EXAMINATION

10 May 2023 (am)

Subject A311 — Actuarial Risk Management Core Principles

Paper One

Time allowed: Three hours and fifteen minutes (which includes 15 minutes of reading time), plus an additional five minutes to allow for scrolling on the ASSA Exam Platform

Total marks: 100

INSTRUCTIONS TO THE CANDIDATE

1. *Ensure that you are logged in and authenticated through Examity before you attempt the examination.*
2. *Questions are only available on the ASSA Exam Platform and may not be printed.*
3. *Type all your answers within the ASSA Exam Platform only. No answers in any other format (e.g. handwritten) will be accepted.*
4. *You may not access any file from your computer, use any other computer program (e.g., Email, MS Word or Excel), or open any other browser during the examination.*
5. *You may not use any other material (e.g., a Formulae and Tables book) during the examination. Any such information that may be required will be provided to you in the examination.*
6. *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.*
7. *Mark allocations are shown in brackets.*
8. *Attempt all questions.*
9. *Show calculations where appropriate. You may use blank paper to carry out rough work calculations. You may use a calculator from the approved list only.*
10. *You may return to your answers to review and amend during the allotted examination time. Once you are satisfied with your answers you must click on* ***Finish all and Submit.*** *Once you have submitted, you will not be able to make any changes.*
11. *You must submit all work <u>before</u> the end of the allotted examination time. Take this into account when planning your review and submission. There will be no time announcements.*

Note: Answers will be saved automatically during the examination if you are connected to the ASSA Exam Platform. However, 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

i. Define the term "risk appetite" and describe ways in which the board of a company may express their risk appetite.

[7]

ii. List six features of a company that may influence its risk appetite.

[3]

[Total 10]

QUESTION 2

i. List ways, aside from those related to investment, in which state regulation could impact retirement provision by employer sponsors of defined contribution pension funds.

[6]

ii. List ways in which the investment strategy of a defined contribution pension fund could be regulated.

[5]

[Total 11]

QUESTION 3

A listed South African funeral insurance company recently won an award for excellence in corporate governance.

i. Explain the phrase "good corporate governance" and outline actions the company may have taken to ensure this.

[6]

The company is often praised for its use of technology in the sales and underwriting of its products. They are now considering expanding into a neighbouring country. You have been sent to research the cultural, demographic and technological landscape in the target country that might impact the potential success of the expansion.

ii. Outline the issues that you will research and report back on.

[8]

[Total 14]

QUESTION 4

i. Define "equity risk premium" and outline the factors that may influence the size of the equity risk premium for a specific share.

[2]

An equity analyst in a country currently experiencing strong economic growth is tasked with estimating the value of a share in a local company. The share has just paid an annual dividend of R2.00 per share, before dividend tax. The analyst makes the following assumptions:

- Dividend growth rate (g) of 10% p.a.
- Required rate of return (i) of 12% p.a.
- Dividend tax rate (t) of 30%.

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ii. Calculate the value of the share using a dividend discount model, stating any additional assumptions required.

[3]

The analyst arrives at a price that is 10% higher than the current market price.

iii. Outline possible reasons for the difference between the actual share price and the analyst's valuation.

[4]

After reviewing reliable economic forecasts of a local recession in the next two years, the analyst decides to revise his valuation to reflect this information.

iv. Explain how the valuation assumptions might be changed to allow for the recession, and how the resulting impact on the share valuation might differ according to the type of company being valued.

[4]

[Total 13]

QUESTION 5

A businessman has just purchased a prized buffalo bull on auction for R10m. The bull will reside on his wildlife reserve along with other high value animals that are being kept for breeding and speculating purposes.

The businessman has approached the insurance market to see if he can insure the bull along with some of his other wild animals.

Discuss the factors to consider in deciding whether this risk is insurable or not. Where applicable, comment on product design considerations that might make it easier to insure.

[Total 16]

QUESTION 6

LifeCorp is a large insurer specialising in providing group life insurance products to large companies. Terms and pricing are reviewed annually for all clients. They are currently working together with a broker on providing a quote for a large group, MegaCom. They require life insurance, lump sum disability, income protection and critical illness cover for their staff. Benefits are expressed as a percentage of each employee's basic annual salary.

i. Outline the assumptions and data that will be required to provide a quote to MegaCom.

[5]

While certain levels of benefits are guaranteed for all staff, LifeCorp may insist on underwriting cover that exceed specified amounts. MegaCom provided LifeCorp with a list of all current employees along with their salaries and basic information on each. The quote will be provided as a percentage of MegaCom's monthly payroll.

ii. Discuss criteria that could be used to set the amounts above which underwriting is required.

[5]

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MegaCom has responded to LifeCorp’s quote and asked if the premium (percentage of payroll) can be fixed (“locked in”) for a period of four years.

iii. Discuss the advantages and risks of such a structure for both parties. Also suggest ways to mitigate some of the risks.

[6]

[Total 16]

QUESTION 7

In Actuaria, a developing country, most employed individuals belong to private (i.e. non-state) medical schemes. A large, well-established medical scheme which dominates the market is reviewing its investment strategy. You work for an actuarial consultancy and have been asked to review the strategy on behalf of the scheme.

The medical scheme provides a wide range of benefits covering medical consultations, hospitalisation, treatments and medication (both short-term and for chronic diseases).

i. Describe the key features of the scheme’s liabilities for the purposes of determining a suitable investment strategy.

[8]

ii. Describe factors (other than the liabilities) that should be considered in determining a suitable investment strategy for the scheme.

[6]

The scheme implemented a new investment strategy based on the review conducted by the consultancy. They have now approached you again to consult on putting into place a monitoring framework for the strategy.

iii. Explain why such monitoring is important and what the framework may contain.

[6]

[Total 20]

[GRAND TOTAL 100]

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END OF EXAMINATION