

EXAMINATION

13 May 2026 (am)

Subject F103 — General Insurance Fellowship Principles

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

Upload time: Five minutes

[Total time on examination countdown timer: 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. *Your examination countdown timer reflects your TOTAL examination time. Reading and writing time is three hours and fifteen minutes. Audio prompts will remind you of the remaining writing time and when you should stop writing to start saving and uploading **You may NOT continue to write during the five minutes upload time as this could lead to disqualification from the examination.***
2. *The question paper is available on the ASSA Exam Platform as a PDF download only and may not be printed. Copy/paste of questions or parts thereof is allowed from the question paper to your Word answer document only.*
3. *You may not access any file from your computer, use any other computer software (e.g., Email or Excel), or open or use any other browser, collaboration tools or AI tools, including those embedded in MS Word and Adobe AI assistant (e.g. Copilot, ChatGPT etc.) during the examination. Embedded AI tools must be disabled. You may not use Grammarly, Grammarly Premium or similar built-in language and grammar tools which must also be disabled. Microsoft Word spellcheck is allowed.*
4. *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-2026-...”, as filename. **Do not name your answer script with your name or member number.***
5. *Ensure that your **full Candidate Number** is entered 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. Your candidate number must be the only identifier used. Submissions that are incorrectly labelled or cannot be clearly identified by candidate number may not be marked and may result in forfeiture of the examination attempt.***
6. *You are required to submit your answers in Word format ONLY using the answer document template from the ASSA Exam Platform. No answers in any other format (e.g. handwritten) will be accepted. Save work regularly.*
7. *You must save your answer template to your local machine’s desktop and have ‘Autosave’ switched off (top-left button in Word). You must not save your answer template to OneDrive or any other cloud storage device.*
8. *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.*
9. *You are strongly encouraged to use the first fifteen minutes as reading time only, however, you may start answering the paper whenever you are ready.*
10. *Mark allocations are shown in brackets.*
11. *Attempt all questions, starting each on a new page (as provided for in the Word answer document template).*
12. *Show calculations where appropriate. No materials may be used other than blank paper for calculations. Only calculators from the ASSA-approved list are permitted.*
13. *Upload a single version of your Word answer document only to the ASSA Exam Platform. Once uploaded, click **Finish Attempt**. You may still use **Return to attempt** to check that the correct version has been uploaded, provided you have time remaining. When you are satisfied with your upload, you must click **Submit all and Finish** to complete your submission. After selecting this option, no further changes can be made. Candidates remain fully responsible for ensuring that the correct file is uploaded, in the required format, size, and location, within the scheduled examination time. The submitted file will be treated as the final version and cannot be replaced or amended. **Please note that no typing or editing of answers is permitted during the final five minutes allocated for upload time.***

14. *ASSA will not retrieve, replace or amend answer scripts where incorrect, incomplete or unintended versions are uploaded, nor where candidates subsequently notify ASSA after the conclusion of the examination session that an incorrect file was submitted.*
15. ***You must submit your Word answer document onto the ASSA Exam Platform BEFORE the time on your examination countdown timer 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

- i. Outline briefly the cover provided by mortgage indemnity guarantee (MIG) insurance. [3]
- ii. Define what is meant by an “accumulation of risk”. [1]
- iii. Outline briefly 3 examples of situations which could lead to an accumulation of risk for MIG insurance. [3]

An insurance company which writes commercial lines business, including MIG insurance, has reinsurance treaties which operate in the order given below:

- 20% Quota Share; and
- Surplus, which has the following conditions:
 - Maximum of 7 lines of cover.
 - Maximum retention limit of R600 000 based on Expected Maximum Loss (EML); and
 - The insurer must retain at least R100 000 of the EML on each risk reinsured.

