Actuarial Society of South Africa

EXAMINATION

27April 2009 (pm)

Subject SA4RSA — Pensions and Other Benefits Specialist Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

2. *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.*

3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*

4. *Mark allocations are shown in brackets.*

5. *Attempt all questions, beginning your answer to each question on a separate sheet.*

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

PLEASE TURN OVER

QUESTION 1

In the early 1990s a number of defined benefit (DB) pension funds converted to defined contribution (DC) funds in South Africa.

(i) List the main reasons underlying this change in fund arrangement. [4]

You are the valuator to a fund that converted 15 years ago. It had a funding level of 150% and no pensioners at the time, although a number of members were approaching normal retirement age.

The benefits of the DB fund included a return of member contributions plus fund interest on withdrawal from the fund within five years of entry, and actuarial reserve value thereafter; a death-in-service pension of 50% of the deceased member's salary to married members' spouses; and a pension at retirement based on final pensionable salary. The fund's pension increase policy targeted full inflationary increases.

You were appointed before the conversion date and assisted the trustees through the restructuring process. New DC benefits are provided by an all-inclusive employer contribution rate of 17.5% of pensionable salaries. On withdrawal, members receive all net contributions to their retirement with fund interest. An insured death benefit of three times annual pensionable salary is provided and at retirement members must purchase a pension with the proceeds of their retirement savings.

The trustees met with some resistance from the sub-committee established to represent in-service members' interests during the conversion process.

(ii) Explain why certain members preferred to remain in the DB environment and discuss the proposals you presented to the trustees to address these members' concerns. [11]

The trustees agreed, with the employer's support, to maintain the existing past and future benefits in a separate DB category for those members not wishing to convert. All new members would join the DC category.

(iii) Describe the statutory role that a valuator would play in such a hybrid scheme. [4]

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The in-service members' sub-committee also requested the employer to meet the costs of an independent actuary that would be appointed by this sub-committee during the transition and whose service would be retained, if necessary, after the conversion.

The employer did not want members to be in a worse-off position and wanted to maximise the take-up of members converting to the DC category. Before agreeing to the additional costs of the independent actuary, one of the employer-elected trustees asked you to list the various services that such an actuary could provide.

(iv) Outline the input that could be expected from the independent actuary, initially, and then regularly, thereafter. [5]

A few years ago you completed the fund's surplus apportionment scheme in terms of the Pension Funds Second Amendment Act. It was approved by the registrar and implemented by the administrators. A solvency reserve was established. The surplus allocated to members was distributed by way of benefit enhancements and the employer's share of the surplus went into the Employer's Surplus Account.

The in-service members' sub-committee has now approached the trustees with a request to transfer all remaining DB category members to the DC category. The trustees would like to understand the implications of this request before discussing it with the employer. They have asked you to prepare a report on the potential financial implications for the employer.

One of the sections in your report covers the solvency reserve and its impact on the funding level and future required contribution rates in the DB category. This section discusses how the reserve might be dealt with should all the members convert to the DC category. In your report, you have used the symbols A for assets, L for best-estimate liability value and R for solvency reserve.

(v) Summarise what you would include in this section of the report. Do not detail the assumptions that may be used to derive the reserve. [7]

The proposal to convert the remaining DB members has been discussed with the employer. The employer is willing to support it but subject to the solvency reserve being transferred to the Employer's Surplus Account.

(vi) Explain why the employer might have suggested this and indicate how the trustees should respond to this suggestion. [5]

[Total 36]

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QUESTION 2

A large defined benefit pension fund has most of its assets in equities, which have witnessed significant volatility over the past year. The fund recently closed to further benefit accrual and this has prompted the trustees to review their investment strategy.

All in-service members became paid-up members, as opposed to deferred pensioners. Their accrued retirement benefits therefore increase in line with salaries, as opposed to pensions.

(i) Discuss the issues that the trustees should consider when reviewing the fund's investment strategy. [16]

(ii) Outline how asset liability modeling techniques could be useful. [4]

(iii) Describe the impact on the fund and the actions the employer could take following a material fall in equities, highlighting the possible impact on the company's accounting valuation. [6]

[Total 26]

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QUESTION 3

You have been invited, in January 2009, to undertake the statutory valuation of a large South African defined benefit fund, having had no previous relationship with the fund. The valuation date is 29 February 2009 and the fund is open to employees in local government.

The main benefits provided by the fund are:

- a retirement pension (including a pension payable to a surviving spouse) and a retirement gratuity, at age 60 or earlier on the grounds of ill-health, based on length of service and pensionable remuneration averaged over the 36-month period prior to retirement;
- on death-in-service, a lump sum of three times annual pensionable remuneration and dependant pensions, based on length of service and pensionable remuneration, become payable; and
- on leaving the fund in other circumstances, a minimum of three times the member's contributions accumulated at net fund returns is payable.

Members contribute 7,5% while the employers contribute 20,0% of pensionable remuneration, including the premiums for separately funded funeral benefits and a provision for the expenses of administering the fund.

(i) You have received all the necessary member and pensioner data. Describe the additional information, regulatory and otherwise, that you require to conclude the valuation. [5]

Membership of the Fund has remained more-or-less constant over the inter-valuation period although the asset base has increased from R3,0 billion (equity-type exposure 61%) to R5,7 billion (equity-type exposure 70%), with contributions exceeding benefits paid by R500 million over the inter-valuation period. The salary-weighted average age remained unchanged at 44 years.

The previous valuation was conducted using the same principles as those employed in the Surplus Apportionment valuation. Inflation-linked and long-term government bond yields were 3,8% and 7,3% per annum effective, respectively. The other economic assumptions used were as follows:

Inflation	3,0% p.a.
Equity premium	1,5% p.a.
Pension increases	In line with inflation
Salary increases	Inflation + 1%

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A contingency reserve account for risk benefits had been established, and the funding level was 107%. The lump sum benefit payable on death-in-service was funded on a current cost basis, for which the risk reserve was established.

A quarter of the liabilities relate to pensioners. Pensions in payment were increased in line with inflation at rates of 5%, 7% and 9% over the period, while remuneration increases averaged 8,4% per annum over the period. Demographic experience was not out of line with expectations, and there is no indication of a significant change in any of the demographic areas. The previous valuator had recommended that the minimum individual reserve (MIR) be based on the gross inflation-linked bond rate, as it was expected to be reasonably stable.

At the current valuation date, long-term bond rates had increased to 9,0% effective per annum, inflation-linked bonds were priced at 2,6%, while the earnings yield on the FTSE-JSE ALSI was relatively unchanged at 6,5%. As per the previous valuation, you have adopted Pension Fund Circular 117 in setting the assumptions.

In a pre-valuation meeting with the trustees it was suggested that the previous valuator's assumptions regarding the equity premium and inflation rate should be amended. After having made recommendations to the trustees, which were accepted, the results of your valuation indicate that the funding level has remained relatively unchanged. The trustees have expressed some surprise at the outcome, since the fund had appeared to have done well over the triennium, and have asked for your comment.

(ii) Draft your response to the trustees, including your proposed economic assumptions, derived using geometric differences, which were approved by the trustees, and your reconciliation of the latest funding position. [18]

With current levels of inflation running well ahead of the government's target range, concern has been expressed over inflation and other risks facing the fund.

(iii) Explain the points you would make in a report to the trustees dealing with the risks facing the fund. [9]

The trustees feel that perhaps different advice could have been given regarding the MIR basis and have asked you to make recommendations regarding the fund's approach to the provision of these minimum benefits.

(iv) Outline the additional points you would make to the trustees. [6]

[Total 38]

[Total for paper 100]

END OF PAPER