

# INSTITUTE AND FACULTY OF ACTUARIES



## EXAMINATION

18 April 2018 (am)

### Subject ST4 – Pensions and other Benefits Specialist Technical

*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 must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *You have 15 minutes of planning and reading time before the start of this examination. You may make separate notes or write on the exam paper but not in your answer booklet. Calculators are not to be used during the reading time. You will then have three hours to complete the paper.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all six questions, beginning your answer to each question on a new page.*
6. *Candidates should show calculations where this is appropriate.*

#### ***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 the 2002 edition of the Formulae and Tables and your own electronic calculator from the approved list.*

**1** A company is planning to set up a defined benefit pension scheme in order to improve recruitment and retention of employees.

- (i) Describe the main design elements the company should consider when designing the scheme. [7]

The Finance Director is concerned about the risk of future costs rising as a result of this scheme.

- (ii) Outline the main ways in which the scheme could be set up that would reduce these risks. [8]

Employees are very keen to have flexibility around the benefits they receive from the scheme.

- (iii) List four benefit options that could be provided to members by the scheme. [2]

- (iv) Outline the risks that the company might face as a result of introducing these member options. [4]

[Total 21]

**2** The ABC Pension Scheme is a multi-employer final salary pension scheme that is closed to new entrants but open to future accrual for current members. A funding valuation is currently being undertaken and the actuary, having performed an analysis of recent scheme experience, is considering what assumptions to propose to the trustees.

- (i) Outline the issues that the actuary should consider concerning the credibility of recent mortality experience for the purpose of setting assumptions. [3]

The trustees have asked for an explanation of how the key assumptions to adopt for the valuation might be derived and what issues should be considered.

- (ii) Set out the points the actuary might make in her response. Your answer should cover the following:

- general principles;
- discount rate;
- pension increases;
- salary increases;
- mortality assumptions;
- withdrawal rate.

[9]

[Total 12]

- 3** (i) List six types of benefits that may be provided by the state. [3]

The government of a country was elected with a mandate to reform the pensions system following a number of recent scandals due to employees losing their benefits. Currently there is no legislation around occupational pensions and employers can offer any form of benefits they wish to. The minister responsible for this policy has asked for details of what can be done to reform the system.

- (ii) Suggest ways in which the pension system could be reformed to improve benefit security. [8]

The actuarial profession in the country is considering whether there is a need for additional professional guidance in the light of these scandals.

- (iii) Set out what this additional guidance might include. [4]

The government is also considering paying a universal income to all adult citizens regardless of their circumstances. The same amount will be payable for everyone who is eligible.

- (iv) Outline the advantages and disadvantages of such a policy. [5]  
[Total 20]

- 4** A requirement has recently been introduced for defined contribution (DC) pension schemes to provide benefit projections to members to give an indication of what their benefits may be worth in future.

- (i) Set out the key information that may be included in these projections. [4]

- (ii) Suggest possible ways by which the state could improve the chances that members of DC pension schemes will have enough money to last through their retirement. [8]

One policy proposal that has been suggested is “collective DC”. This is a combined DC pension scheme operated by the state on behalf of all employers. Both employers and employees would make fixed contributions into a pooled fund. Members will be able to withdraw their share of the fund at retirement age.

- (iii) Outline the key advantages and disadvantages of such an approach. [3]  
[Total 15]

**5** The trustees of a defined benefit pension scheme with a large deficit have agreed to close the scheme to both new members and future accrual with immediate effect. A funding valuation is due shortly.

(i) Outline how the closure might affect the funding valuation. [4]

(ii) Discuss the actions that the trustees might take to address the key risks now that the scheme is closed to future accrual. [8]

The trustees have commissioned an Asset Liability Model (ALM) as part of their analysis.

(iii) Describe the two most commonly used types of economic model in Asset Liability Modelling. [4]

(iv) List four key inputs for an ALM in order to set assumptions. [2]

A new scheme has been suggested where the level of benefits are linked to the share price of the sponsoring employer.

(v) Outline the advantages and disadvantages of such a scheme. [2]

[Total 20]

**6** The government of a country is considering whether to set up a new social security scheme following pressure from citizens. Currently there is no government social security provision at all.

(i) List four possible financing methods for social security schemes. [2]

(ii) Describe how the costs of providing the social security scheme could be forecast. [8]

The government would like to limit the costs of benefits by imposing a minimum residency period of two years before citizens can access benefits.

(iii) Comment on the likely consequences of such a policy. [2]

[Total 12]

**END OF PAPER**