EXAMINATION

16 April 2026 (am)

Subject A311 — Actuarial Risk Management Core Principles

Paper Two

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.* ***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. *Use only the Word answer template provided in your personal folder under the "Exam" icon on your desktop. The file has already been named using your candidate number. Please confirm that your candidate number matches the candidate number used in the file name. If there is any discrepancy, notify an invigilator immediately. Do not rename your file and do not create multiple versions.*

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. No answers in any other format (e.g. handwritten) will be accepted. Save work regularly.*

7. *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.*

8. *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.*

9. *Mark allocations are shown in brackets.*

10. *Attempt all questions, starting each on a new page (as provided for in the Word answer template).*

11. *Show calculations where appropriate No materials may be used other than blank paper for calculations. Only calculators from the ASSA-approved list are permitted.*

12. *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.***

13. *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.*

14. ***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

List six tools that a financial services provider can use to manage its capital. Provide a practical example of each.

[Total 6]

QUESTION 2

X-Life is a new life insurance company selling term assurance policies.

i. Outline why X-Life would need capital.

[6]

ii. State reasons why X-Life would want to underwrite their policies to manage their risk.

[3]

[Total 9]

QUESTION 3

MegaCorp sponsors a defined contribution fund with a guaranteed benefit underpin. At retirement, the fund will compare the member's accumulated lump sum with the value (as determined by an independent actuary) of a pension income starting at n% of the employee's final salary, where n is the number of years' service at MegaCorp. In the many years that the fund has been active, top up payments were required on average for 20% of retirees. In the past, if the accumulated savings requires a top up, then MegaCorp will make up the difference. Retirees then purchase their own annuity in the open market.

All employees pay a fixed percentage of their salary into the fund. This percentage can be reviewed from time to time but is guaranteed never to go above a certain percentage.

Discuss the financing options available to MegaCorp to fund the liabilities arising from the guaranteed element of the retirement benefit.

[Total 10]

QUESTION 4

ZenSure is an insurance company providing comprehensive personal lines insurance cover through a network of intermediaries. They have a reputation for fast claims settlement.

They are considering introducing a fraud prediction process. At the first notification of a claim, the new framework will determine how the claim is to be assessed.

Describe briefly how the actuarial control cycle can be used to introduce and manage this process.

[Total 10]

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QUESTION 5

Ariel Life Company (ALC) has always sold single life whole and term assurance policies. Recently, it started selling a funeral product that covers a main life plus their spouse and children.

i. List assumptions that ALC may need to make, or adjust, to price this new product.

[3]

ii. Explain how the company can allow for risk and uncertainty in assumptions in the pricing and valuation of this new product using a discounted cashflow approach.

[5]

Yesterday, the government announced an unexpected 2% increase in the VAT rate.

iii. Describe the potential impact that this change may have on ALC's business.

[5]
[Total 13]

QUESTION 6

A large health insurer specialises in Private Medical Insurance (PMI) cover. Their PMI policies provide comprehensive cover.

i. Outline the characteristics of PMI policies and the benefits typically provided by a comprehensive PMI policy.

[4]

The insurer has noticed a trend over the last four years of claims consistently increasing at a rate faster than the country's general rate of medical inflation.

ii. Suggest possible reasons for the observed trend in claims costs.

[5]

iii. Outline possible corrective actions that the insurer can take to address the observed trend.

[5]
[Total 14]

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QUESTION 7

Major Metals, a mining company, is opening a mine in a developing country. The regulations of this country require that mining companies must establish a rehabilitation fund when a new mine is opened. The purpose of this fund is to ensure that there are sufficient assets available to restore the environment to its original condition once the mine closes.

Major Metals estimates that the life of the mine will be ten years, and that the cost to restore the environment is expected to be R20 million every year, increasing by 10% each year and payable for ten years after the mine closes.

The regulation requires that a separate portfolio of assets is established for the purposes of funding this liability. Once a year, Major Metals must demonstrate that the market value of the portfolio is at least equal to the actuarial value of the liabilities. Furthermore, the liabilities must be valued by an independent actuary using a discounted cashflow approach. The cashflows should be discounted using the market gross redemption yield of the 10-year benchmark government bond at the valuation date.

The financial director of Major Metals suggests that an amount equal to the liability be invested in the 10-year government bond at the outset.

i. Outline the advantages and disadvantages of this approach.

[6]

The risk manager of Major Metals suggests that the portfolio should be managed by a specialist liability driven investment manager, LDI Inc. LDI explains that there are only three available bonds issued by the country – a 5-year, a 10-year and a 20-year bond. They also advise that the 5- and 20-year bonds are relatively illiquid.

LDI proposes an immunized strategy for the assets, using the three available bonds. They explain that this approach will better hedge the funding level against changes in market interest rates.

ii. Explain how this strategy could be implemented by LDI Inc.

[4]

iii. Outline the risks and difficulties associated with this approach.

[3]

iv. Suggest how Major Metals could evaluate the performance of LDI Inc.

[3]

[Total 16]

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QUESTION 8

A new Insure-tech firm, Peachy, is entering the life insurance market in a developing country. Peachy is a fully cloud-based firm. Peachy promises customers a hassle-free sign-up in minutes via their mobile phone application. Sign-up requires applicants to answer a short number of health- and lifestyle-related questions, and applicants need to submit identification and financial documentation on the mobile application. No physical health checks are required, and a transparent age-based charging structure is followed. Artificial intelligence is used to verify and analyse the information and documents provided and to generate a quote and policy terms and conditions (e.g. exclusions).

i. Discuss eight key risks to Peachy of entering this market.

[12]

ii. Outline the advantages of Peachy's business model compared to that of a traditional insurance company.

[4]

Peachy's charging structure works as follows:

- An age of 20 is taken as the standard age.
- A standard office premium of 1% of sum assured, per annum, is charged to a healthy life aged 20.
- A monthly-equivalent premium is determined from this annual premium.
- Premiums increase stepwise by 0.8% per annum, compounded, for each year of age greater than 20.
- Additionally, premiums increase with inflation each year. Inflation is assumed to be 4.5% per annum.

iii. Calculate the monthly premium for a sum assured of R1m for:
   a. A healthy life aged 43, exact, today.
   b. The life in part a, after 12 years have elapsed, assuming that the policy is still in force.

[3]

iv. Comment on the appropriateness of Peachy's charging structure.

[3]

[Total 22]

[GRAND TOTAL 100]

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END OF EXAMINATION

