

# Actuarial Society of South Africa

## EXAMINATION

18 May 2018

### Subject F204 - Pensions and Other Benefits Specialist Applications

Time allowed: Three Hours

#### *INSTRUCTIONS TO THE CANDIDATE*

- 1. You will receive instructions to log in using a password which will be issued to you at the exam centre.*
- 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 exam.*
- 3. Save your work throughout the exam on your computer's hard drive.*
- 4. You have 15 minutes at the start of the exam in which 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.*
- 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 on 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.
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## QUESTION 1

You are the valuator to a closed defined benefit pension fund. The fund has 400 active members and 600 pensioners. The average age of the active members is 57 years and the normal retirement age is 65 years.

The assets of the fund are split into two main investment portfolios with a number of different investment managers managing the assets in each portfolio. The Growth Portfolio is made up of local equities, foreign equities and properties. The Secure Portfolio is made up of bonds, inflation linked bonds and cash. All the underlying investments are in segregated portfolios.

The assets backing the active member liabilities, the active member solvency reserve and the Employer Surplus Account are invested 60% in the Growth Portfolio and 40% in the Secure Portfolio. The assets in respect of pensioners (the Pensioner Account) are invested 50% in the Growth Portfolio and 50% in the Secure Portfolio. The assets are rebalanced quarterly to the split percentages. The split percentages are reconsidered with each triennial statutory actuarial valuation. Assets are moved from the active member assets to the pensioner assets as and when members retire.

The fund's pension increase policy is to grant pension increases at 100% of inflation, subject to affordability. At the last statutory actuarial valuation as at 31 December 2017, this policy resulted in the liabilities being valued on a post-retirement interest rate of 4.0% per annum. Any excess assets in the Pensioner Account are retained for meeting future pension increases.

The Pensioner Account amounted to R1 100 million and the remainder of the fund's assets amounted to R1 200 million as at 31 December 2017. The monthly pension payments amount to R8 million.

The Trustees have had a request from a member to alter the fund's rules to allow a retiring member to transfer their full benefit to an external annuity provider. The Trustees have asked for your guidance in this regard.

- i. Set out the points you would make to the Trustees. [10]

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The fund's investment consultant has proposed that 24 months of expected pension payments should be placed in cash within the Pensioner Account in order to reduce the risk of disinvesting assets at inopportune times. The investment consultant further recommended that the cash balance be topped up regularly to maintain a balance for about 24 months of pension payments.

ii. Discuss the merits of this proposal. [7]

iii. Set out what further options relating to the proposal you would consider. [7]

A Trustee has questioned the valuation basis as far as future pension increases are concerned. He is concerned that the current structure of the Pensioner Account will not provide real investment returns of 4.0% per annum and that a real return of 3.0% per annum is more likely.

iv. Setting out your reasoning, state whether you agree or disagree with the Trustee. [5]

v. Discuss the implications for the fund, employer, pensioners and active members if the valuation assumption was changed to assume a real return of 3.0% per annum. You do not need to do any calculations. [8]

[Total 37]

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## QUESTION 2

ABC Retirement Fund is a large defined contribution provident fund which is considering a change to its rules to allow members to take full advantage of the revised tax incentives with respect to retirement fund contributions introduced in terms of the Taxation Laws Amendment Act.

A summary of the current Fund rules relating to contributions is as follows:

Member contribution to fund credit:	7.5% of pensionable salary
Total Employer contribution to Fund:	10.0% of pensionable salary
Expenses of the Fund:	1.2% of pensionable salary
Cost of approved risk benefits:	2.5% of pensionable salary

Pensionable salary is 75% of the member's total remuneration. The Fund does not allow for additional voluntary contributions to be made by members.

The Trustees of the Fund have requested your advice as to how to make the necessary changes.

- i. Describe the changes to the legislation and explain the process the Fund would have to go through to affect changes to allow for this revised legislation. [7]

The membership of the Fund is diverse, with members ranging from lower-paid blue-collar employees to high earning professionals, with a wide age profile. The employer has asked for an indication of how the change to the contribution structure would impact different member's expected lump sum benefits from the Fund.

Member A is a 28 year old intern with a pensionable salary of R100 000 per annum.  
Member B is a 52 year old executive with a pensionable salary of R1 200 000 per annum.

- ii. Assuming investment returns of 11% per annum, salary increases of 6% per annum and general inflation of 5% per annum, show the expected change in Member A and Member B's lump sum benefits at a retirement age of 65 assuming they both intend to maximise their tax incentives. You should assume that any legislated monetary limits increase with general inflation. State any other assumptions that you make. [12]

- iii. Explain the limitations in showing the impact of maximising contributions as a lump sum benefit at retirement and state, with reasons, an alternative way of expressing the impact at retirement of the change in contributions. [4]

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- iv. Using your calculations in part ii) above, show the expected impact of maximising their tax incentive using this alternative method. Assume an annuity rate of 17.5 at age 65. Comment on the results of your calculations. [5]

The employer sponsoring the Fund is concerned that members will not be able to afford to contribute at the maximum allowable limits and has asked for your advice as to how to go about designing and implementing a contribution structure to allow members to contribute at levels they can afford.

- v. Set out the comments you would make in your advice to the employer. [7]

[Total 35]

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### QUESTION 3

You have been appointed by Company X to advise it on pension fund matters pertaining to Company Y, a potential takeover target.

Company Y has a defined benefit pension fund and you have been provided with the most recent statutory actuarial valuation report of the fund which was carried out 3 years ago.

- i. Describe the factors that might have resulted in a change in the fund's financial position since the last valuation report and set out the information you would request to estimate the impact of these factors. [16]

Company X has asked your advice as to what it could do to remove or reduce the risks it would face under the defined benefit pension fund.

- ii. Discuss the options available to Company X. [12]

[Total 28]

[Grand Total 100]

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**END OF EXAMINATION**