Faculty of Actuaries **Institute of Actuaries**

EXAMINATIONS

15 September 2000 (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. *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 6 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 You are the Scheme actuary to a large UK approved pension scheme. The scheme rules allow members to exchange some of their own pension for a cash lump sum at retirement.

Outline the considerations you would make in setting the terms and conditions for such exchange. [8]

2 A senior executive has just been recruited by one of your clients and, under the terms of his employment contract, he has been offered a pension of $\frac{2}{3}$ of salary upon retirement (after a minimum of 5 years service). Your client operates in the UK and has a fully exempt approved pension scheme offering senior executives the maximum benefits consistent with exempt approval. The executive is aged 40 at the time he is recruited and the normal retirement age of the pension scheme is 60. He has no retained benefits.

The independent financial adviser acting for the senior executive has suggested that benefits in excess of those provided by the approved scheme are secured by means of a Funded Unapproved Retirement Benefits Scheme (FURBS).

(i) Describe briefly the operation and tax treatment of a FURBS. [3]

(ii) Explain the disadvantages of using a FURBS in this case. [7]

[Total 10]

3 A defined benefit pension scheme provides a pension at retirement offering no guaranteed pension increases on the pension accrued before 6 April 1997. However, there is a well established practice of awarding discretionary pension increases equal to price inflation on an annual basis. A valuation has just been completed and has disclosed that the scheme is 110% funded on the scheme's usual funding basis.

The company has intimated that it would like to use the surplus to reduce its contribution rate, but the trustees are demanding benefit improvements in return. The finance director tells you at a meeting that he is thinking of agreeing to an improvement in benefits so that pension increases are guaranteed at price inflation in the future because "it won't cost us anything and the trustees will see it as a good deal". He has asked for your comments.

Describe the points you would make. [12]

4 Company A has sold a UK subsidiary whose employees form a significant proportion of the membership of a defined benefit pension scheme which is not contracted out of SERPS. You are the Scheme actuary.

The sale and purchase agreement states that a past service reserve will be paid in respect of members who transfer to the purchaser's scheme. Between the date of transfer and the date of payment, the transfer amount will be increased at an annual rate of interest equal to bank base rate plus 2%.

The trustees have written to ask you to calculate the transfer amount and to confirm that they should pay it to the purchaser. They have also told you that, after the transfer payment has been made the employer intends to wind up the scheme.

(i) Describe the investigations you would carry out, and [6]

(ii) Outline the points you would make in your reply. [11]

[Total 17]

5 Company A has recently purchased company B, a subsidiary of company C. Employees of company A are eligible to join scheme X while those of company B can join scheme Y run by company C. Both schemes are final salary contracted-out pension schemes with the following main design elements.

Benefits	*Scheme X*	*Scheme Y*
Normal Pension Age	65	65
Normal Retirement Pension	1/50 × Final Pensionable Earnings × Pensionable Service	1/60 × Final Pensionable Earnings × Pensionable Service
Early Retirement Pension	1/50 × Final Pensionable Earnings × Pensionable Service × Early Retirement Factor where the Early Retirement Factor uses a discount rate of 4% p.a. compound	1/60 × Final Pensionable Earnings × Pensionable Service × Early Retirement Factor where the Early Retirement Factor is 1 for ages 60–65 and uses a discount rate of 4% p.a. compound below age 60

The other benefits in the two schemes are broadly the same.

The sale and purchase agreement values the favourable early retirement terms available under scheme Y by assuming that members retire in accordance with the following assumptions.

Age	*% of members retiring early at each age*
55	3%
56	4%
57	5%
58	6%
59	7%
60	10%
61	10%
62	10%
63	10%
64	10%
65	100%

The sale agreement requires that members are offered membership of an approved scheme nominated by the purchaser and that the benefits provided to scheme Y members, in respect of service to the membership transfer date, are actuarially equivalent using the assumptions in the sale and purchase agreement.

You are an actuary advising both the trustees of scheme X and company A's management. You have briefly mentioned the following options for the provision of benefits to members of scheme Y who are employed by company B.

(a) defined contribution
(b) mirror image defined benefit section of scheme Y within scheme X
(c) defined benefits on scheme X's benefit structure

You have been asked to draw up a report on these options.

Outline the points you would make in your report including the advantages and disadvantages for the interested parties. (You should approximately determine the allowance for the favourable early retirement terms in the transfer payment.) [18]

6 B&C Limited has for many years operated two defined contribution pension schemes in the UK, one for senior executives and one for all other employees. Neither scheme is contracted out of the State Earnings Related Pension Scheme (SERPs). Employees contribute 5% of basic salary. The company contributes 20% of basic salary for senior executives and 5% of basic salary for all other employees. The schemes are self administered and investment returns are good when compared to similar funds.

On retirement at age 65 most members take a lump sum of 1 × basic salary and the trustees apply the balance of the accumulated fund to purchase pension from an insurance company. The pension increases in line with statutory requirements and continues on death to the member's spouse at 50% of the member's pension. On death before retirement, the accumulated fund is applied to purchase a pension for the spouse.

The company has 8 senior executives, all of whom are in their scheme and 12,000 employees in the UK most of whom are members.

The trustees and the company have received complaints from retiring members that their pension is too low and that they do not have enough to live on. Also the pension for one senior executive who has just retired was less than 1/3rd of his salary in the year before he retired. As a consequence the company is considering switching to a defined benefit pension arrangement.

You are a consulting actuary and have been asked to produce a detailed report on pension provision for the Board of the company.

(i) It has been commented that "Investment returns have been good, so why are pensions so poor and is the situation likely to improve?" Describe the points you would make in your report in reply to this comment. [10]

(ii) Describe the points you would make in relation to the differences between the benefits and administration under defined contribution and defined benefit pension arrangements which are not contracted out of SERPs. [10]

(iii) You have been asked to determine the benefits which could be provided under a defined benefit scheme for 10% and 25% of basic salary.

(a) List the information you would require.

and

(b) State, with reasons, the funding method(s) you would use. [12]

(iv) Describe the options which could be offered to current members in respect of their funds accumulated to the date of switch. [3]

[Total 35]