ACTUARIAL SOCIETY OF SOUTH AFRICA

EXAMINATION

6 November 2024 (am)

Subject F108 — *Health, Social, and Employee Benefits* Fellowship Principles

Time allowed: *Three hours and twenty minutes (which includes five minutes for downloading and uploading your answer document)*

Total marks: *100*

INSTRUCTIONS TO THE CANDIDATE

Failure to adhere to any of these instructions could incur examination sanctions.

1. *Ensure that you are logged in and authenticated through Examity before you attempt the examination.*
2. *The question paper is only available in the ASSA Exam Platform as a PDF download and may not be printed. Copy/paste of questions or parts thereof is allowed from the question paper to your Word answer document only.*
3. *Download the Word answer document template from the ASSA Exam Platform. Save this Word answer document on your desktop using your Candidate Number as filename. Do not name your answer script with your name or member number.*
4. *You are required to submit your answers in Word format ONLY using this document. No answers in any other format (e.g. handwritten) will be accepted. Save work regularly.*
5. *Ensure that your Candidate Number appears in the "header" of your Word answer document. [Double-click on the header at the top of the Word document, input your Candidate Number only in the header, then press "Esc" to close the header.] Do not use your name or member number anywhere in your Word answer document.*
6. *You may not access any file from your computer, use any other computer app (e.g., Email or Excel) or open any other browser during the examination. Nor may you use Grammarly, Grammarly Premium or similar add-ins. Microsoft Word spellcheck is allowed.*
7. *You may not use any other material (e.g., a Formulae and Tables book) during the examination. Any such information that may be required will be provided to you within the examination.*
8. *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.*
9. *Mark allocations are shown in brackets.*
10. *Attempt all eight (8) questions, starting each on a new page (as provided for in the Word answer document).*
11. *Show all calculations. You may use blank paper to carry out rough work calculations. You may use a calculator from the ASSA-approved list only.*
12. *Upload your Word answer document only into the ASSA Exam Platform. Once you have uploaded your document, you must click on* ***Finish Attempt*** *to save your document. You will still be allowed to go back and make changes (**Review Attempt**) if you have time.*
13. *Once you are satisfied with your uploaded document, click* ***Finish Attempt*** *and* ***Finish all and Submit****. Once you have submitted you will not be able to make any changes.*
14. ***You must submit your Word answer document BEFORE the end of the allotted examination time.*** *You should stop writing and start uploading during the last five minutes. Take this into account when planning your review and submission. There will be no time announcements.*

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.

END OF INSTRUCTIONS

QUESTION 1

Critical Illness (CI) cover is known by different names in different territories.

i. List 4 other names by which CI cover is known.

[2]

An insurer sells a comprehensive range of CI products to individuals. These include stand-alone policies, as well as policies with an accelerated CI benefit.

ii. Compare and contrast stand-alone and accelerated-benefit CI products.

[3]

iii. Contrast the key relative risks of a whole of life stand-alone CI product with those of a whole of life policy with an accelerated CI benefit.

[2]

[Total 7]

QUESTION 2

Airflight is a private airline that offers group life cover for its employees.

Annually, employees of Airflight are able to select 2 times or 3 times their annual salary as life cover. The risk benefit is provided by Oak Life which offers a continuation option for members of Airflight's benefit arrangement.

i. Describe how the continuation option is likely to be structured by Oak Life.

[3]

ii. Describe how the continuation option might be priced.

[4]

[Total 7]

PLEASE TURN OVER

QUESTION 3

Directors of Legality, the largest law firm in the country of Gaul, have asked you as a consulting actuary specialising in employee benefits, to assist them with the design and implementation of a new employee benefit package. This is the first such employee benefit package for Legality and most law firms in Gaul do not offer such packages. Legality's package should include retirement benefits and health insurance – both private medical insurance (PMI) and critical illness (CI) cover. Gaul offers a state-funded primary healthcare package to all its residents.

i. Outline the reasons why the Board of Legality would want to introduce an employee benefit package for its employees.

[2]

The Board is aware that retirement funds can be offered in a defined benefit (DB) or a defined contribution (DC) format.

ii. Compare and contrast the key risks and benefits to the employer-sponsor for each of these retirement fund types.

[3]

You have suggested that Legality consider purchasing a group CI policy for its employees.

iii. Briefly outline the advantages for the employees of such a group policy.

[2]

iv. Comment on the key considerations the Board should account for when deciding on what PMI benefits to include in their proposed offering.

[6]

[Total 13]

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QUESTION 4

Due to an unanticipated geopolitical event in June 2023, the annual inflation rate (based on the change in the consumer price index) of the country of Hibernia rose by 2 percentage points and has remained at this elevated level. This was an exceptional increase relative to the long-term path of inflation and was not expected by economists and market participants.

The ABC retirement fund ('the Fund') is a closed, pensioner-only defined benefit (DB) retirement fund in Hibernia. The Fund's pension liabilities have an annual increase policy equal to 100% of the change in the consumer price index.

The Fund's most recent financial year ended on 31 March 2024. The Fund performs an annual valuation at each financial year-end.

i. Describe the possible impact of the increase in inflation on the economic assumptions for the Fund's 31 March 2024 valuation.

