

# EXAMINATIONS

April 1997

## Subject H — Pensions

### *Paper One*

*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.*
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 12 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.*

<p><i>In addition to this paper you should have available Actuarial Tables and an electronic calculator.</i></p>
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- 1** Describe the levels of increases to pensions in payment which are required by legislation and also which are commonly provided from a long established UK contracted-out final salary scheme. [4]
- 2** An employee joined a UK company and pension scheme on 6 April 1996 aged 45 exact. His current basic salary is £150,000 and his expected bonus is £50,000. The company is to provide the employee with a pension of 1/45th of basic salary for each year of service at age 60. The company has an exempt approved final salary pension scheme. Spouses pensions on death after retirement are 2/3 of the members pension.
- (Assume the employee has no benefits from previous employments and that the current earnings cap is £84,000.)
- (i) Based on current levels of earnings and the earnings cap, calculate the amount of the pension that cannot be provided by the approved scheme at age 60. [2]
- (ii) Allowing for inflation and stating your assumptions, with reasons, calculate the amount of the pension at age 60 that cannot be provided by the approved scheme. [4]
- (iii) For this member calculate the SSAP24 Regular Cost for the unapproved benefits for the year ending 5 April 1997. State and explain your choice of assumptions. [7]
- [Total 13]
- 3** Describe the role and responsibilities of a pension scheme trustee. [6]
- 4** Outline the different considerations that apply when choosing valuation assumptions to determine the recommended contribution rate for a small final salary pension scheme (25 active members) and a large final salary pension scheme (10,000 active members). [9]
- 5** Outline the benefit design considerations of providing a commutation option to members at retirement, and the considerations to be taken into account in determining the commutation factors for an on-going approved pension scheme. [8]
- 6** It has been suggested that UK State pension provision should be reduced or eliminated. Instead, funded pensions would have to be provided for all through compulsory saving in the private sector. Outline the advantages and disadvantages of introducing such a system. [6]

- 7 In respect of a UK contracted-out final salary pension scheme:
- (i) Describe briefly the role of the actuary. [5]
- (ii) Describe briefly the statutory certificates which an actuary may be required to provide. [9]
- [Total 14]

8 Discuss the suitability or otherwise of using the current unit, projected unit and attained age methods of valuation for the purposes of calculating the pension cost under the UK accounting standard, SSAP24. [7]

9 You carry out annual valuations for a final salary scheme which is not contracted-out. The results of the valuation as at 1 January 1996 in respect of past service were as follows:

Assumptions for liabilities:

Interest	9% p.a.
Salary increases	7% p.a.
Pension increases	4½% p.a.
Deferred pension increases	5% p.a.
Price inflation	5% p.a.

Method: Projected Unit

	<i>£m</i>
Past Service Liabilities:	
Actives	20
Deferred Pensioners	20
Pensioners	<u>50</u>
Total	<u>90</u>
Actuarial value of assets	100
Surplus	10

During 1996 price inflation was 2%, pensioners were awarded a guaranteed pension increase of 3% but otherwise the experience of the scheme **relative to price inflation** matched the assumptions assumed at the 1996 valuation. The Company paid contributions during 1996 at the Standard Contribution Rate.

The analysis of the past service surplus disclosed at the 1997 valuation (which was carried out using the same method and assumptions as the 1996 valuation) which you present to the Company shows that pension increases during the past year have been a source of profit to the scheme. The Finance Director believes that the pension increases should be a source of loss to the scheme because in real terms the increase awarded was greater than that assumed at

the last valuation. He has therefore asked you to rework your analysis of surplus to show the sources of profit and loss in real terms (i.e. relative to price inflation).

Set out the approximate analysis of surplus under the two approaches. [9]

**10** Explain, with two examples, what is meant by the phrase “credits for family responsibilities” in the context of State pension arrangements. [3]

**11** List the advantages and disadvantages of the purchase of non profit immediate annuities as assets for a medium sized self administered pension scheme. [6]

**12** You are carrying out the triennial valuation of a UK contracted-out final salary pension scheme which has assets as follows:

	<i>Market Value</i> <i>£m</i>
UK Equities	70
Overseas Equities	20
UK Fixed Interest	5
Index-Linked Gilts	3
Cash and other net current assets	2
Total	100

(i) Describe the desirable characteristics of the method to be used to place a value on the assets. [5]

(ii) Explain why market value may be considered unsuitable for this purpose. [4]

(iii) You have decided to value the assets using a discounted income approach and notional portfolio. Using the following information develop a formula for valuing the assets, and calculate the value.

**Valuation data:**

Notional portfolio:        75% UK equities  
                                     25% Index-Linked gilts

Real discount rate:        4.50%

Real rate of growth of  
UK dividends:                0.25%

**Market data:**

Yield on FT-SE Actuaries' All-Share Index at valuation date	4.00%	
5 year Index-Linked gilt yield	3.5%	[3]

(iv) Shortly after the valuation date the tax credit attaching to UK dividend payments is reduced from 20% to 15%. Calculate the effect this will have on the assessed value in part (iii). [3]

[Total 15]