Number** appears in the "header" of your Word answer document. [Double-click on the header at the top of the Word document, input your Candidate Number only in the header, then press "Esc" to close the header.] **Do not use your name or member number anywhere in your Word answer document.**
5. You may not access any file from your computer, use any other computer software (e.g., Email or Excel), or open any other browser, collaboration tools or AI tools (e.g. Copilot, ChatGPT etc.) during the examination. Nor may you use Grammarly, Grammarly Premium or similar add-ins. Microsoft Word spellcheck is allowed.
6. You are not permitted to bring any other material into the examination (e.g. a Formulae and Tables book). Any such information/material that may be required will be provided to you in the examination.
7. You are strongly encouraged to use the first 15 minutes as reading time only, however, you may start answering the paper whenever you are ready.
8. Mark allocations are shown in brackets.
9. Attempt all eight (8) questions, starting each on a new page (as provided for in the Word answer document).
10. Show calculations where appropriate. You may not use other materials except blank paper for calculations. You may use a calculator from the ASSA-approved list only.
11. At the end of the three hours and 15 minutes examination time, you must stop writing and start uploading your Word answer document. **You may NOT continue to write during the five minutes upload time.**
12. Upload your Word answer document only onto the ASSA Exam Platform. Once you have uploaded your document, you must click on **Finish Attempt** to save your document. You will still be allowed to go back and check that you have uploaded the correct version of your answer script (**Review Attempt**) if you have time. Remember that you may not type answers in the last 5 minutes of upload time.
13. Once you are satisfied with your uploaded document, click **Finish Attempt** and **Finish all and Submit**. Once you have submitted, you will not be able to make any changes.
14. **You must submit your Word answer document BEFORE the time on your examination countdown clock runs out.**

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. The onus remains on you to read and implement all examination instructions.

END OF INSTRUCTIONS

QUESTION 1

ZX is a newly established commercial property insurer.

- i. Outline 5 advantages to ZX of putting a Surplus reinsurance arrangement in place with an established reinsurer compared to setting up a reciprocal Quota Share arrangement with a relatively recently established commercial property insurer which operates in a different part of the country to ZX.

[5]

ZX implemented reinsurance treaties, operating in the order given below:

- 20% Quota Share treaty with Reinsurer A.
 - Surplus with Reinsurer B, with a maximum of 4 lines.
ZX retains as little as possible on each risk, subject to the minimum retention limit stipulated in the treaty based on Expected Maximum Loss (EML).
 - Risk Excess of Loss:
 - with Reinsurer C, providing cover of 80% of \$10m in excess of \$20m; and
 - with Reinsurer D, providing cover of 75% of \$40m in excess of \$30m.
- Both XL covers have a stability clause, with the initial value of the Stability Index being 100.

You have been provided with the following extract of claims settled by ZX:

Policy	Sum Insured	EML	No. of Surplus lines used	Claim	Stability Index	Reins. Recoveries from			
						A	B	C	D
1	\$35m	\$25m	3	\$15m	110	(a)	(b)	-	-
2	\$400m	\$250m	(c)	\$275m	120	\$55m	(d)	Not provided	(e)

- ii. Determine the minimum retention limit and amounts (a) – (e) in the above table.

[7]

[Total 12]

QUESTION 2

A general insurer writes various personal lines of business both directly and through independent intermediaries.

- i. Outline briefly the benefits for an insurance company of having all policy and claims data controlled by a single, integrated system.
- ii. Define what is meant by a “reopened claim” and outline potential reasons for its occurrence.
- iii. State 5 policy movements that can be monitored and give one example of each for private motor insurance.

[5]

[Total 13]

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QUESTION 3

InFin is a rapidly growing local insurer specialising in creditor insurance.

- i. Outline the benefits provided by a creditor insurance policy. [2]
- ii. Suggest with reasons the most likely distribution channel used by InFin. [2]

InFin's assets are invested in local cash deposits and treasury bills of up to 3-month duration.

- iii. Discuss the appropriateness of these investments for InFin. [5]

No models were used to derive InFin's current investment strategy. One of InFin's directors suggests that a stochastic asset-liability model should be used to investigate the appropriateness of InFin's investments.

- iv. Discuss briefly the merits and drawbacks of this suggestion. [5]

[Total 14]

QUESTION 4

You work at a short-term insurer in a middle-income country that specialises in:

- Extended warranty insurance on high-value imported home appliances into the country; and
- Goods in transit insurance for various types of fresh produce that are shipped worldwide.

- i. Describe extended warranty and goods in transit insurance, and in doing so explain what benefits each product offers. [2]

A group of several large countries (Group A) have begun to impose tariffs, and to increase the intensity of cargo searches at their shipping ports for goods imported from a group of several other large countries (Group B). The insurer operates in countries in both Group A and Group B.