[5]

Economists believe that the higher levels of inflation are likely to persist for the foreseeable future.

ii. Describe how the change in inflation may have affected the Fund's actual versus expected experience for the financial year just ended.

[4]

iii. Describe the principles of setting an investment strategy for a retirement fund and then describe the implications of the higher inflation for the fund's investment strategy going forward.

[8]

[Total 17]

PLEASE TURN OVER

QUESTION 5

The country of Actuaria provides a social assistance benefit for elderly individuals over the age of 60 who have been certified by a general practitioner as meeting a specified level of incapacity in terms of activities of daily living (ADL). The benefit is paid as a means-tested cash amount to qualifying individuals, and this is inflated each year.

Actuaria pays for these benefits on a pay-as-you-go basis and the Minister of Finance is concerned about the rising burden of social assistance costs. You are a consulting actuary, and you have been asked to develop a projection of the costs of this benefit over the next 30 years as a proportion of total tax revenue.

i. Describe how you would prepare a projection of the total population, the population of benefit recipients and the tax paying population including the key assumptions.

[6]

ii. Describe how you would use the model output from (i) to perform the projection as per the Minister's request.

[4]

The Minister of Finance has proposed increasing the age of eligibility to 70 and that the ADL level of incapacity is also increased to contain the costs. To compensate for the loss of State-funded benefits, the premiums for pre-funded long-term care insurance (LTCI) are to be made tax-deductible.

iii. Comment on the risks and benefits of the proposed approach for the government.

[3]

ABC Health is a long-term care insurer.

iv. Comment on how the State benefit, and the changes to it, may affect the design of ABC Health's LTCI offering.

[3]

[Total 16]

PLEASE TURN OVER

QUESTION 6

ACME Inc ('ACME') runs a defined benefit pension (DB) fund ('the ACME DB Fund') that is open to new members. As the valuations actuary, you have recently completed the triennial statutory valuation for this fund using the Projected Unit Method (PUM).

The statutory valuation shows that the assets are sufficient to cover the actuarial liabilities on a best-estimate basis plus two recommended contingency reserves but are insufficient to cover the solvency reserve in full.

i. Compare and contrast solvency reserves and contingency reserves.

[2]

ii. The question refers to 'two recommended contingency reserves'. State one example of such a contingency reserve and its purpose.

[1]

A trustee, who is the financial director for ACME, remarks that the result of the statutory valuation and valuation done for ACME's accounting purposes are very different despite having the same effective date.

iii. Outline possible reasons for the differences in the two valuation results.

[2]

Another trustee has a neighbour who is a trustee of a different DB fund which is closed to new members and uses the Attained Age Method (AAM). She has queried why the two different funds are using different funding methods and if this means the ACME DB fund should change actuarial funding method.

iv. Outline the points you would make in response to this trustee's queries.

[7]

[Total 12]

PLEASE TURN OVER

QUESTION 7

You are an actuarial consultant assisting a private medical insurance (PMI) insurer with setting their claims reserves. The PMI insurer's latest claims ratio experience is as follows:

Oct 2023	Nov 2023	Dec 2023	Jan 2024	Feb 2024	Mar 2024
58.8%	59.6%	55.3%	57.2%	58.1%	57.8%

For the most recent month, April 2024, the PMI insurer currently has 920,000 policies on its book split across the following two benefit options.

	Policies	Average premium ($)
Comprehensive option	300,000	500
Saver option	620,000	385

i. Using the average claims ratio of the past 3 months, calculate the expected ultimate claims for April 2024.

[3]

One of the other consultants shares with you the cumulative development factors for each development month that they have calculated for the PMI insurer. They have informed you that so far $103.6 million has been paid for April 2024.

Dev 0	Dev 1	Dev 2	Dev 3
1.49	1.11	1.02	1.00

ii. Calculate the expected ultimate claims for April 2024 using the appropriate development factor(s) and comment on the result.

[2]

iii. Define seasonality and discuss how you may have allowed for this impact in your reserves.

[5]

The insurer wishes to introduce a new system where certain claims will be auto-approved according to specific, carefully monitored, criteria.

iv. Discuss how this may impact the run-off trends and the approach used in setting the PMI insurers outstanding claims reserves in the coming months.

[3]

[Total 13]

PLEASE TURN OVER

QUESTION 8

You are an actuary working in the technical marketing division of a reputable financial advisory firm. The firm provides advice to clients regarding Private Medical Insurance (PMI) products.

You have been tasked with creating a new tool for the financial advisors at your firm to advise their clients. The primary objective of this tool is to categorise the PMI products and then provide detailed comparisons of the product benefits across various benefit categories, based on inputted information about the client's needs and the demographic profile of the lives to be covered.

i. Briefly outline the PMI benefit design elements that can differ between products in the market and briefly explain how they may differ.

[4]

ii. Describe the considerations and requirements for the advice tool that the actuary will build for use by the advisors, including those related to regulation, professionalism, operational issues and the limitations of the tool.

[11]

[Total 15]

END OF PAPER

