

# Actuarial Society of South Africa

## EXAMINATION

15 May 2020

### Subject A311 — Actuarial Risk Management

#### Paper Two

*Time allowed: Three hours and fifteen minutes*

#### **INSTRUCTIONS TO THE CANDIDATE**

1. *Ensure that you have your candidate number handy to input as part of the exam.*
2. *Questions are only available in Moodle and may not be printed.*
3. *You are required to submit your answers in this Moodle learning platform only. You MAY NOT use any other computer program (e.g. MS Word or Excel) during the examination.*
4. *You have 15 minutes at the start of the exam to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper..*
5. *Mark allocations are shown in brackets.*
6. *Attempt all 7 (seven) questions. Your work is saved automatically during the exam.*
7. *At the end of the exam, if you have time left, you may return to your attempt to review and make any changes to your answers. Once you are happy with your answers, you need to **Finish all and Submit** your work after which you will NOT be able to make further changes. Take this into account when finishing early - once you have submitted you will not be able to make any more changes to your answers.*
8. *It is the student's responsibility to ensure that all work is submitted BEFORE the end of the exam time. Take this into account when planning your review and submission.*
9. *You should use your scrap paper to work on any calculations where this is appropriate.*

**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.**

**END OF INSTRUCTIONS**

## QUESTION 1

- i. Describe how an equity investor will receive a return on her investment. [1]
- ii. Discuss in detail the cashflow characteristics of equities as an investment. [5]

An investment analyst is considering two equity investment options for his investment portfolio:

### Share A

A large, well-established listed company that has a national presence, and distributes and sells groceries to the largest portion of the country.

### Share B

A privately-owned company that has only recently launched its first product range. This company specialises in selling high-end luxury goods locally and abroad over the internet.

- iii. Describe and contrast the following investment characteristic for the two shares.
- a. Yield [1]
- b. Marketability [2]
- c. Currency risk [1]
- [Total 10]

## QUESTION 2

ZetaSure is a large short-term insurer selling various types of products via brokers and through call centres. You are on the panel interviewing an internal applicant (i.e. someone already working for ZetaSure) who applied for a job in the company's risk office. The applicant will be involved in risk identification.

- i. Outline what knowledge you would like the applicant to possess and demonstrate in the interview. [3]

Recently, a virus outbreak in East Asia caused widespread panic and in some cases loss of life as the virus spread across Asia and Europe.

ZetaSure's chief risk officer is concerned about the consequences of such an outbreak on ZetaSure if it spreads to this country.

- ii. Discuss what the impact on the business might be if such a virus outbreak should occur locally. [7]
- [Total 10]

**REMEMBER TO SAVE**

**PLEASE TURN OVER**

### QUESTION 3

i. Define the following terms and provide an example of each:

- Logical needs
- Emotional needs
- Present needs
- Future needs

[4]

As the marketing manager of a well-established life insurance company, you have been asked to develop a tailored product to meet the needs of a large trade union. The membership of the trade union is diverse with a range of industries covered.

ii. Describe a framework that can be used to analyse the union members' needs to ensure that they are met by the benefits of the proposed product range. Note: you are not expected to discuss what benefits should be offered. [10]

[Total 14]

### QUESTION 4

SureCorp is a medium-sized insurance company specialising in providing insurance solutions to businesses. SureCorp historically made profits on the commercial buildings and contents class of business but has incurred losses for the past three years.

Discuss possible reasons behind the losses and propose corrective actions where appropriate.

[Total 15]

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## QUESTION 5

You are the actuary responsible for your organisation's asset-liability management. You started an investigation to categorise all your liability cashflows as it relates to benefits offered.

- i. List and describe the different categories of liability cashflows - use the 'categorisation by nature' classification approach. Give a clear example of each. [6]
- ii. For each of the categories identified in part i. above, describe the most appropriate matching techniques when choosing appropriate investment assets. [6]

The regulatory framework within a country may limit what you as a company may be able to do in terms of investments.

- iii. List the potential controls that the regulator may implement in this regard. [4]

[Total 16]

## QUESTION 6

G-Life is a medium-sized life insurance company specialising in providing life assurance products on a group basis to companies of various sizes and their staff from all industries. All their group life arrangements are reviewed annually.

On their mortality book of business, G-Life currently only has a quota share reinsurance treaty in place.

- i. Explain the benefits to G-Life of having this reinsurance in place. [5]

They are considering improving this structure by introducing a mix of proportional and non-proportional reinsurance.

- ii. Discuss how G-Life's management of their retained mortality risk exposure may be improved by this proposed change. [8]

G-Life carries the membership and pricing data on each scheme as at the last review.

- iii. Briefly explain how this data and the concept of Value at Risk (VaR) might be used to better understand and manage their aggregate exposure on their mortality portfolio. [3]

[Total 16]

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## QUESTION 7

- i. List the six major categories of risks faced by all financial services firms, and provide a brief explanation of each one.

[6]

Alphalife, an established life insurance company, is planning to launch a regular premium unit-linked retirement annuity as an addition to their other unit-linked products.

The only charge levied under the product will be a fund-based annual management charge equal to 1% of the value of the units. The benefit payable on maturity or earlier death is the value of the units.

- ii. Describe the main risks the company faces in relation to this new product.

[10]

- iii. Discuss the additional risks that Alphalife would face if this was their first unit-linked product.

[3]

[Total 19]

[GRAND TOTAL 100]

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**END OF EXAMINATION**