

# Actuarial Society of South Africa

## EXAMINATION

24 May 2022

### Subject F204 – Retirement and Related Benefits

*Time allowed:* Three hours and fifteen minutes, plus an additional five minutes to allow for uploading your file 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. 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 only allowed between the Exam Platform and the Word answer document.
3. You are required to submit your answers in Word format ONLY using the answer template provided. No uploads of answers (handwritten or otherwise) will be accepted.
4. Ensure that your Candidate Number appears in the “header” of your Word answer template. [Select “Insert”, then “Header”, input your candidate number on the blank header template and select “Close Header”]. **Do not use your name or member number on your answer script.**
5. You may not access any file from your PC, use any other computer program (e.g. Email or Excel), or open any other browser during the examination.
6. 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.
7. 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.
8. Mark allocations are shown in brackets.
9. Attempt all questions.
10. 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.
11. Upload your Word answer file only into the ASSA Exam Platform. Once you have uploaded your file, you must click on **Finish Attempt** to save your file. You will still be allowed to go back and make changes (**Review Attempt**) if you have time.
12. Once you are satisfied with your uploaded file, click **Finish attempt** and **Finish all and Submit**. Once you have submitted you will not be able to make more changes.
13. **You must submit your answer file BEFORE the end of the allotted examination time.** Take this into account when planning your review and submission. There will be no time announcements.
14. An option to opt out of the exam will become available 1 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: 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

You are the valuator to Fund X that provides defined contribution benefits to its 4 000 members on retirement and resignation. The normal retirement age is 65 years and the total contribution towards the fund credit is 15% of pensionable salary. The Employer pays an additional contribution to cover the cost of risk benefits and the administration of the fund.

On death before normal retirement age the following benefits are payable:

- A lump sum of 3 times annual pensionable salary
- Spouse's pension of 1% of final salary for each year of total service.

On disablement before normal retirement age the following benefits are payable:

- A lump sum of 2 times annual pensionable salary
- A pension of 2% of final salary for each year of total service. If the member is married at date of disablement, a spouse's pension of 50% of the member's pension applies if the member pre-deceases the spouse.

Total service is the period from which the member commenced service in the fund up until the end of the month of their 65th birthday. Final salary is the average annual pensionable salary over the last completed 12 months prior to the date of death or disablement. All pensions are payable for the life of the member or spouse, as applicable.

The death and disability benefits are insured with an insurer. When a claim arises the capital value of the benefit is paid to the fund. The fund then pays the lump sum and qualifying pensions.

- Describe in detail the most common types of death and disability benefits provided to members of defined contribution retirement funds in South Africa and contrast these to the Fund X benefits. [12]
- Suggest a historical reason that could have led to the risk benefit structure of Fund X. [1]

Fund X has recently undertaken a rebroke of its risk benefits. In respect of the disability benefits, all the insurers applied a cap to the capital value they will pay out in the event of an individual claim. The highest cap was R11 million.

- Outline possible reasons as to why the insurers have applied a cap. [2]
- Outline how you would determine the value of the disability benefits and if they exceed the cap. Include the following in your answer:
  - The data you would need
  - The main actuarial assumptions you would make
  - The method you would use [7]

**REMEMBER TO SAVE  
PLEASE TURN OVER**

- v. Outline any data or timing challenges you are likely to encounter in performing the calculations in iv) which will result in these being an approximation at the date of calculation for insurance purposes. State how you might address these. [5]
- vi. Discuss what the Trustees of Fund X should consider in respect of those members whose disability benefits exceed the cap, and recommend possible courses of action. [4]

Based on the most recent valuation data that you have (6 months old) you conservatively estimated that the value of the disability benefits of about 18 members potentially exceeds the cap. The Trustees want to look at the option of using part of the surplus in Fund X to set up a risk reserve that will allow the cap on the disability benefit to be increased from R11m to R14m.

- vii. Briefly explain how you could determine such a risk reserve. [2]

The Trustees finally decide to increase the cap to R14m, R3m being met from the risk reserve. For members whose disability benefit exceeds the R14m cap, their benefits will be reduced so that the value is equal to R14m.

- viii. Set out what you would advise the Trustees to communicate with the affected members. [4]

[Total 37]

**REMEMBER TO SAVE  
PLEASE TURN OVER**

## QUESTION 2

You are the actuary to a large defined contribution pension fund. The fund offers benefits on retirement at age 65, and pre-retirement death and disablement benefits. The fund's default investment offering is a lifestage portfolio that transitions members to more conservative investment portfolios from age 57.

Most fund members are invested in this default. Members who opt out of the default have the option to invest in a wide range of alternative portfolios, including offshore investments, within the prevailing regulatory limits. At retirement, members choose between a living annuity or a life annuity, both of which are provided outside of the fund.

- i. Outline a possible structure of the lifestage portfolio offered by the fund. [2]

The sponsoring employer of the fund has been severely affected by an ongoing national recession and has announced that it is undertaking a retrenchment exercise that will impact members of the fund older than 55 years.

- ii. Discuss the risks the retrenchment exercise introduces for affected members in respect of the retirement and risk benefits provided by the fund. Include risks before retirement and any additional risks the member faces at retirement.

[14]

[Total 16]

**REMEMBER TO SAVE  
PLEASE TURN OVER**

### QUESTION 3

The South African retirement fund landscape has undergone a number of significant changes in recent years. One of these changes has been a consolidation of the industry into large multi-employer umbrella funds.

- i. Describe the types of umbrella arrangements covered by South African regulations. [3]
- ii. Outline the main characteristics of the South African environment that have led to the transfer of retirement funds into these large umbrella arrangements. [6]

You are the senior retirement fund actuary for a large life company which has indicated it is planning to launch an umbrella fund targeted at the South African mining industry. The fund would offer benefits on retirement, death and disability. You have been requested to assist with the establishment of this umbrella fund.

- iii. Discuss the key challenges in the South African umbrella fund environment, and how these might affect the establishment of this proposed umbrella arrangement. [10]
- iv. Name the major stakeholders that would need to be considered in the establishment of this proposed umbrella fund and briefly describe the role of each. [14]
- v. Outline the benefit design considerations for this proposed umbrella fund. Include, with justification, your recommendations for the form and level of the benefits to be provided by the umbrella fund. [14]

[Total 47]

[Grand Total 100]

**REMEMBER TO SAVE**

**END OF EXAMINATION**