

Actuarial Society of South Africa

EXAMINATION

3 October 2018

Subject A301 — 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

**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

- i. Define the term “Capital Management”. [2]
- ii. Define the term “Economic Capital”. [2]
- iii. List the components of a financial provider’s economic balance sheet. [2]

[Total 6]

QUESTION 2

Your friend recently made the following comment: “A critical illness policy and a comprehensive car insurance policy are essentially the same, except that the one insures your body and the other one your car. That is why I regularly shop around and change my car insurance and critical illness providers to obtain the cheapest premium.”

Discuss the accuracy of this statement.

[Total 8]

QUESTION 3

You work at an insurance company as a product development actuary. Your CEO has recently come to you with a list of products he thinks you should consider developing. Briefly discuss the product ideas in relation to the customer and insurer.

- i. Retrenchment cover for plumbers [3]
- ii. Life insurance for your pet dog or cat [2]
- iii. Breakdown insurance for your car [1]

[Total 6]

QUESTION 4

Explain the following accounting concepts:

- i. Going concern basis [1]
- ii. Accruals [1]
- iii. Matching [1]
- iv. Materiality [1]
- v. Prudence [2]
- vi. Consistency [2]

[Total 8]

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QUESTION 5

The local regulator has embarked on a large-scale revamp of how financial intermediaries are remunerated for retail products. Therefore, the format, structure and levels of remuneration (commission or otherwise) for financial advice are being investigated with the intention of regulating these more stringently in future. More transparent disclosure requirements of remuneration are also anticipated as part of the new regulatory framework.

- i. List the principal aims of regulations. [2]
- ii. Discuss how each relevant aim of regulation can potentially be addressed by this initiative, and comment on the potential costs (direct or indirect) that this might cause. [6]

[Total 8]

QUESTION 6

You are the product development actuary for a small general insurer that only insures commercial lines. After some recent analysis of growth markets, you have decided to start offering a product that will cover losses suffered as a result of cyber-crime.

- i. Define the following general insurance terms:
Excess
No-claim discount
Short-tailed business [3]
- ii. List the perils you might consider covering under this new policy. [2]
- iii. List the factors you will need to take into account when setting the office premium rates for this new policy. [4]
- iv. State what concerns you might have with introducing this new product and how you could mitigate against these risks. [6]

[Total 15]

QUESTION 7

The Life Assurance Research Group (LARG) is an organisation that conducts ongoing research on various matters that affect local life insurers. It is managed by representatives from local life offices. They are considering launching an investigation into the mortality experience of underwritten lives in the local market over a recent five-year period.

- i. Explain why the life insurance industry may support such a project and how they can contribute to its success. [5]

A year has passed and LARG have just published its research, which included a set of mortality tables derived from the experience.

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You work for LifeCorp, a local life insurer selling underwritten life insurance. After plotting the published rates together with LifeCorp's in-house basis, you are shocked to discover that your in-house basis seems to be significantly lighter than the industry rates. Your boss, however, is not too concerned and indicates that she actually expected this result.

- ii. Discuss why the lower in-house rates may not necessarily indicate an error in the basis. [6]

You have been tasked with comparing LifeCorp's actual experience with that which is predicted by the internal basis and LARG tables (which are mentioned above).

- iii. Outline what data you will require, how you will use it and what assumptions may be necessary to deliver on this task. [5]

[Total 16]

QUESTION 8

You are a product development actuary that develops savings products. To date your company has predominantly focused on the affluent market. Your most successful product is a regular premium endowment assurance product that is offered to the affluent market that provides for education funding.

Your CEO has suggested that the product should be adapted to offer an attractive product in the mass and middle market.

- i. Discuss the main contract design factors that you will need to consider. Only focus on those that will be affected, given the new target market. [10]
- ii. List the five (5) main assumptions that are required to price this product. For each assumption, comment on which data you might use to determine the assumption. [5]

[Total 15]

QUESTION 9

General insurers in the local market generally review their reinsurance structures and arrangements at least once per year when the reinsurance treaties come up for renewal.

MaxiSure is a medium-sized general insurance company that provides insurance to businesses. They have a reinsurance programme consisting of several different types of reinsurance.

- i. List four types of contract that might be present in their reinsurance programme. For each contract, explain the reason why it is included. You should have a different reason for each type. [6]
- ii. Describe how the actuarial control cycle can be used to manage the reinsurance decisions within MaxiSure. [12]

[Total 18]

[GRAND TOTAL 100]

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END OF EXAMINATION