INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

7th November 2008

Subject ST4 — Pension and Other Employee Benefits

Time allowed: Three hours (14.15* – 17.30 Hours)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception

2. * 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.

3. You must not start writing your answers in the answer sheet until instructed to do so by the supervisor

4. 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.

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

6. Mark allocations are shown in brackets.

AT THE END OF THE EXAMINATION

Please return your answer book and this question paper to the supervisor separately.

Q. 1)

a) Define the actuarial liability and standard contribution rate under the following methods

i) Attained Age method
ii) Entry Age method
iii) Projected Unit method
iv) Current Unit method (6)

b) Compare each funding method in terms of:

i) Security of funding benefits
ii) Level of standard contribution rate (4)

[10]

Q. 2) In an emerging country the Government has asked you, a consulting actuary, for assistance in formulating regulations about members' benefits in the case of a defined benefit pension scheme winding up.

Describe the points you would make to the Government. **[15]**

Q. 3)

a) Set out the main reasons for analysing the sources of surplus or deficit as part of an actuarial valuation? (2)

b) A company operates a funded defined benefit pension scheme. A triennial valuation has just been performed as at 31 March 2008 which shows the funding position deteriorating significantly. List the potential sources of deficit or surplus for this scheme. (5)

c) As the actuarial adviser you have been asked to analyse the salary experience of the scheme over the last three years. Describe the data you require and the steps you will take to perform this exercise. (8)

[15]

Q. 4) You have been appointed as actuary to a new final salary pension scheme which is to be funded. The Trustees have requested that you prepare a short paper outlining the factors they should consider in formulating an appropriate investment strategy.

a) Outline the points you would make to the Trustees. (8)

b) List the advantages and disadvantages of buying annuities when pensions come into payment compared with paying then directly from the scheme's funds. (3)

[11]

Q. 5) As part of annual compensation, an employer provides a generous life assurance benefit to its staff. The benefit is dependent on the number of years of service rendered by the member. Past mortality experience of the scheme is high. This experience is similar to that of the industry in which the company operates. The cost of the scheme is a significant part of the employer's total operating costs.

Instead of settling the claims on a "PAY AS YOU GO" basis, the company is considering funding the life assurance benefit. Describe the different methods of funding this benefit and the corresponding annual cost to the employer. **[7]**

Q. 6) Post liberalisation of a country's economy, its domestic local life assurance industry is opened for private players. To create investment opportunities for the private players, the government plans to issue a new type of bond which provide regular coupons for a fixed number of years. It is proposed that the payments and the number of years for which the bonds are paid will be determined by an independent body as follows:

- The payments are linked to average earnings inflation
- The period of payment is set at the date of issue of the bond based on the average life expectancy at the state retirement age; and
- No capital re-payment is made

i) Compare the suitability of these bonds as investments for individuals who have retired compared with insurance company annuities which increase with consumer price inflation. (7)

ii) A large funded defined benefit pension scheme in which annual pension increases are linked to consumer price inflation has mostly pensioner liabilities Discuss the advantages and disadvantages for this scheme of these new bonds as an asset class compared with Domestic equities. (7)

[14]

Q. 7) A company has been finding it difficult to fund the benefits under its defined benefit pension scheme. In order to protect the interest of the existing members, the defined benefit scheme is to be replaced by a defined contribution (DC) scheme for new members with effect from 1 April 2009.

You are an actuary advising the employer in implementing the DC Scheme. Discuss how you could help the employer including examples of the issues to be faced and how these might be resolved.

Your answer should cover the following aspects:

i) The priorities/preferences of the interested parties (7)

ii) The risks associated with the DC scheme for various parties (3)

iii) Different design variations and process (12)

iv) Ongoing monitoring (6)
[28]

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