EXAMINATIONS

September 1999

Subject 304 — Pensions and Other Benefits

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *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.*

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

3. *Write your surname in full, the initials of your other names and your Candidate's Number on the front of the answer booklet.*

4. *Mark allocations are shown in brackets.*

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

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet and this question paper.

In addition to this paper you should have available Actuarial Tables and an electronic calculator.

1 Describe the main features of an Accrued Benefit Funding Method used in connection with a defined benefit pension scheme. [6]

2 A pension arrangement provides one benefit only, a pension which does not increase in payment. However, members are allowed to commute up to 50% of their pension for cash at retirement age. The sponsor of the arrangement has asked you to recommend commutation factors. It is intended that the factors should be stable for long periods of time.

List and explain the relevance of the factors which you should take into account when determining the basis. [6]

3 (i) List the approaches that a State may take to maximise the security of benefits that are provided through a non-State benefit plan. [5]

(ii) You are an actuary advising the government in a country where employers typically provide pensions for their employees through occupational final salary pension schemes. When employees leave service with ten or more years of pension scheme membership, legislation currently requires that employees be given rights to a deferred pension based on salary and service at the date of leaving service.

You have been asked to comment on a proposal to improve rights for early leavers. Under this proposal, deferred pensions would be increased so that they are based on members' salaries at retirement age (from their employer at that time).

Outline the comments that you would make on this proposal. [5]
[Total 10]

4 A medium sized final salary scheme of a company in a developed country provides a pension of $1/50^{th}$ of pensionable salary at normal retirement for each year of pensionable service. Pensionable salary is calculated annually on the scheme's anniversary (or at date of entry) as the member's basic salary less the State flat rate Pension at the same date.

Describe, with formulae, how to analyse the salary experience of the scheme over the 3 years since the previous valuation. [9]

5 You are the actuary to a pension scheme which provides a mix of money purchase and final salary benefits to each member. The rules of the scheme state that the pension to be awarded, at normal retirement age, should equal the greater of:

- $1/60^{th}$ of final pensionable salary for each year of service and pro rata for months; or
- The pension equivalent of twice the value of the member's normal accumulated contributions, as determined by the actuary.

(i) Outline the issues that may be taken into account in determining the method of accumulating the members' contributions and converting them to a pension equivalent. [7]

(ii) Describe briefly how you would quantify the value of the money purchase guarantee as part of the regular actuarial valuation. [6]
[Total 13]

6 You are the actuary to a newly established final salary scheme in a developed country. The finance director of the sponsoring company has asked you to prepare a briefing paper to cover financing and investment strategy

(i) outline the considerations for choosing a financing strategy, and [9]

(ii) outline the considerations for determining an appropriate investment strategy if the scheme is to be funded [9]
[Total 18]

7 An employer intends to introduce a pension scheme for its employees.

(i) Discuss briefly the factors that the employer will take into account in deciding the type and amounts of benefits to be provided. [8]

(ii) The finance director has asked you to prepare a brief report on the financial risks for the employer associated with a pension scheme and to summarise possible ways of mitigating those risks. Outline the points that you would make in your report. [12]
[Total 20]

8 Pension arrangements in a developed country consist of individual money purchase funds which citizens build up over their working lifetime.

At age 60 all benefits must be taken in pension form. The individual can choose either to purchase an annuity with an insurance company or to draw an income from their fund until they reach age 75 and then purchase an annuity.

Annuities may include a spouse's pension of up to 100% of the individual's pension payable on death. The individual may choose either a pension which increases in line with prices inflation, or does not increase in payment.

For individuals who do not choose to buy an annuity at age 60 the minimum and maximum income which can be drawn from their fund, up to age 75, should be certified every three years, by an actuary. The minimum and maximum pensions must in the actuary's opinion, be sustainable. Sustainable, in this situation, means that on the assumptions adopted the pension is equivalent in value to the fund value and is payable for life

(i) Outline, with reasons, the assumptions that you might need to make to calculate the minimum and maximum pensions which you are prepared to certify that individuals can draw from their fund. Individual assumption values are not required. [5]

(ii) State with reasons the further information you would require and the points you would consider in order to advise an individual as to whether they should draw their benefits from the fund or purchase an annuity when they reach age 60. [8]

(iii) Estimate the minimum and maximum pensions which you would certify for a male retiring at age 60 with a current fund value of £250,000.
[5]
[Total 18]