EXAMINATION

17 April 2007 (pm)

Subject ST4 — Pensions and other Benefits Specialist Technical

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 8 questions, beginning your answer to each question on a separate sheet.*

6. *Candidates should show calculations where this is appropriate.*

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.

1 For a large occupational defined benefit pension scheme the benefits payable on death before retirement include a dependant's pension of 1/3rd of salary at death, plus a lump sum of three times salary at death.

Currently both of these benefits are fully matched by an insurance arrangement.

The sponsor has suggested that instead of directly insuring the expected amount of the dependant's pension an additional lump sum be insured instead.

(i) Suggest possible reasons for the sponsor's proposal. [4]

(ii) Describe how the additional insured lump sum amount might be calculated. [5]

[Total 9]

2 You are the actuary to a defined benefit pension scheme. The trustees are considering reviewing the terms available for exchanging pension for cash at retirement.

Set out the points to be included in a short paper for the trustees covering the following areas:

- Scheme documentation and legislation.
- Valuation basis and prudence.
- Administration considerations.
- Other general issues. [10]

3 You are the actuary advising a small defined benefit pension scheme. Set out the advantages and disadvantages of buying annuities. [10]

4 A large investment management company is considering introducing a separate defined contribution (DC) pension scheme, to replace its existing occupational defined benefits scheme for the provision of all future pension benefits in respect of all of its employees. The pensions manager has asked for an initial report from you, as the consulting actuary to the Company, on the issues involved in the closure of the existing scheme and the design of the new DC arrangement.

Set out the principal points you would make in your initial report. [12]

5 A long established industrial company operates an occupational final salary pension scheme for its employees. You have just been appointed as the actuary. The scheme has been closed to new members for the last two years. Then existing members continue to accrue final salary benefits, although the future accrual rate was reduced two years ago.

Under the contribution rule, the future service cost is split evenly between the employer and members. Any experience gains or losses are met by the sponsoring employer.

The latest actuarial valuation has revealed an increase in the future service contribution rate from 14.0% of pensionable pay on a Projected Unit Method set three years ago, to 22.0% of pensionable pay on an Attained Age Method currently, on more cautious assumptions.

Summary information from the valuation:

Past service liabilities for employed members: £108m
Pensionable payroll: £40.0m
Average salary weighted term to retirement of the employed members: 10 years
Assumptions — discount rate 6.0% per annum throughout, salary increases 4.75% per annum, inflation 3.0% per annum.
Expenses and insurance premiums: 2.4% of pensionable pay, included in the SCR.

A member elected trustee has suggested that the future service contribution rate should be calculated on a Current Unit Method (CUM) to keep the member's contribution requirement down because he has heard that CUM contribution rates are always lower than any other method.

(i) Estimate, using the information given, the future service contribution rate on a CUM. [9]

(ii) Comment on the member trustee's assertion. [3]
[Total 12]

6 (i) Describe four methods of financing social security schemes. [6]

(ii) Suggest the possible ways that a government can encourage non State benefit pension provision. [4]

(iii) Outline the advantages to a government of introducing compulsory pension provision. [4]
[Total 14]

7 You are the actuary to a non-contributory pension scheme, offering a pension of 1/50th of Final Pensionable Salary for each year of pensionable service at age 65. The results of the most recent valuation are as follows:

		Value (units)
Assets		60
Liabilities:	Active members (Pensionable Salary roll 8 units p.a.)	30
	Left service members	5
	Pensions in payment (2 units p.a.)	20
Surplus		5

The financial assumptions used in the valuation are:

	% p.a.
• Discount rate	10
• Salary increases	7
• Increases to pensions in payment	5

In the year following the valuation, the employer has contributed at a rate of 5% of Pensionable Salaries, which is lower than you have recommended.

(i) Assuming that the average age of the active members is 40, the annuity value at age 65 is 15, and that there are no changes in membership over the year, estimate the expected values of the assets, liabilities, and the surplus or deficit one year after the valuation using the same basis. State any further assumptions you have made. [9]

(ii) List the factors which could result in the surplus being different from that calculated in (i) [5]

[Total 14]

8 A large defined benefit pension scheme is about to undertake a valuation to determine the scheme's liabilities and to decide on the employer contributions to be paid for the next 10 years.

(i) Discuss why it is important for the trustees to understand the future support that the employer will provide and their ability to provide the promised support. [8]

(ii) Outline the methods the trustees could use to determine the strength of the employer's covenant and how it should be monitored over time. [7]

(iii) One of the trustees has suggested that the prospects for the company are not favourable and has suggested that contingent contributions or other alternatives to cash payments should be considered. Discuss this suggestion. [4]

[Total 19]

END OF PAPER