

Actuarial Society of South Africa

EXAMINATION

6 May 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.*

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

Describe six (6) reports that typically accompany an insurance company's annual financial statements.
[Total 6]

QUESTION 2

Define what is meant by a "risk register" document and outline what it should contain.
[Total 7]

QUESTION 3

VibrantLife is a financial service provider specializing in providing a range of healthcare related insurance products.

- i. Discuss four (4) healthcare products that might be offered by VibrantLife.
[6]
 - ii. List the reasons why providers of financial service products like VibrantLife have capital requirements.
[4]
- [Total 10]

QUESTION 4

AgriCo is an insurance company that specialises in providing a one-stop shop solution for all of a commercial farmer's general (i.e. short-term) insurance needs. AgriCo uses a network of brokers to sell to their target market.

- i.
 - a. State four (4) distinct risks that a commercial farmer might be exposed to that might be addressed with a general insurance product.
 - b. For each risk identified, propose and briefly explain (using examples if necessary) how a general insurance product will help manage that risk.
[6]
 - ii. Discuss how the regulatory environment might have an impact on AgriCo's sales processes and contract design.
[5]
- [Total 11]

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QUESTION 5

TyreCo is a manufacturer of vehicle tyres. Due to the growth in demand for their product, they are aiming to build a second manufacturing facility. To finance this expansion, they have approached ACME Bank to provide and structure a credit facility. You are part of a team at ACME that must put together a report on this credit application.

- i. Outline the information that you would expect to include and issues you would comment on in the report.

[11]

In the past, TyreCo dealt only with BankCo, one of ACME's competitors. A colleague made the following comment: "The fact that TyreCo is approaching ACME should be seen as a clear signal that BankCo knows something is wrong and that ACME should not get involved with TyreCo".

- ii. Comment on the merits of your colleague's statement.

[4]

[Total 15]

QUESTION 6

TrustSure is a life insurance company providing various underwritten life insurance contracts to the market.

- i. Explain why underwriting a proposal for a whole-life insurance contract is an example of temporary initial selection.

[3]

Along with gender and age, TrustSure uses occupation and education of the applicant to derive a premium for cover.

- ii. Discuss why it is reasonable to include occupation and education in their pricing basis.

[6]

- iii. Outline the information that may be considered by TrustSure to make an underwriting decision for a new proposal.

[4]

[Total 13]

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QUESTION 7

A large, well established South African general insurer (CoverU) currently writes commercial property, motor and liability policies. Its business is exclusively conducted in local markets. It is considering expanding its business to write new lines of business and to open offices in the rest of Africa.

CoverU currently invests all its assets in money market instruments and short dated government bonds. The head of investments has recommended that the investment strategy should be changed as a result of the business expansion as follows:

- A 30% allocation to medium dated corporate bonds issued by South African companies with a lower credit rating.
- A 30% allocation to US listed money market instruments.
- A 40% allocation to remain in line with the current investment strategy.

Comment on the proposed investment strategy.

[Total 13]

QUESTION 8

A company offers its staff membership of a fully funded defined benefit pension fund. The fund has been running for nearly 75 years and has developed a healthy surplus. Pensioners have always received increases in line with inflation, with additional increases being awarded when investment returns allowed for them.

The directors and management of the company have decided to close this defined benefit fund and transfer assets in respect of active members to a new defined contribution fund to which they will make further contributions.

- i. Compare the main benefit and contribution features of a defined benefit and a defined contribution retirement fund.
[4]
- ii. Describe the impact of the change to defined contribution on the different classes of members as well as the various stakeholders of the fund.
[7]

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The assets in respect of active members have now been transferred to individual member accounts in the new scheme. The deferred members have also accepted a transfer value into the new fund. The only remaining members in the existing defined benefit fund are now the existing pensioners of the fund.

The current investment strategy in respect of the defined benefit fund comprises investment in a range of local and offshore asset classes.

The trustees are considering adopting a more closely matched investment strategy for the fund, and are considering the following options:

- Pure matching
- Approximate liability hedging
- Immunisation.

iii. Explain how each of these strategies could be used to match the fund's residual assets and liabilities more closely.

[9]

iv. Discuss the disadvantages of adopting these strategies.

[5]

[Total 25]

[GRAND TOTAL 100]

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END OF EXAMINATION