

Actuarial Society of South Africa

EXAMINATION

11 October 2017

Subject A301 — Actuarial Risk Management

Paper Two

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *You will be issued with instructions to log in using a password (which will be provided at the exam center).*
2. *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.*
3. *Save your work throughout the exam on your computer's hard drive.*
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.

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. Describe what is meant by 'capital management' for a provider of financial products. [3]
 - ii. Give two (2) distinct reasons, with examples, why an individual might need capital. [2]
- [Total 5]

QUESTION 2

- i. Provide a definition for a 'derivative' as it relates to investment markets. [1]
 - ii. Describe the difference between 'hedging' and 'speculation'. [2]
 - iii. Describe the difference between a 'long position' and a 'short position' as it relates to financial instruments. [2]
- [Total 5]

QUESTION 3

Two independent life insurance companies have entered into discussions potentially to merge into a single life insurance company.

You have been approached to provide advice on whether this transaction should continue.

List the major stakeholders that should be considered or consulted in order to form an informed view on this topic. For each stakeholder, briefly mention the reason they should be considered or consulted.

[Total 5]

QUESTION 4

- i. List four possible ways an investor could get exposure to foreign economies other than by investing directly in overseas equities.
- ii. List three main reasons why an institutional investor might want to invest overseas.
- iii. A South Africa insurer currently invests all their assets in SA Government Bonds. They recently decided to invest in overseas Rand denominated bonds. State with reasons why they might have done this.

[Total 7]

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QUESTION 5

Company A and Company B are two general (non-life) insurers operating in the local market. Both have recently released their financial results for the year ending 30 June 2016. From the cash flow statement, you notice that the cash received for gross premiums and the cash paid out in claims to policyholders are identical. When you look at the income statement, you find that the net income after-tax figure for Company A is much higher than for Company B.

- i. State eight (8) possible reasons for this difference between the companies. [4]
- ii. Discuss the levers available to a general insurance company to manage the amount of money they pay out in claims. [3]

[Total 7]

QUESTION 6

State with reasons whether the following risks are insurable or not:

- i. For every beer bought within a one month period from a well-known local brewer, purchasers are entitled to guess a 12-digit number. If they guess the correct number (which is pre-chosen independently by an auditor) they get a payout of R1bn.
- ii. Payout of R10 000 for each hole in one at the local golf course.
- iii. Flight delay or cancellation
- iv. Redundancy / Retrenchment
- v. Pregnancy

[Total 10]

QUESTION 7

- i. Define the concept of “prime property”. [3]

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A property developer has two investment opportunities:

Option A

A large financial company is planning to develop a new head office building in the business hub of the capital city. This will be a large development project and the property developer will oversee the project from start to end. The financial company will then lease the property from the property developer for an indefinite period.

Option B

A large townhouse complex is being developed in one of the older and established neighbourhoods in the capital city. There will be 100 units in the complex, and all units are intended to be sold before the development is complete. The property developer will oversee the project from start to end, but his responsibility will end once the development project is complete.

- ii. Contrast the two investment opportunities by discussing the investment and risk characteristics of each project. [10]

[Total 13]

QUESTION 8

During June 2017, catastrophic fires spread through Knysna and surrounding areas, causing large-scale destruction in the area.

BettaSure is a large, general (non-life) insurer selling a wide range of insurance products to businesses and individuals nationwide, including to some policyholders in and around Knysna.

- i. Discuss the impact that an event such as this can have on BettaSure's business. [7]
- ii. Aside from traditional reinsurance, describe steps that the company can take to manage the risks associated with such a catastrophe. [6]

[Total 13]

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QUESTION 9

As part of their existing retirement benefits to both active and retired members, the ACME Corporation provides the following package of supplementary benefits.

For any employee that works for ACME until retirement, the company guarantees that it will provide the following:

- Payment for up to four (4) annual general medical practitioner (GP) visits.
- R5,000 for spectacles and/or contact lenses every second year for as long as the pensioner is alive.
- An amount equal to their final month's salary, escalated at Consumer Price Index (CPI), every five years on the anniversary of their retirement.

The benefit is funded through a combination of employer and employee contributions. The pension fund trustees review this benefit every two years and may decide to make changes as required.

- i. Outline the main risks faced by the members under this arrangement. [3]

The auditors have requested that you demonstrate to them how you calculate the present value of the future benefits for any given employee.

- ii. Explain how you would calculate this value and what data and/or assumptions you would require. [11]

[Total 14]

QUESTION 10

AlphaSure is a major provider of employer's liability products in the local insurance market. They sell policies via independent brokers to a wide range of businesses.

- i. Explain how an employer's liability policy works and list two practical examples of how a claim may occur in practice. [3]
- ii. Discuss what information a broker should take into account when advising a potential client on the scope, size and price of an employer's liability product. [5]

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It is generally accepted that liability insurance can give rise to considerable delays between the claim event occurring, claim notification and the claim being paid. As a result, there are usually considerable claims reserves (provisions) being held for this class of business.

Your consulting firm has been asked to independently calculate and review the claims reserves on the employer's liability class of business as reported in the internal quarterly management accounts.

- iii. Outline what data, information and assumptions you could possibly require to perform this task. [8]
- iv. State two other purposes for which AlphaSure would typically need to calculate claims reserves and explain how the approach taken to calculate them may be different from the one you reviewed. [5]

[Total 21]

[GRAND TOTAL 100]

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END OF EXAMINATION