The insurer defines EML for its MIG business as:

$$\max (\text{Loan Amount } (L) - 75\% \text{ of the property's Assessed Value } (V), 0)$$

and adopts the following reinsurance strategy for this business, based on the ratio of L to V :

- Category 1 risks (where the loan's $L/V > 0.9$): The insurer reinsures as much of each risk as is permissible under the reinsurance arrangement above.
 - Category 2 risks (where the loan's L/V is in the range 0.75-0.9): The insurer retains as much of each risk as is possible under the reinsurance arrangement above.
 - Category 3 risks (where the loan's $L/V < 0.75$). No Surplus reinsurance is used.
- iv. Determine the Surplus reinsurance recoveries in respect of the following MIG claims:
 - a. Assessed property value = R15 million, Loan = R10 million, Claim = R4 million.
 - b. Assessed property value = R12 million, Loan = R10 million, Claim = R3 million.
 - c. Assessed property value = R16 million, Loan = R15 million, Claim = R2 million.
 - d. Assessed property value = R3 million, Loan = R2.75 million, Claim = R1 million.
- [7]
[Total 14]

QUESTION 2

An established general insurer writes private motor insurance.

- i. State what is meant by the “soft phase” of the insurance cycle. [1]
- ii. Explain why the insurer may increase its focus on retaining existing policyholders in the soft phase of the underwriting cycle. [3]
- iii. Define what is meant by an “experience rating system” and outline briefly the advantages and disadvantages to an insurer of implementing experience rating in private motor insurance. [4]

PLEASE TURN OVER

- iv. Describe the differences between prospective and retrospective experience rating. [2]
- v. Outline briefly what is meant by a “number-based” and a “cost-based” system of experience rating, suggesting, with justification, which would be more appropriate for private motor insurance. [4]

[Total 14]

QUESTION 3

- i. Contrast “regulatory capital” and “economic capital”. [3]

Local Growth Insurance (LGI) is a South African general insurer. For regulatory purposes, LGI calculates its Solvency Capital Requirement (SCR) using the standard formula prescribed by its local regulator. The insurer’s risk appetite requires a minimum capital coverage ratio of 120%.

Assume LGI’s regulatory capital requirement is driven only by two risk modules:

- Market Risk (MR) SCR = R150 million
- Insurance Underwriting Risk (IUR) SCR = R100 million

The correlation between Market Risk and IUR = 0.5

The total capital requirement is aggregated using:

$$SCR_{Total} = \sqrt{SCR_{MR}^2 + SCR_{IUR}^2 + 2 \cdot \rho \cdot SCR_{MR} \cdot SCR_{IUR}}$$

LGI’s Own Funds total R280 million.

LGI has performed an internal assessment of underwriting risk on an economic basis and concluded (using the same correlation as above) that:

- Market Risk remains R150 million
- Insurance Underwriting Risk (economic view) = R170 million

- ii. Calculate the following [4]
- a. the total regulatory SCR;
 - b. the regulatory coverage ratio;
 - c. the total economic capital requirement; and
 - d. the economic coverage ratio.
- iii. Comment on LGI’s financial soundness relative to its risk appetite and recommend 2 actions it should consider. [2]

[Total 9]

PLEASE TURN OVER

QUESTION 4

Uncanny Insurance (UI) is a short-term insurer that sells only a storm microinsurance product to households in a particular country. If storm damage criteria are met, the policy pays a fixed benefit per insured household. UI advertises “fast payment” as a key product feature where it expects that approximately 70% of valid claims can be assessed and paid within 7 days.

Most of UI’s assets include long-duration domestic fixed-interest bonds and the ownership of UI’s domestic office building.

- i. Define “liquidity risk” and describe how stress testing can be used by UI to assess its liquidity risk.

[3]

A severe storm occurs, affecting many households in the same region and triggering a large number of claims over a short period.

- ii. Describe why this storm event is likely to create liquidity risk for UI.

[3]

UI’s management proposes buying a 40% quota share treaty for this product.

- iii. Evaluate the proposal considering liquidity, profitability and solvency.

[3]

- iv. Suggest, with justification, another type of reinsurance treaty that might be more appropriate for this risk.

[1]

[Total 10]

QUESTION 5

The reserving function at a large general insurer is well established and uses several traditional actuarial claims reserving methods.

- i. Define the basic chain ladder (BCL) method in the context of claims reserving.

[3]

- ii. Outline the various decisions to be made, requiring actuarial judgment, when using the BCL method.

