INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

18th November 2013
Subject ST4 - Pensions and Other Employee Benefits
Time allowed: Three hours (14.45* – 18.00 Hrs)

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.*
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) You are the actuary to a large defined benefit pension scheme. The trustees are reviewing the scheme's investments and are proposing to switch a large proportion of the assets from equities to bonds.

i) Outline the possible impact on the members' benefits of the proposed switch to bonds. (3)

ii) Set out the factors the trustees should consider when deciding which bonds to invest in. (3)

[6]

Q. 2) A government is considering introducing a contributory defined benefit pension plan for employees of all governmental institutions. Compare and contrast the risks associated with public sector defined benefit plans from the perspectives of the following stakeholders:

i) Employees

ii) Society/taxpayers

iii) Public sector employers

iv) The government

[10]

Q. 3) You are conducting a benefits review of a large multi-national company. The HR Director is keen to introduce a flexible benefits program that will enable employees to "buy" and "sell" benefits from a basket of benefits on offer. To begin with, she wants to introduce flexibility in medical insurance and leave benefits only. She believes that this will enable the company to attract and retain the best talent and also help it to control ongoing benefits costs.

Discuss briefly three problems of "flex" schemes giving simple examples to highlight the problems in relation to medical insurance and leave benefits. **[8]**

Q. 4) A final salary pension plan provides only for pensions on retirement and to the spouse on subsequent death after retirement. Members pay contributions to this plan at the rate of 5% of their pensionable salary. The plan allows members to exchange up to 40% of their pension at retirement for a lump sum, on terms specified from time to time by the actuary (currently INR 9 lump sum for every INR 1 of annual pension). The spouse's pension payable on the death of the member after retirement is not affected by this option.

The latest actuarial valuation produced the following results:

Accrued Liabilities

Active members INR 250 crores
Deferred members INR 75 crores
Current pensioners INR 100 crores
Total INR 425 crores

Employer's standard contribution rate
11.25% of pensionable salary

The valuation assumes that active and deferred members will exchange 20% of their pension for a lump sum at retirement.

On the funding assumptions, the value of the single-life annuity at retirement is 14. The spouses' death after retirement liabilities is approximately 20% of the total liabilities.

Estimate, stating any further assumptions you use, the impact on the total liabilities and employer's standard contribution rate of:

i) Assuming instead that members exchange the maximum amount of pension for a lump sum. (5)

ii) Assuming instead that the exchange terms are improved to be 90% of the value of the member's pension, on the actuarial valuation assumptions. (2)

iii) The combined effect of both (i) and (ii) together. (2)

[9]

Q. 5) A medium size final salary scheme of a company provides a pension at the rate of 2% of pensionable salary at normal retirement for each year of pensionable service. Pensionable salary is defined as average basic salary in the two years prior to exit.

i) Describe the method to be followed to analyse the salary experience of the scheme over the 3 years since the previous valuation. (8)

ii) State the areas to be considered before using the results of the above analysis in setting the salary increase assumptions for a funding valuation. (4)

[12]

Q. 6) A large organization in country operates an established funded final salary pension scheme. The scheme is contributory and the assets are invested by them directly.

A regular actuarial valuation of the scheme was carried out as at 31st December 2012 and showed a significant improvement in its ongoing finances. The ongoing valuation basis includes an assumed rate of investment return of 6% pa and salary growth of 4% pa.

Following figures have been taken from the 2009 and 2012 valuation reports (Amounts in Million Rupees):

Details	**2009**	**2012**
Number of contributing members	12,000	9,000
Number of pensioners and deferred pensioners	8,000	10,000
Annual pensionable payroll	60	60
Annual pension in payment	10	15
Market value of assets	150	250
Value of past service liabilities	150	200

Indicate with reasons the sources of surplus and deficit that are likely to have had the greatest impact on the financial position of this scheme between the two valuations. **[17]**

Q. 7) You are a scheme actuary of a large defined benefit scheme. The newly appointed trustees of the scheme have asked for your advice regarding the assumptions to be used for a valuation of the scheme.

i) Discuss the advantages of presenting valuation results using a range of valuation assumptions and producing values for a range of alternative economic scenarios. (6)

One of the trustees further enquires about the contents of the valuation report.

ii) List the main sections he would expect to find in a funding valuation report. (3)

The other trustee is concerned about competitors' schemes which are either closed to new entrants or going to be closed in near future. He asks you about the option of transferring the funds to the beneficiaries to extinguish the liabilities.

iii) Outline the issues the trustees should consider before adopting this policy. (4)

iv) Outline the issues the trustees should consider when setting the transfer terms if they go ahead with this policy. (8)

[21]

Q. 8) The Government of a developing country is worried about the lack of private pension provision in the country. It wishes to introduce a Defined Contribution National Pension System which would be subject to tax concessions from the government. Under this scheme an employee can enroll in the scheme on joining a company's employment. If they join, employers will be required to match employee contributions, up to a limit of 10% of salary.

Contributions would be accumulated in individual accounts to retirement and invested in funds chosen by the individual, for which the government will set up dedicated fund managers. At retirement pension benefits would be bought out with an insurance company. The National Pension System will be regulated by the government.

i) Give reasons why there could be a lack of private provision in the country. (5)

ii) List the tax concessions that could be granted by the Government to encourage private pension provision. (4)

iii) Outline the advantages and disadvantages of the suggested proposal. (8)

[17]

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