Actuarial Society of South Africa

EXAMINATION

13 May 2010 (am)

Subject F204 — 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

You are a newly qualified actuary at a consulting firm with a diversity of clients in the retirement fund industry. Your supervisor has asked you to prepare an in-house presentation about the impact that an economic recession might have on the South African retirement fund industry, its participants and stakeholders.

(i) Outline the points that you would make in your presentation for discussion at the next management meeting. [29]

At the presentation an actuarial colleague noted that during the recent recession, South African retirement fund investments performed better than their international counterparts.

(ii) Explain why this might have been the case. [3]

[Total 32]

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QUESTION 2

You are the valuator to a new 2000 member defined contribution pension fund which is being set up as a result of the conversion of a previous defined benefit pension fund to a defined contribution structure. The new Fund is a typical defined contribution fund with the total contribution rate set out in the Fund rules and the net contributions, after deducting an allowance for expenses and reinsurance premiums, being invested in member accounts. Apart from paying the specified contributions, the employer has no other obligation to the Fund. No Employer Surplus Account or Member Surplus Accounts will be transferred from the previous fund. The 200 pensions in payment will be transferred from the defined benefit fund to the defined contribution fund, together with a solvency reserve in respect of the pensioners.

The benefit on death in service is unchanged from the previous defined benefit fund and consists of a lump sum of twice pensionable salary together with an annual pension of 40% of pensionable salary to the surviving spouse and 10% to each dependent child (paid until the earlier of independence or age 25).

The previous Fund reinsured the above death in service benefit approximately, based on the average multiple of salary at risk, calculated at each statutory valuation date and remaining unchanged until the next statutory valuation date. On the death of a member, the benefits as set out in the Fund rules are paid, with the reinsurance recovery being applied towards the cost of paying the benefit.

(i) Outline the advantages and disadvantages of the death in service benefit from a member's point of view. [4]

(ii) Describe how you would calculate the amount to be reinsured in respect of the death in service benefit at the commencement date, assuming the same reinsurance arrangements will be used as in the previous Fund. Include a list of the assumptions required and any issues that have to be considered in this regard. [9]

(iii) Discuss the risks to the Fund of the way in which the death in service benefit is structured and reinsured. You should include in your answer an indication of how these risks could be mitigated. [11]

Some members have requested that the benefit in the Fund be changed to a flat three times pensionable salary lump plus the member's account, to bring the benefit in line with that provided by other funds in the industry. The trustees have asked for your advice on the impact of such a change.

(iv) Set out the points you would make in your response and suggest a way forward. [8]

[Total 32]

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QUESTION 3

You are the valuator of an industry wide defined benefit pension fund, comprising five participating employers, and recently completed the statutory valuation as at 28 February 2010. You were under pressure to complete your report within a month of the valuation date because the trustees urgently wanted to consider a number of scenarios. The statutory valuation results, assumptions and other pertinent details are summarised below.

Results on an Ongoing Basis	*R millions*	*No. of members*	*Average age (liability-weighted)*
Equities	650		
Bonds and cash	350		
In-service liabilities	450	500	40
Pensioner liabilities	350	200	65
Solvency reserve	100		
Employer Surplus Account	100		

The rules were amended after the surplus apportionment scheme to award all future surplus to the Employer Surplus Account.

Benefits & Contributions	
Normal retirement age	60
Final average salary	Last 2 years
Withdrawal benefit	MIR[1]
Pension increase policy	80% of CPI inflation
Member contributions	6%

Note 1: MIR = Minimum Individual Reserve in terms of the Pension Funds Act

Indices as at 28/02/2010	
Long-term government bonds	9.00%
Index-linked government bonds	3.00%
Adjusted ILG Yield used in MIR calculations	2.80%

Assumptions	
Inflation	5.34%
Discount rate	10.63%
Salary increases	7.34%
Equity premium	2.50%
In-service decrements	Ignored

PLEASE TURN OVER

(i) Explain how the four economic assumptions provided were derived, stating any additional assumptions that are required. [4]

The trustees have asked you to calculate the surplus available for distribution to the employers in the event that the Fund is terminated.

Actual salary increases and investment returns over the last three years have averaged 10% and 12% respectively. The Fund's rules indicate that in such an event the Adjusted ILG Yield must be used as the net discount rate before retirement. Furthermore, insurers can be expected to base their annuity rates, for pensions that mimic the fund's, using a net discount rate of 5% and the same mortality table but rated down an extra two years. They will apply an expense loading of 1.5% including commission.

(ii) Determine the surplus in the scenario that the fund is discontinued, stating any other assumptions and estimates that you make. [11]

For the statutory valuation you used the Projected Unit Method and calculated a total required contribution rate of 20%.

(iii) Estimate the average future employer contribution rate, as a percentage of salaries, to fund ongoing benefit accruals, if the Fund were to close to new entrants. State your assumptions. [3]

In terms of the rules of the Fund, the employer must pay "the balance of the cost of benefits, as decided upon by the trustees, acting on the advice of the valuator". The Fund has closed to new entrants and the trustees have asked for your advice.

(iv) Describe the main issues that the trustees should consider when deciding on the level of the employer's contribution rate. [9]

Due to financial difficulties, one of the participating employers is considering winding-up their operations, retrenching all personnel and ceasing their participation in the Fund. It has approached the trustees requesting a share of the surplus, to either avoid retrenchments (if the surplus is sufficient), or in order to assist with their retrenchment programme (if it is insufficient). The trustees have asked for your help in responding to this request.

(v) Outline the issues that you would take into account whilst drafting your recommendation to the trustees. [9]

[Total 36]

END OF PAPER