[5]

A new non-executive director has urged the company to adopt Artificial Intelligence (AI) as quickly as possible, stating that “AI will automate complex processes, improve the accuracy of existing models, and reduce the reliance on human judgement”.

- iii. Outline 2 areas within the claims reserving process where AI could be used to improve processes.

[2]

- iv. Discuss the advantages and disadvantages of using AI within the claims reserving process.

[4]

[Total 14]

PLEASE TURN OVER

QUESTION 6

NewCo is a recently established general insurer which writes only domestic contents insurance sold through the internet. BigCo is a large general insurer in the same country as NewCo and has been writing several personal lines of business for more than 20 years, sold through independent intermediaries.

- i. Outline reasons why the data available to NewCo for pricing and reserving may differ to that available to BigCo. [5]
- ii. Explain what is meant by a “loss-leader” strategy and the ways in which NewCo could benefit from making use of such a strategy. [2]
- iii. Outline the advantages NewCo, as a recently established company, could have over BigCo in gaining market share. [3]

[Total 10]

QUESTION 7

A Lloyd’s syndicate specialises in environmental liability insurance.

- i. Outline the benefits provided by environmental liability insurance. [3]

A Lloyd’s syndicate has underwritten environmental liability insurance for many years. A summary of the syndicate’s split of assets on 31 December 2025 is provided below:

Cash and money market instruments	10%
Fixed-interest risk-free bonds:	
• Short dated (1-5 years to maturity)	10%
• Medium dated (5-8 years to maturity)	25%
Fixed-interest corporate bonds:	
• Medium dated (5-8 years to maturity)	10%
US CPI-linked risk-free bonds:	
• Medium dated (5-8 years to maturity)	30%
Equity – global diversified portfolio	15%

- ii. Discuss the suitability of the assets for matching the liabilities of the syndicate. [7]

A consultant to the managing agent suggests that a portion of the medium-dated, fixed-interest, risk-free bonds be sold and re-invested in a catastrophe bond to enhance returns and provide diversification benefits. The catastrophe bond is issued by a large global re-insurance company where the proceeds to investors are dependent on the reinsurer’s claims experience from catastrophic events.

- iii. Comment on the consultant’s suggestion. [4]

[Total 14]

PLEASE TURN OVER

QUESTION 8

Hamba Insurance (HI) is a South African short-term insurer. All policy benefits are denominated in Rands, and premiums are collected in Rands. HI writes the following lines of business:

- Motor extended warranty (South Africa):
Claims are settled in Rands. Many vehicles are imported, and spare parts are often imported. Repairers revise spare parts prices frequently.
- Travel insurance (South African residents travelling abroad):
Claims are settled in Rands, but many underlying costs (e.g. medical bills, repatriation) are invoiced in a foreign currency and then converted to Rands.

- i. Outline briefly 6 sources of uncertainty that may result in adverse claims experience for HI.

[3]

HI sets premium rates annually using the previous year's experience and an assumed Rand/US Dollar (US\$) exchange rate. HI holds US\$ 4 million in unhedged US cash deposits.

- ii. Describe 2 ways in which HI is exposed to currency risk.

[2]

HI's estimated claim costs for the next year, assuming an exchange rate of R18/US\$, are shown below.

Product	Expected claims	Assumed claims split
Motor ext. warranty	R120 million	• 55% spare parts costs (70% of which are US\$- and 30% Rand-linked) • 45% labour costs (Rand-linked)
Travel	R30 million	• 60% US\$-linked • 40% Rand-linked

HI wants to investigate the sensitivity of its expected annual claim costs to an immediate weakening of the Rand to R20/US\$.

Assume that currency movements are fully passed through to the relevant claim components, and that the volumes and claims mix are unchanged.

- iii. Calculate the revised expected annual claims cost by line of business and the percentage increase in total expected annual claims costs.

[4]

- iv. Calculate the change in the Rand value of HI's US\$ assets and comment briefly on whether this provides a good hedge.

[2]

- v. Suggest 2 possible actions that could be taken by HI over the next year to manage currency risk affecting each of the areas: Pricing, Reserving, Operations and Investments.

[4]

[Total 15]

END OF PAPER