

Actuarial Society of South Africa

EXAMINATION

2 May 2019

Subject A311 — Actuarial Risk Management

Paper One

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

Save your answers to the hard drive.

Hand in your question paper with any additional sheets firmly attached.

<p><i>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.</i></p>
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QUESTION 1

It is important that beneficiaries of pension funds are given sufficient information about their benefit entitlements. In many countries this disclosure requirement is legislated.

- i. List the items that might be required to be disclosed to members. [3]
- ii. State at which points disclosure to members may be required. [2]

[Total 5]

QUESTION 2

The country of Actuarasia has seen a recent change in local investors demands for a specific asset class. Within the last 12 months, there has been a material increase in the demand for local bonds.

- i. Describe the main potential reasons that could have resulted in this shift in demand. [3]
- ii. Describe how supply-factors can also influence the relative attractiveness of bonds. [2]

[Total 5]

QUESTION 3

- i. List the different types of money market investments that are available to investors. [3]
- ii. List the most likely reasons why a defined benefit pension scheme might hold money market investments and give a relevant example for each reason provided. [4]

[Total 7]

QUESTION 4

A group of actuaries and other professionals have an idea to launch a new life insurance company, QuickLife, that will provide whole-life cover. Sales will be via brokers and the underwriting will be by means of a comprehensive blood test performed on the spot using state-of-the-art medical technology.

They are in the market looking for start-up capital and have approached your consulting firm to help them with their business plan.

Explain the need for start-up capital by considering the potential capital requirements and development expenses of QuickLife.

[Total 8]

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QUESTION 5

A company specializing in critical illness and disability cover is considering expanding to a neighbouring country. Before proceeding they are doing some market research on whether there is any potential demand for the product in the target country.

Discuss what you will consider in determining the potential demand for the product.

[Total 8]

QUESTION 6

i. In the context of insurance, what is underwriting? [2]

ii. Explain, using examples, how underwriting can be used as a risk management tool. [5]

[Total 7]

QUESTION 7

One of the stakeholders of an insurance company is the Board of Directors.

i. What is ‘Corporate Governance’? [2]

ii. List eight areas on which an actuary may advise the Board. [4]

The King Report on Corporate Governance is a booklet of guidelines (called King Code) for the governance structures and operation of companies in South Africa.

iii. State what type of regulation the King Code is and give the advantages and disadvantages of such regulation. [3]

[Total 9]

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QUESTION 8

A friend recently made the following comment regarding vehicle insurance:

“The insurance company will charge you premiums equivalent to your expected claims cost plus a margin for their expenses and profits. You can hence do better by just saving your monthly premium and paying your own claims”.

- i. Discuss the merits of this statement.

[4]

CarSure is an insurance company specializing in providing comprehensive vehicle insurance cover. In their risk cost models, they model the main sources of claims on the motor product separately.

- ii. List at least four types of claim that may be covered by CarSure.

[2]

- iii. Including some examples, explain why it would be beneficial for CarSure to model the sources of claims separately.

[5]

[Total 11]

QUESTION 9

- i. Define the term “Prime property”.

[3]

An investment company has secured prime real estate for their investors in the form of a shopping mall. The shopping mall is situated near a suburb that has a mix of middle income and affluent families.

The current rental agreements in place with the tenant’s state that rental income can only be reviewed once every five years. The mall also advertises that their parking fees to clients “will never be increased”.

- ii. Discuss the unique risk and return characteristics of this property investment.

[12]

[Total 15]

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QUESTION 10

Clothes-R-Us is a large clothing retailer in the local market. A significant part of their sales is on credit (via their store card) with payment terms ranging from 3 to 36 months. They offer a tailored interest rate to each client.

- i. List ten factors Clothes-R-Us might consider when setting the interest rate for a client.

[5]

Recently Clothes-R-Us approached DebtCo, a company specializing in buying existing books of debt. DebtCo pays a lump sum and in return DebtCo will take over a defined block of the existing debt owed to Clothes-R-Us. Customers continue paying their credit payments as usual, but Clothes-R-Us just pays it over to DebtCo as the payments come in.

- ii. Explain why such a transaction might be attractive to both parties.

[3]

DebtCo has a credit modelling team that has developed a model that predicts the probabilities of a client defaulting on any given repayment as well as paying off extra and/or settling the debt early. They have built this model based on their in-house experience data over the last ten years across all industries, and are considering using the model to evaluate the Clothes-R-Us deal.

- iii. Discuss the considerations to consider before using the model for this purpose.

[8]

DebtCo has decided that the existing model is appropriate to use to evaluate this deal. Incorporating this model, you have been instructed to build a stochastic cashflow model that can be used to set the lump sum DebtCo will offer for the block of business.

- iv. Outline how you will go about building this model and using it to set the lump sum.

[9]

[Total 25]

[GRAND TOTAL 100]

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END OF EXAMINATION