INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

16th November, 2011

Subject SA4 – Pensions and Other Employee Benefits

Time allowed: Three hours (9.45* - 13.00 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 expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which are meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However if application specific to any other country is quoted in the answer the same should answer the question with reference to Indian environment.*

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

6. *Mark allocations are shown in brackets.*

7. *Please check if you have received complete Question Paper and no page is missing. If so, kindly get new set of Question Paper from the Invigilator.*

AT THE END OF THE EXAMINATION

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

Q. 1) A Federation of about 500 retailing organizations has set up a pension scheme for the employees of its member organizations. Individual member organizations have a choice either to join the scheme set up by the Federation or to remain out of it. The scheme has been in force for 15 years. 300 member organizations have joined the scheme at the inception but 50 out of these have over the years discontinued their ongoing contributions.

The scheme is financed entirely out of the contributions of the employee members. The contribution rate is fixed at 12% of the employee's gross salary. The scale of benefit is pension of 1.25 % of final basic salary for each year of service subject to eligibility condition of 10 years of active continuous service. The pension becomes due on exit from service due to death, permanent disability or normal retirement at age of 60 years. However, no benefit is payable if employee voluntarily leaves service prior to normal retirement date. The employee has an option to choose in lieu of pension a lump sum cash benefit equal to return of his contributions with simple interest thereon. Currently, the practice is to allow simple interest rate which is 2% lower than the yield earned on the fund's investments.

The contributions into the scheme are pooled and the benefits are paid out of the pool assets. The scheme has a special dispensation whereby it can pay pensions out of fund monies instead of buying annuities from an insurance company to arrange for pension payments.

The retailing organizations have their own salary scales and salary fixation philosophy depending upon their individual profit making capacity.

The Federation is having concerns about the ongoing viability of the scheme. Younger employees feel that the scheme design is not fair to them and consequently some retailing organizations have been constrained to discontinue their ongoing contributions though monies already contributed continue to remain in the fund.

The Federation is considering a total review of the scheme. It has appointed you as Consulting Actuary and has sought your advice on the following:

a) What would be the issues that would concern various beneficiaries of the scheme? Is there any merit in the grievance of younger employees? (10)

b) **i)** What investigations would be required to review the ongoing viability of the scheme? (7)

ii) What steps can be considered for putting the current scheme on sounder footing while retaining its essential defined benefit pattern? (10)

c) **i)** What are merits and risks of Defined Contribution scheme in considering it as a future option for the scheme design? (6)

ii) How would you ensure equitable movement to Defined Contribution scheme? (8)

d) What are the implications of the practice to pay monthly pensions out of the fund's investments on the investments and earnings of the fund? (5)

e) Should the Federation consider option of buying annuities from an insurance company? (4)

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Q. 2) **a)** A large company in India has two gratuity schemes- one for senior executives and the other for staff & officers. Both the schemes provide gratuity as per the Payment of Gratuity Act, 1972 except that executives' scheme does not have any upper ceiling.

You are an actuary advising the trustees under these schemes. Presently executives' scheme is funded to the extent of 85% on ongoing basis. The investments held are 45% Government Securities (G-Sec), 35% high quality Corporate Bonds, 10% Equity and 10% Cash. This is broadly in line with the scheme's current investment strategy.

The Managing Director (MD) of the company has a strong view that the equity will perform well over next 5 years and has asked the trustees to consider enhancement of equity investment from 10% to 40%. He has stated that he sees no value in investing in low yielding assets given the long term nature of the liabilities of the scheme.

The trustees want to assess MD's proposal and have asked you to:

i) Describe the key points to be considered in deciding investment policy of the scheme (5)

ii) Outline the implications on scheme's funding principles due to change in investment strategy of the scheme. (4)

b) The company also has a self-managed defined benefit pension scheme under which discretionary pension increases have been given in the past in line with Consumer Price Index (CPI). The employees can retire 5 years prior to their Normal Retirement Date (NRD) with no reduction factor. Pension is purchased from an insurance company on exit of a member as well as on subsequent pension increases. So far employer has paid separately lump sums whenever purchase of additional pension has been made on discretionary increases for pensioners. Now following decisions have been taken in the recently held board meeting of the company:

- Let the scheme be fully funded and should take care of discretionary pension increases for active members.
- The discretionary pension increases for future pensioners will continue in line with CPI subject to a maximum of 5% per annum and also depending on the funding level of the scheme.
- For pensioners as on date, the company will continue to purchase additional pension as and when discretionary increases would be allowed.

You are the actuary for this scheme also and the trustees have provided full data of employees and assets of the scheme. Assets comprise 80% G-Sec, 15% Equity and 5% Cash. Your valuation reveals that the scheme is fully funded. The company and the Trade Union of employees have also approached their own actuaries who have come out with different valuation results.

All the actuaries were provided the same data of assets and members. All have used the same Actuarial Method (i.e. Projected Unit Method (PUM)) for calculation of value of liabilities and Discounted Income approach for arriving at actuarial value of assets. The company management wants to know the reasons for differences in valuation results.

Following noting is made by you from the reports of different actuaries:

Assumption	**Trustee Actuary**	**Company Actuary**	**Trade-Union Actuary**
Interest	8.5**%**	9**%**	8%
Salary inflation	6%	6%	6%
Pension increases	4.5%	4%	4.5%
Dividend yield	3.5%	4%	3%
Dividend growth	5%	5.5%	4.5%
Early retirements	Nil	Nil	Nil
(5 years before NRD)			
Other assumptions	Same	Same	Same

Analyse the likely broad quantitative differences in funding levels arrived at by three actuaries. The mean term to retirement has been taken as 18 years and mean term of G-Sec as 10 years by all of them. You may make other assumptions mentioning them clearly. (15)

c) In view of the results of the analysis made in (b) above, the trustees of the pension scheme want to introduce a reduction factor for computing pension in case of early retirement. One of the trustees has suggested the benefits in case of early retirement be granted as actuarial equivalent in value to the member's short service pension entitlement. Another trustee has suggested the benefit to be calculated by applying a reduction factor of 3% p.a. simple to the accrued benefit. Trustees want your opinion in the matter.

Discuss the factors you will consider in drafting your reply. (11)

d) The pension scheme thereafter continued for two more years when it was closed to new entrants due to some labour problem within the company. At the previous valuation PUM was used to determine the funding position and modified contribution rate. At this valuation Attained Age Method (AAM) has been used by you. You have also modified some of the assumptions. On completion of the valuation your preliminary results show that there is substantial deficit compared to the surplus disclosed at the last valuation.

The Chief Finance Officer (CFO) of the company who is also one of the trustees of the scheme has shown his concern on it. He has asked you to justify the changes in the method and assumptions and has also requested you to submit a report on your proposals for the treatment of the deficit.

Your report to the trustees may include points covering:

i) Description of the two funding methods, their comparison and Justification for change in method. (6)

ii) Explanation on how valuation assumptions are set and why modifications have been made in the assumptions. (3)

iii) Different ways in which deficit could be funded. (2)

iv) Other means which may be employed to mitigate the effect of the valuation results on the immediate and long term finances of the company. (4)

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