

# Actuarial Society of South Africa

## EXAMINATION

4 October 2018

### Subject A301 — Actuarial Risk Management

#### Paper Two

*Time allowed: Three hours*

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

1. *Follow log in and saving instructions issued to you at the exam venue.*
2. *Save your work throughout the exam.*
3. *You are required to submit your answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*
4. *You have 15 minutes at the start of the examination 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. *You must not start typing your answers until instructed to do so by the invigilator/supervisor.*
6. *Mark allocations are shown in brackets on exam papers.*
7. *Attempt all questions, beginning your answer to each question on a new page.*
8. *You should show 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.**

#### **AT THE END OF THE EXAMINATION**

**Check that you have saved your work as per instructions given to you.  
Hand in your question paper with any additional sheets firmly attached.**

*In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.*

## QUESTION 1

You work at a life insurance company and one of your responsibilities is looking after the reinsurance. You have recently re-tendered your reinsurance on one product line. Two reinsurers quoted the same price. State (with a brief explanation) the other factors you would consider in making the decision of who to award the tender to.

[Total 5]

## QUESTION 2

Describe and contrast the following three (3) types of money market instruments available to investors:

- i. Call deposit
- ii. Notice deposit
- iii. Term deposit

[Total 6]

## QUESTION 3

List the advantages and disadvantages of collective investment schemes.

[Total 5]

## QUESTION 4

Solvency II, which is similar to Solvency Assessment & Management (SAM) in South Africa, governs capital requirements for insurance companies in Europe.

- i. One role of a regulator in any country is to ensure that the financial promises made by insurers can be met. Briefly explain how they do that. [2]
- ii. Solvency II is based on a three-pillar framework. State and briefly explain the three pillars. Ensure you cover the concepts of MCR and SCR in your explanation. [7]

[Total 9]

## QUESTION 5

A South African pension fund has 25% of its assets invested in overseas investments. A member has asked why the fund has overseas investments when all the benefits are payable in rands.

- i. Discuss possible reasons for this strategy. [4]
- ii. List the problems that may be encountered when investing in overseas securities. [6]

[Total 10]

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## QUESTION 6

ProfSure is a life assurance company that has to date focussed mainly on the higher earning, professionally qualified market. It currently requires all their prospective clients to visit their GP (personal doctor) who must then complete ProfSure's standard underwriting questionnaire. It has been suggested that they consider rather employing a few trained medical nurses that go out to meet the prospective client and complete the questionnaires.

- i. Outline the advantages and disadvantages of using a travelling nurse over the current process. [7]
- ii. Aside from medical underwriting, explain four (4) other aspects of new business processes that can contribute to the risk management of a life office. [8]

[Total 15]

## QUESTION 7

You are working in the asset management department of a newly established life insurance company. Based on the sales targets for your planned product suite, your Chief Investment Officer (CIO) has determined that 50% of the strategic asset allocation be into the local equity market.

- i. Discuss the major investment options available to your company to get exposure to the local equity market. For each option, comment on the unique practical challenges you might experience. [9]

Your equity analyst has suggested that you should use the simplified dividend discount model to value the individual shares you are considering for the investment portfolio.

- ii. State the simplified dividend discount model, and define any notation used. [2]
- iii. List the practical issues in using the simplified dividend discount model. [3]

[Total 14]

## QUESTION 8

A well-established health and fitness company is exclusively marketing and selling its products in the major cities of the local market. They offer gymnasium facilities to their clients as well as nutrition products, mainly to the high-income earners.

Given that their earnings profile has reached a plateau due to saturation of the market, they intend to expand to major cities of African countries. You have been appointed to evaluate the project appraisal process.

- i. Outline the main aspects you would expect to be considered during the initial appraisal of this expansion project. [3]
- ii. Discuss the factors that need to be considered during the detailed appraisal to assess the viability of the expansion project. [13]

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While determining an appropriate risk discount rate for the cashflow modelling, the company identified that the expansion project will likely have a higher degree of systematic risk as opposed to the risk normally accepted.

iii. Outline potential approaches that can be used to allow for this. [2]

[Total 18]

## QUESTION 9

AccSure is an insurance company specialising in providing personal accident policies to individuals and on a group basis.

i. List reasons why an insurer will require effective risk management processes in their organisation. [4]

ii. Explain how a personal accident policy works and list four distinct business risks that AccSure is exposed to. For each risk give an example of how it may materialise. [6]

AccSure's risk committee has identified a cyber-attack on its IT systems as a key operational risk. You have been asked to draw up and present a framework to management around managing this risk.

iii. Discuss each step you would include in your presentation. [8]

[Total 18]

[GRAND TOTAL 100]

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**END OF EXAMINATION**