

# Actuarial Society of India

## EXAMINATIONS

18<sup>th</sup> November, 2005

### Subject ST4 – Pensions and Other Employee Benefits

Time allowed: Three Hours (02.15\* - 05.30 pm)

#### *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 until instructed to do so by the supervisor.*
- 3. The answers are not expected to be any country or jurisdiction specific. However, if examples/illustrations are required for any answer, the country or jurisdiction from which they are drawn should be mentioned.*
- 4. Mark allocations are shown in brackets.*
- 5. Attempt all questions, beginning your answer to each question on a separate sheet.*
- 6. Fasten your answer sheets together in numerical order of questions. This, you may complete immediately after expiry of the examination time.*

#### **Professional Conduct:**

*It is brought to your notice that in accordance with provisions contained in the Professional Conduct Standards, If any candidate is found copying or involved in any other form of malpractice, during or in connection with the examination, disciplinary action will be taken against the candidate which may include expulsion or suspension from the membership of ASI.*

**Candidates are advised that a reasonable standard of handwriting legibility is expected by the examiners and that candidates may be penalized if undue effort is required by the examiners to interpret scripts.**

***AT THE END OF THE EXAMINATION***

***Hand in BOTH your answer script and this question paper to the supervisor.***

- Q.1)** A large company ABC Ltd has bought a small manufacturing company XYZ Ltd containing 2,000 employees. XYZ Ltd is to stay as a subsidiary of ABC Ltd. The finance director has asked you to advise on the type of pension benefits that should be established for the employees of XYZ Ltd.
- (i) **List** further information that you will require from the finance director prior to making your recommendations. (8)
  - (ii) **Discuss** the relative risks of introducing a defined contributions scheme compared to a final salary arrangement from the point of view of
    - the company; and (4)
    - the employees. (2)
- Total [14]**
- Q.2)** You have just been appointed actuary to a long established defined benefit pension scheme where over 50% of the liabilities are represented by pensions in payment. You are about to undertake the first triennial valuation for the purpose of assessing the ongoing funding position.
- (i) **Discuss** the validations that you would perform on the data for the valuation of the assets and the liabilities. (6)
  - (ii) **List** the assumptions the you may need to make in order to value the pensioners' liability. (4)
  - (iii) You have been instructed to undertake an analysis of the mortality experience of the pensioners over the last three years. **Outline** the steps and general principles which are involved in the analysis. (4)
  - (iv) **Discuss** the extent to which you would use the results of the analysis in part (iii) to select the assumption to be used for the triennial valuation of the pension scheme. (3)
- Total [17]**
- Q.3)** A country has no previous history of pension provision by the State. The country has enjoyed recent rapid economic progress and the Government wants to establish a primary tier of State pension provision. You have been engaged to advise the Government on the matter. **List** the issues that you would raise in your report. [10]
- Q.4)** A large company has two separate pension schemes depending on the grades of the employees, a defined benefit pension scheme and a defined contribution scheme. **Describe briefly** how the possible benefit designs of each scheme could allow for early retirements. Your answer should include reference to any assumptions used to determine benefits and any other factors which may need to be considered. [9]
- Q.5)** An employer employing more than 10,000 employees, some in administrative jobs and others in field assignments has introduced employee benefits which inter alia provide lump sum amount as a function of salary payable on death and Permanent Total Disability. Suggestion has been made that the Employer should not take risk on its own, instead should approach a life insurer for a solution.
- (a) Describe the manner in which such lump sum benefit could be insured through a life insurer and if arranged, the financial impact such an insurance arrangement will have on the employer. (5)

- (b) Describe how experience rating or profit sharing arrangements could form part of such an insurance arrangement, while explaining the difference between the two. (5)
  - (c) Explain the concept of “free cover limit” and the conditions under which such limit could be as high as possible. (5)
- Total [15]**

**Q.6)** An employer employing about 10,000 employees broadly of the same occupational risk profile, wanting to set up a DB pension scheme has been requested by the employees to provide a number of options as part of the scheme benefits. Describe the risk associated with the following options and mention the manner in which such risks could be minimised or eliminated;

- (a) Options that may be granted in relation to retirement benefits available on events other than Normal Retirement. (5)
  - (b) Transfer of benefits through transfer values to another scheme. (5)
  - (c) Early retirement benefits. (5)
- Total [15]**

**Q.7)** An employer having a large number of employees, all broadly of same homogeneous risk profile, wants to establish a DB pension scheme providing lump sum death benefits besides pension. The employer desires to administer its own fund for providing such benefits and has approached you as an actuary to advise on the funding issues. Answer the following questions in this context;

- (a) List the criteria that may be set to assess a funding methodology. (4)
  - (b) List and categorise, describing briefly the main funding methods. (5)
  - (c) Set out the general formula for Standard Contribution Rate defining the symbols used. (5)
  - (d) Set out in a tabular form comparison of the main factors affecting the Standard Contribution Rate under various funding methods; (6)
- Total [20]**

\*\*\*\*\*