

# Actuarial Society of South Africa

## EXAMINATION

19 May 2016

### Subject F204 – Retirement and Related Benefits Specialist Applications

Time allowed: Three Hours

#### *INSTRUCTIONS TO THE CANDIDATE*

- 1. Candidates will be issued with instructions to log-in using a password (which you will be provided with at the exam center).*
- 2. Candidates are required to submit their answers in Word format only using the template provided. You MAY NOT use any other computer program (e.g. Excel) during the examination.*
- 3. Save your work continuously throughout the exam, on your computer's hard drive that you have been provided.*
- 4. You have 15 minutes at the start of the examination 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 on exam papers.*
- 7. Attempt all questions, beginning your answer to each question on a new page.*
- 8. Candidates 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

XCorp is a large multinational company that is looking to acquire companies in South Africa. XCorp has added you, a consulting actuary, to its investment team to provide actuarial advice on employee benefit issues relating to potential acquisitions.

XCorp's objective is to have a single retirement arrangement for all employees in each country where it operates. XCorp intends to set up a single retirement fund in South Africa as well. XCorp's Finance Director has asked you to explain the transfer process in terms of Section 14 of the Pension Funds Act to her.

- i) Set out the requirements in terms of Section 14 and the relevant regulations. You should include in your response a description of the responsibilities of each party in the Section 14 process. [16]
- ii) Discuss the two most common methods of determining transfer values from a defined benefit pension fund. [4]

ZKorp is one potential acquisition that XCorp is considering. No formal approach has been made to ZKorp but the following limited information has been obtained from a summary of the 31 December 2014 actuarial funding valuation report of the ZKorp Defined Benefit Pension Fund (the Fund):

### Data

Number of members:	5 000
Annual pensionable salary:	R1 200m
Number of pensioners:	600
Annual pensions:	R90m
Normal retirement age:	60 years

### Valuation assumptions

Discount rate:	10.0% per annum
Inflation rate:	6.0% per annum
Salary increase rate:	8.0% per annum with no additional promotional scale
Pension increase rate:	6.0% per annum
Pre-retirement decrements:	None. Risk benefit in excess of the actuarial reserve value is fully insured
Pensioner mortality:	PA90 less 2 years
Solvency Reserve:	As above but with discount rate of 8.5% per annum

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**Assets**

Market value: R6 587m

**Liabilities and reserves**

Active members: R4 275m

Pensioners: R1 260m

Solvency Reserve (actives): R 855m

Solvency Reserve (pensioners): R 126m

Contribution Reserve: R 431m

Total: R6 947m

**Deficit: R 360m**

**Contribution rates (% of pensionable salary)**

Members: 7.0%

Required Employer contributions: 19.0% (includes 2.0% for risk benefit and 1.0% for expenses)

Actual Employer contributions: 15.0%

3 year additional deficit financing contributions: 10.0%

You have been advised that ZKorp has agreed to fund for the full required reserves.

XCorp's investment team have asked you to project the Fund's assets, liabilities and reserves to 30 June 2016. You have been informed that the Fund is invested in a portfolio that will earn 12% for the 18 months ending 30 June 2016. The Fund also granted a 5% pension increase on 31 December 2015. ZKorp grants salary increases as at 31 December each year and did not grant a salary increase as at 31 December 2015. You have been asked to assume that staff resignations will be 15% of employees over the 18 months and that all exiting employees were or will be replaced.

The bond yield used to determine the Solvency Reserve will have increased by 0.50% over the 18 month period. All other valuation assumptions will remain unchanged.

- iii) Estimate the assets, liabilities, reserve accounts and the overall financial position of the Fund as at 30 June 2016. State any further assumptions that you make. [20]

XCorp has indicated that it will set up a new defined benefit fund for its South African employees. It expects that 50% of ZKorp's employees will end up in the new fund as a result of purchasing parts of ZKorp.

- iv) Discuss the issues that XCorp should consider in discussions with ZKorp regarding the transfer of members from the Fund, taking into account the results of your calculations in part iii) above. [10]

[Total 50]

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## QUESTION 2

A large international company, after expanding through various purchases and mergers, have found themselves with three retirement arrangements each with its own pensioner pool. Two of these are closed pensioner pools while the third is linked to their current retirement fund offering in-fund pensions.

The company has appointed you as an independent consulting actuary to assist them with these arrangements. Their newly appointed Financial Director has been transferred from Europe and is not yet familiar with the local retirement arrangements or the environment in which they operate. He has asked for a comprehensive report that would assist him in understanding the landscape and specifically the company's current pensioner pool arrangements.

- i) List the aspects that would need to be understood by the Financial Director, analysed by yourself and therefore included in your report. [8]

The company would like to consider a merger of these pensioner pools in order to better manage their risks.

- ii) Discuss the various considerations that would need to be taken into account when considering a merger. [8]

From your analysis you had identified that the pension increase policies for these funds differed substantially from targeting different levels of CPI to using fixed investment hurdle rates. The funding levels were also significantly different. At the lower end one of the funds is not able to fully maintain the recommended solvency reserves. At the upper end one fund is 125% funded after allowing for all recommended reserves.

- iii) Suggest how you could deal with differences in the funding levels and pension increase policies if the pensioner pools are to be merged. [8]

The Financial Director would like to gain a better understanding of the investment strategy adopted by each of the funds. He has asked you to provide a broad overview of the considerations when setting an investment strategy and in particular to give him an understanding of the various assets classes that would be available and their suitability within an investment strategy for the pensioner liabilities.

- iv) Set out the points that you would make in your response. [10]

Taking into account the analysis you have conducted on the various funds the Financial Director has asked you to comment on the investment strategies currently adopted by the three funds. Your research into the three funds identified the following:

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<b>Fund</b>	<b>Fund A</b>	<b>Fund B</b>	<b>Fund C</b>
<b>Nature of Fund</b>	DC with Pensioners	Closed Pensioner Only	Closed DB, large pensioner pool, few actives
<b>Pensioners</b>	550	1244	2698
<b>Investment Policy Statement</b>	Yes	Yes	No
<b>Pension Increase Target</b>	100% CPI	75% CPI	Affordable above 3% hurdle rate
<b>Funding Level</b>	100% (reduced solvency reserves)	125%	110%
<b>Investment Strategy:</b>			
<b>Overview</b>	Single Fund Strategy, pensioners make up 25% of the assets	Pensioner Specific Conservative	Single Fund Strategy Conservative
<b>Asset Allocation:</b>			
<b>Local Equity</b>	60%	25%	10%
<b>Local Bonds (Nominal)</b>	5%	35%	40%
<b>Local Bonds (Inflation)</b>	5%	15%	
<b>Local Cash</b>		25%	30%
<b>Local Property</b>	5%		20%
<b>Foreign Equity</b>	15%		
<b>Foreign Fixed Interest</b>			
<b>Foreign Property</b>	5%		
<b>Foreign Cash</b>	5%		

- v) For each fund set out the advantages and disadvantages of the investment strategy and the particular asset classes used within each strategy. You should include in your response any particular considerations relating to the pensioner liabilities.

[16]

[Total 50]

GRAND TOTAL [100]

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**END OF EXAMINATION**