EXAMINATIONS

10 September 2003 (am)

Subject 304 — Pensions and Other Benefits

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 An employer wishes to set up a defined contribution scheme to target a pension of 1/100th of each member's salary at age 65 for each year of future service plus other benefits. Contributions are to be invested in a managed fund. As an actuary you have been asked to recommend a suitable contribution structure for the scheme.

(i) Outline the factors you would take into account in setting appropriate contribution rates. [6]

(ii) List the information which you recommend should be disclosed to members each year and issues to be considered when making this disclosure. [5]
[Total 11]

2 An occupational pension scheme provides members with a retirement pension for life. There is an option for members to exchange part of their pension for a pension payable to a chosen dependant. The dependant's pension will be payable from the death after retirement of the member, for the remainder of the life of the dependant.

(i) Discuss the factors an actuary needs to consider to assess the appropriate terms for the exchange. [8]

(ii) State the restrictions the actuary might recommend should apply to the exercise of the option to exchange. [3]
[Total 11]

3 A valuation of a final salary pension scheme has just been undertaken as at 1 January 2003. The following is a summary of the results:

Market value of assets	£100m
Actuarial value of assets	£75m
Value of total service liabilities	£160m
Value of past service liabilities	£90m
Value of total future contributions (on Entry Age Method, "EAM")	£60m

- The EAM standard Contribution Rate is 12% of salary based on age 35 at entry.
- Member contributions are 3% of salary.
- The actuarial value of assets has been calculated by using the target notional portfolio mix of 75% equities and 25% bonds, with the respective market value adjustments being 70% and 90%.
- The actual split of the assets at the valuation date was 50% equities and 50% bonds.
- Average age of current membership is 45.

At previous valuations the method adopted took the assets at actuarial value based on the target notional portfolio whilst the liabilities were determined using the EAM method. Any deficit/surplus was then amortised over the average future service of the active membership. The trustees are proposing to continue with this method.

(i) Calculate the recommended company contribution rate as at 1 January 2003 if the trustees' proposed methodology is used. [3]

(ii) The company has commented that if the market value of assets is compared to the value of past service liabilities, there is a £10m surplus and therefore the total contribution rate should be reduced from the 12% level.

Discuss the company's comments. Your answer should include comments on the suitability of the method and assumptions used. [9]
[Total 12]

4 A company is about to set up under trust, a money purchase pension scheme for its employees. The company is considering having a defined benefit underpin based on $1/100^{th}$ of final pensionable salary for each year of membership, with the larger of the underpin pension and the pension available from the money purchase fund being payable on retirement, or earlier leaving or death.

(i) Outline the advantages and disadvantages of the underpin from the company's perspective. [5]

(ii) The money purchase scheme will offer a wide range of investment funds for its members. Discuss the investment implications of the defined benefit underpin. [4]

(iii) Outline alternative ways the company could meet the cost of the underpin. [2]

(iv) Discuss how stochastic techniques may be used if the company wished to fund the cost of the underpin. [7]
[Total 18]

5 One of your clients has recently purchased an overseas company in a well developed country. There are currently no pension arrangements for staff at this company. Your client wishes to put in place a new pension scheme. Employees who complete at least 20 years' service will receive a pension equal to 50% of their earnings in the final year of employment. The company has asked you to advise on the level of contributions that it will need to pay to meet this objective. This is the first time you have been asked to advise on setting up pension arrangements in this overseas country.

Outline the additional information and background details that you will require before you can formally respond to your client covering the following areas:

- data
- legislative issues
- funding issues
- benefit design issues [20]

6 You have been appointed by XYZ plc, a holding company with diverse business interests and many employees, to advise on pensions issues. Recent legislation has been introduced by the State which is intended to outlaw discrimination in the provision of pension benefits. Through its subsidiaries, XYZ plc operate many different defined benefit and defined contribution pension schemes.

(i) List the benefits that can be offered under a retirement and death benefit scheme. [6]

(ii) Outline possible areas of discrimination within the design of a pension scheme. [6]

As a result of the new legislation, XYZ plc amends the design of its defined benefit schemes so that all options are priced on a unisex basis. At the following valuation of each scheme, a large deficit is revealed.

(iii) Outline the possible effects on the schemes' funding levels of the change in option pricing to a unisex basis. [6]

(iv) Outline how other possible sources of surplus or deficit may have arisen since the last valuation. [10]
[Total 28]