

# Actuarial Society of South Africa

## EXAMINATION

11 October 2021

### Subject A311 — Actuarial Risk Management

#### Paper One

*Time allowed:* Three hours and fifteen minutes, plus an additional five minutes to allow for scrolling in 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 in the ASSA Exam Platform and may not be printed.
3. Submit all of your answers in the ASSA Exam Platform only. No uploads of answers (handwritten or otherwise) to the ASSA Exam Platform will be accepted.
4. You may not use any other computer program (e.g. Email, MS Word or Excel) or files, nor open any other browser during the examination.
5. You may not make use of a Formulae and Tables book during the examination. Any such information that may be required will be provided to you within the examination.
6. You are strongly encouraged to use the first 15 minutes as reading time only, however, you may commence answering the paper whenever you are ready.
7. Mark allocations are shown in brackets.
8. Attempt all questions.
9. Show calculations where this is 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 happy with your answers you need to **Finish all and Submit** your work. Once you have submitted you will not be able to make any more changes to your answers.
11. You must submit all work **BEFORE** the end of the allotted examination time. Take this into account when planning your review and submission. There will be no time announcements.
12. An option to opt out of the examination will become available one hour after the official examination start time. If you select the Opt-Out option, you agree and understand that your entire script/answers will be deleted and cannot be retrieved at a later stage and that your script or part thereof will not be put forward for marking.

**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

List the areas in which regulation can be expected to impact the operation of a defined benefit pension fund.

[Total 6]

### QUESTION 2

Discuss measures that regulation can implement to maintain consumer confidence in financial markets.

[Total 7]

### QUESTION 3

An investment management company manages a large domestic equity portfolio. The company categorises the market into industries and employs specialists in each industry to select shares for the portfolio.

- i. Outline the merits of this approach to portfolio management.

[5]

The company is considering setting up a global equity portfolio which covers both developed and emerging equity markets around the world. The chief investment officer is considering appointing country-specific specialists rather than using their existing team of industry specialists as analysts for this portfolio.

- ii. Discuss the advantages of this approach.

[5]

[Total 10]

### QUESTION 4

Trust Life is a proprietary life insurer writing without-profit funeral insurance business. They are busy preparing their latest annual financial statements. Trust Life's profit in the past year significantly exceeded the budget.

- i. List reasons why we expect Trust Life to also perform an analysis of profit arising over the past year.

[6]

- ii. Discuss the factors that Trust Life should consider when deciding how to distribute this profit.

[6]

[Total 12]

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### QUESTION 5

HappyLife is a life insurer that provides a wide range of life insurance products. They market and sell their products via a national network of brokers. They are currently considering some enhancements and amendments to their product offerings.

Briefly discuss key stakeholders or related parties that HappyLife would need to consider with this process.

[Total 13]

### QUESTION 6

CommSure is an established general insurance company specialising in the insurance of medium to large industrial and commercial enterprises.

To date, CommSure has managed some of its risks by means of a surplus reinsurance arrangement.

i. Describe the basic features of a surplus reinsurance arrangement and explain why CommSure may have chosen surplus instead of quota share reinsurance.

[5]

ii. Discuss how the introduction of non-proportional reinsurance structures can potentially improve their reinsurance arrangements.

[4]

iii. State why CommSure may consider using alternative risk transfer (ART) contracts.

[3]

[Total 12]

### QUESTION 7

South Africa recently experienced a few consecutive days of political unrest, resulting in widespread damage to property and theft of goods. In South Africa, the state-owned insurer SASRIA currently insures such risks.

Discuss the extent to which such events are insurable by considering the required and desired characteristics of insurable risks.

[Total 12]

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## QUESTION 8

- i. Describe how an insurance company could assess its economic capital position, also considering the type of model that could be used. [11]
- ii. Explain why a provider will not wish to hold too large an amount of capital in excess of its economic capital requirement. [2]

[Total 13]

## QUESTION 9

A defined contribution fund is considering selecting a range of different investment portfolios for its members. The fund would like to offer three portfolios – a low risk portfolio, an intermediate risk portfolio and a high risk portfolio. Members will then have a choice into which portfolio to invest. Each portfolio will invest in local and global equities, local bonds and local cash. The allocation to each asset class will be determined by the risk profile of that portfolio.

- i. Outline the main risks to both the fund and the members in adopting this member investment choice approach. [5]
- ii. Explain how the actuarial control cycle can be used to develop the investment strategies for each of these portfolios. [10]

[Total 15]

[GRAND TOTAL 100]

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**END OF EXAMINATION**