- ii. Describe the effect that these economic policies are likely to have on the short- and medium-term profitability of the two products considered above. [6]
- iii. State and explain 3 operational risks that could become more significant to the insurer if tensions between countries in this economic war worsen. [3]

[Total 11]

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QUESTION 5

Property insurers in a particular country are experiencing increases in both attritional and large-fire related losses, with the last year having had the most recorded wildfires in the country's history

- i. Explain the difference between attritional and large losses and why they are often modelled separately in property insurance. [2]
- ii. Outline 7 criteria that influence the insurability of a risk, and for each criteria comment on if and how climate change could adversely impact insurers' ability to insure property against fire-related perils. [7]
- iii. State and explain 2 ways, other than through the use of reinsurance, in which property insurers in the country could continue to offer affordable cover against fire-related damages to property in the light of likely continued increases in property losses related to large fires. [2]

[Total 11]

QUESTION 6

- i. Outline briefly the main reasons why short-term insurers hold capital. [2]
- ii. Describe what a Lloyd's syndicate is and explain how the supervision of its capital modelling is different to that of a publicly-listed insurer or reinsurer. [3]

The consulting company where you work carries out capital modelling exercises for a range of clients. The risk categories typically used to determine the capital amounts are: insurance, market, credit, operational and liquidity risks.

- iii. Suggest, with reasons, the 2 most significant categories of risk that are likely to drive the capital amount modelled for each of the following clients:
 - a. A publicly-listed regional insurer operating the largest crop insurance book in its local market.
 - b. A publicly-listed reinsurer specialising in excess of loss cover for short-term property insurers in developing countries.
 - c. A Lloyd's syndicate specialising in worldwide professional indemnity insurance for high-earning individuals.

[6]

[Total 11]

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QUESTION 7

You work for a large general insurance company, and you are busy with the annual review of the claims reserving policy which will be used to estimate the claims reserves as at 31 December 2024. The policy outlines the principles that must be followed when estimating the claims reserves.

- i. List the components of the claims reserves.

[2]

Given the increased incidence and severity of floods and the subsequent cost of reinsurance, the reserving actuary has proposed that the claims reserves, on a published reporting basis, are set between the 85th and 90th percentile – this range provides the company with some flexibility when deciding on the reserves to hold. Previously claims reserves were set at the 75th percentile.

- ii. Outline 2 advantages and 2 disadvantages of the reserving actuary's proposal.

[4]

The claims reserving policy outlines the approach that should be followed when performing an analysis of emerging experience. To ensure that the policy is appropriate the reserving actuary has requested that you perform an analysis of emerging experience for the commercial liability claims reserves. For this line of business an -inflation adjusted Bornhuetter-Ferguson method using incurred claims was applied to estimate the claims reserves.

- iii. Explain how an analysis of emerging experience may be carried out for the commercial liability line of business.

[4]

You have received the following information on actual and expected claims incurred in the 2023 calendar year by accident year, obtained from the reserving actuary for the commercial liability line of business. The reserves are calculated at a best estimate level:

Accident Year	2023	2022	2021	2020	2019
Actual	800	750	570	550	420
Expected	950	800	530	470	400

Where:

- Actual claims: These are the claims incurred in the 2023 calendar year extracted from the latest available claims triangle used to estimate the claims reserves as at 31 December 2024.
 - Expected claims: These are the claims that were expected to be incurred in the 2023 calendar year based on the claims triangle used to estimate the claims reserves as at 31 December 2023.
- iv. Calculate actual versus expected ratios and hence discuss the appropriateness of the reserving methodology used to estimate the claims reserves as at 31 December 2023. Your answer should consider the relative weights given to the prior loss ratio and chain ladder estimates for different accident years.

[4]

[Total 14]

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QUESTION 8

- i. List 4 risk factors for comprehensive private motor insurance that cannot be used as rating factors, and for each one provide an example of a proxy rating factor.

[2]

You are a recently-appointed pricing actuary at XYZ Insure, a non-life insurer that writes primarily comprehensive private motor insurance policies.

XYZ is considering using mileage as a rating factor. Mileage would be measured through a telematics device installed in the insured vehicle. A premium adjustment would be made at the end of the year based on actual distance travelled.

- ii. Comment on the suitability of XYZ's using annual mileage as a rating factor in this way.

[3]

XYZ is investigating the suitability of its rating factors by using a regression analysis.

- iii. Explain how correlation between the rating factors used by XYZ might impact the analysis, and suggest tests to analyse the significance of the factors used in the analysis.

[4]

A director of XYZ suggests that gender should no longer be used as a rating factor for private motor insurance.

- iv. Outline the potential impacts on XYZ, in terms of its pricing and competitiveness, of adopting this suggestion.

[5]

[Total 14]

END OF PAPER