EXAMINATION

13 May 2025 (am)

Subject A311 — Actuarial Risk Management Core Principles

Paper One

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 "A311-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 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

i. Explain the differences between an immediate annuity and an income drawdown as allowed by some defined contribution schemes.

[3]

ii. Outline the risks of the income drawdown product for the annuitant.

[3]

iii. What regulatory measures can be put in place to manage the risks of an income drawdown product?

[3]

[Total 9]

QUESTION 2

i. List and define the 6 main risk categories.

[6]

A friend has approached you to assist him with identifying the key risks involved in opening a small coffee shop. He needs to take out a business loan and one of the bank's requirements to qualify for the loan is that he must do a risk analysis on his proposed venture.

ii. For each of the risk categories listed in (i), identify a key risk of your friend's coffee shop and a suitable mitigation option for this risk.

[6]

[Total 12]

QUESTION 3

i. List eight (8) reasons why a provider of financial services would calculate provisions.

[4]

ii. Describe how to set the key assumptions of valuing liabilities of an immediate annuity product that is consistent with a market value approach.

[5]

[Total 9]

QUESTION 4

i. Outline expectations theory, inflation risk premium theory and market segmentation theory as they apply to conventional yield curves.

[3]

A country is facing an economic recession. To manage this, the reserve bank has just stated that it plans to significantly decrease short term benchmark interest rates. It further stated that it will hold these rates at very low levels for as long as is necessary to boost economic growth.

ii. Explain, using the above theories, how this statement would impact bond prices at all durations.

[5]

iii. Outline what impact the interest rate announcement will have on the prices of shares issued in the same country by:

- A producer of staple foods such as bread and cereal
- A high-end clothing retail store.

[4]

[Total 12]

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QUESTION 5

A life insurance company writes whole life and endowments products in the local market via brokers. The company has been experiencing financial difficulties, which has led to intervention by the regulator.

i. Suggest reasons that may have led to the company's financial difficulties.

[5]

ii. Describe the actions the regulator and company may have to take in this situation.

[5]

iii. Aside from the regulator and the life company, list six (6) other stakeholders of the life insurance company. For each stakeholder, give a reason as to why they would be keenly interested in the outcome of the regulatory intervention.

[3]

[Total 13]

QUESTION 6

LifeCo is an insurance company in a small well-developed country and will be pricing a range of annuity contracts for the first time. LifeCo needs to understand the mortality they may be exposed to.

i. List the sources and types of data that LifeCo could use in this investigation.

[3]

ii. Discuss the issues relating to using these data sources to determine the mortality risk.

[9]

[Total 12]

QUESTION 7

A defined benefit fund has just been closed to new members. The bulk of the fund's current liability is in respect of pensions in payment, however, there is a small group of active members. Pensions are paid monthly. The pension increase policy of the fund is to provide annual increases in line with inflation. The fund has, on occasion, awarded pensioners an increase more than inflation after periods of strong investment performance.

The trustees are currently considering two courses of action with respect to the investment strategy for the pensioner component of the fund's liabilities:

- Adopting an annual cashflow matching strategy for the pensioner liability which would match expected future pensions in payment and future inflation increases.
- Retaining the existing investment strategy which involves holding an actively managed portfolio of assets with a strategic asset allocation of 65% equities and 35% fixed income assets.

i. Explain how the matching portfolio could be constructed and implemented using a portfolio of inflation-linked bonds.

[5]

ii. Outline reasons why the cashflow match constructed above may not perfectly match the liability payments.

[3]

iii. Discuss the advantages and disadvantages of each option to both active member and pensioner as well as the sponsor of the fund.

[7]

[Total 15]

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QUESTION 8

i. List the main features related to regulation of Collective Investment Schemes.

[3]

ii. Outline the differences between an Investment Trust and a Unit Trust.

[7]

An individual investor wishes to obtain long term exposure to commodities as an asset class. He is considering the following ways of gaining this exposure:

- Investing in a unit trust which actively invests in a range of global diversified mining companies.
- Investing in a futures contract which tracks a well-known global commodity index covering a broad range of commodities such as energy, metals, agriculture etc.

iii. Outline the relative advantages and disadvantages of each approach.

[8]
[Total 18]

[GRAND TOTAL 100]

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END OF EXAMINATION

