EXAMINATIONS

13 September 2002 (am)

Subject 404 — UK Fellowship Pensions

Paper One

You must answer this subject only, you may not attempt another subject in the 400 series.

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 6 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 Actuarial Tables and your own electronic calculator.

1 Outline the debt on the employer calculations as set out in GN19 and the priority of benefits requirements for a UK final salary pension scheme on winding-up. [6]

2 The trustees of a final salary pension scheme have asked the scheme actuary to discuss the implications of increased longevity on their pension scheme.

(i) Outline the implications of improvements in post retirement mortality and the possible amendments that could be made to the benefit design to offset the impact of increased longevity. [5]

(ii) Outline the implications of improvements in pre retirement mortality. [3]

[Total 8]

3 A UK employer is setting up a cash balance plan. Each year, members will accrue a cash sum as a percentage of salary. At retirement, the total cash balance will be used to purchase benefits for the member, as in a money purchase plan. Unlike traditional money purchase arrangements, the cash balance will not be directly linked to investment returns over the period to retirement, instead it will be revalued by the addition of bonuses as set out in the rules and with discretionary awards.

(i) Suggest and comment on possible ways in which the cash balance could be revalued over the period to retirement. [9]

(ii) As currently drafted, when a member retires, the plan will purchase an annuity from an insurance company. The pensions manager has commented that this may create administrative difficulties, and suggests as an alternative that annuities could be provided within the plan, using terms set by the plan's actuary. Discuss the risks that this alternative would create for the employer and the members. [6]

[Total 15]

4 (i) Describe the possible risks and uncertainties associated with final salary pension schemes for employers and scheme members under the following headings:

- benefits
- contributions
- investment
- security of benefits [12]

(ii) Discuss the nature and the likely differences in risks and uncertainties of small final salary pension schemes compared to larger final salary pension schemes. [4]

(iii) Outline the possible risks and uncertainties associated with a defined contribution pension scheme for sponsoring employers and members. [3]

[Total 19]

5 You are an actuary advising a small UK company operating a defined contribution pension scheme. The trustees are about to issue the annual benefit statements to active members, following the scheme anniversary. These statements include a projection of the ultimate pension the members may receive on retirement, both from the current fund (assuming no further contributions) and the projected fund (assuming contributions are paid up to Normal Retirement Age). The projections are calculated on long term assumptions, currently, investment return 8% per annum, salary inflation 6% per annum, LPI pension increases of 3.5% per annum and standard post-retirement mortality tables.

The company and trustees are aware that within the next six months the scheme will be wound up, as a result of a corporate restructuring. Each member's accumulated fund at that time will be used to purchase a deferred annuity in the market place.

None of the members are currently aware of the impending winding-up, but do know about the corporate restructuring.

(i) The trustees have asked you whether it is still appropriate to issue the benefit statements in their current format. Discuss the issues for the trustees and outline possible alternative approaches. (There is no need to specify any alternative assumptions.) [4]

(ii) From the alternatives put forward, recommend with reasons which approach you believe to be most appropriate. [2]

(iii) An announcement is to be issued to the members with the benefit statement explaining any change in format. Set out the points you would make in that announcement. [5]

(iv) The company personnel director has suggested that the pension to be bought out should be guaranteed. At retirement, it should be no less than the amount shown on the benefit statement projection (assuming no further contributions) that the member received a year ago, increased by the actual increase in pensionable salary the member achieved in the scheme year just ended. Comment on the director's suggestion, highlighting any financial implications. [8]

(v) The following additional data has been supplied for a specimen member; current fund £20,000, total contributions in the future will be at the rate of 10% per annum payable monthly, current pensionable salary £30,000 increasing annually in arrears. If the member has exactly 20 years until retirement, calculate the projected fund at retirement on the existing assumptions. [4]

(vi) For the member in (v) above, calculate the percentage reduction in the projected fund, assuming that future contributions stop immediately and the investment return assumption is reduced to 5.5% per annum to reflect current bond yields. [2]

[Total 25]

6 A defined benefit pension scheme has been subject to annual actuarial valuations throughout its existence over the last 10 years. The valuation basis has consisted of long term assumptions, and the method involves projecting income and outgo from the scheme in line with these assumptions, before discounting them back to present values in line with the long term rate of interest.

The actuary to the scheme has suggested that it would be more appropriate in funding the scheme in the future to use the market value of assets, and determine the value of the liabilities in a consistent way.

The scheme sponsor is concerned about the potential volatility in the contribution rate which might arise from such a change. He has asked the actuary to calculate the annual contributions which would have arisen if such a valuation basis had been used since the scheme commenced.

(i) List the information that will be required in order that such an exercise can be conducted. [7]

(ii) Explain how such an exercise would be carried out. [12]

(iii) If the sponsor decides that the method is likely to produce contribution rates which are too volatile for his cash flow, suggest ways in which the contribution rates could be smoothed. [8]

[Total 27]