Actuarial Society of South Africa

EXAMINATION

6 May 2022

Subject A311 — Actuarial Risk Management

Paper Two

Time allowed: *Three hours and fifteen minutes, plus an additional five minutes to allow for scrolling on 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 on the ASSA Exam Platform and may not be printed.*
3. *Submit all your answers on 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 use 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 start answering the paper whenever you are ready.*
7. *Mark allocations are shown in brackets.*
8. *Attempt all questions.*
9. *Show calculations where 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.*
12. *An option to opt out of the examination will become available one hour after the official examination start time. If you select the Opt-Out option, you agree and understand that your entire script/answers will be deleted and cannot be retrieved at a later stage and that your script or part thereof will not be put forward for marking.*

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

Propsure is an insurer providing cover for buildings and contents. They currently have reinsurance agreements in place.

i. Outline the benefits of reinsurance for Propsure. [6]

ii. Explain how proportional reinsurance works. Your explanation should include how premiums and claims operate for proportional reinsurance. [3]

[Total 9]

QUESTION 2

A new employee has just joined a company which offers a defined contribution retirement fund to staff.

i. List the choices this employee might have with respect to the fund during her membership of the fund. [3]

The fund offers members a range of investment portfolios in which they can invest their contributions. The portfolios offered have different risk profiles ranging from low- to high-risk.

ii. Discuss the advantages and disadvantages of this approach to both members and the fund sponsor. [5]

[Total 8]

QUESTION 3

i. Discuss the relative advantages of carrying out risk management at a business versus enterprise level. [7]

ii. Describe the types of business where risk management should best take place at business or enterprise level, respectively. Give an example of each. [2]

[Total 9]

QUESTION 4

i. What are the aims of climate change regulations being considered by regulators worldwide? [5]

Several of South African asset managers have chosen to become signatories to the Net Zero Asset Managers Initiative (NZAMI), which supports institutional investing aimed at achieving carbon neutrality by 2050.

You work for Assets R Us, a small SA asset manager investing primarily in local assets. Your Chief Investment Officer is considering joining the initiative and has asked for your opinion.

ii. List the topic headings that you would cover in your response. [3]

[Total 8]

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QUESTION 5

A final salary pension scheme offers members the option at retirement to commute pension for a lump sum payment.

i. Discuss the factors to be considered in setting the terms and assumptions required for this option. [8]

ii. Describe restrictions that might be imposed on the exercise of this option. [4]

[Total 12]

QUESTION 6

You are the portfolio manager for an investment company. You are considering acquiring a block of flats for the portfolio. Included in the purchase will also be an empty field adjacent to the flats that is currently rented out occasionally for outdoor events and shows.

i. Explain how you would calculate a value for this property. [12]

As an alternative to investing in this property, you can also consider a few listed shares of property companies which manage, operate and own real estate portfolios consisting of income producing property.

ii. Outline the information you would gather before deciding whether to invest in a particular property company's share. [4]

[Total 16]

QUESTION 7

You are an actuarial analyst for a local general insurer that sells motor vehicle insurance. They currently provide cover on a wide range of locally manufactured and imported vehicles. Their policy provides cover for accidents, windscreen repair and replacement, theft and weather-related claims. No liability cover is provided.

You are about to conduct an asset/liability matching (ALM) exercise for the company.

i. List the cashflows that are likely to be modelled as part of the ALM exercise. [4]

The company currently has a strong solvency position with the value of its assets comfortably exceeding the value of its liabilities and additional minimum statutory capital requirements.

ii. Briefly outline additional key factors, excluding the company's solvency position, that you should consider in constructing the asset-liability model. [3]

The company's asset split is currently as follows:

- 30% local equity
- 30% local money market
- 20% short-dated (1-3 years) local fixed income bonds
- 20% short-dated (up to 3 years) local inflation linked bonds

Although the company's solvency is currently strong, it has been steadily reducing over the last two years due to significant competition putting pressure on pricing, and you expect this trend to continue.

iii. By outlining the insurer's liabilities, comment on whether the above asset split is suitable. [7]

[Total 14]

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QUESTION 8

LifeCo is an established, listed life assurance company selling various types of life insurance protection products. The outbreak of the Covid-19 pandemic towards the end of their current financial year introduced significant uncertainty around the impact of Covid-19 related deaths on their mortality assumptions. LifeCo also needs to decide how to handle the issue of a person's vaccination status for new business proposals.

LifeCo has decided that it would be appropriate to raise a provision for Covid-19 mortality claims in their financial statements.

i. Describe the impact that this provision will have on LifeCo's financial statements for the current and future financial years. [4]

ii. Outline the consequences of significantly understating the provision in the current period. [4]

You are part of a team responsible for managing the mortality impact of Covid-19 on LifeCo's book. This includes recommending changes to underwriting processes as well as the mortality bases for new and existing business. The team is also responsible for calculating this initial Covid-19 provision and updating the provision in future reporting periods.

iii. Discuss how the team will be using the actuarial control cycle as a framework to perform their duties. [16]

[Total 24]

[GRAND TOTAL 100]

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END OF EXAMINATION