INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

25th May 2024

SP4 - Pensions and Other Benefits

Time allowed: 3 Hours 15 Minutes (09.30 – 12.45 Hours)

Total Marks: 100

Q. 1) You are an actuary who is advising the Government of a country that has a State pension system that was set up several years back. The state system provides a basic flat-rate pension which is payable in full from age 60 to all citizens who have contributed to the State social security arrangement for at least 25 years of their working lifetime. The current amount of the full pension is Rs. 15,000 per month, and the pension has historically been increased in line with the increase in the national consumer price index for the country.

The State pension is funded from contributions from both employers and employees.

Currently the pension is paid to everyone regardless of wealth or income. You have been asked by the Government to consider the advantages and disadvantages, from the point of view of the Government, of introducing means testing in respect of this benefit.

i) Discuss the main points you would include in your report. (6)

The Government is concerned that the State pension is becoming increasingly difficult to afford and may turn out to be unsustainable in the long term.

ii) Explain how changes in demographic trends may have led to the Government's concerns on the ongoing affordability of the costs of the State pension. (4)

iii) Describe four ways in which the Government can reduce the total level of State pension outgo. (5)

iv) Comment on other issues that the Government should consider in implementing the changes you have identified in part (iii). (6)

The country also has a well-developed occupational pensions sector.

v) Explain the rationale for taking account of state benefit arrangements when designing employer-sponsored arrangements. (4)

The Government wants to regulate employer-sponsored pension arrangements and has asked you to develop regulations which should be aimed at improving the security of members' benefits. Specifically, you have been asked to draft regulations that should cover financial regulation, external sources of protection and administrative practices.

vi) Describe briefly possible regulations of employer sponsored programs keeping in mind the above objectives. (9)

[34]

Q. 2) Company ABC has acquired Company XYZ through a share purchase arrangement. Company ABC sponsors an open defined contribution pension plan (Plan A). Company XYZ sponsors an open defined benefit pension plan (Plan X). Both plans target the same replacement ratio for a career of an employee working 30 years.

The combined company is considering the following options with respect to current employees within their retirement plans:

- Option 1: No change to either plan; employees continue to accrue benefits in their respective plans.

- Option 2: Company XYZ employees accrue benefits in Plan A prospectively. Plan X is frozen for benefit accruals.

- Option 3: Company XYZ employees are given the choice to either continue to accrue benefits in Plan X or enroll in Plan A going forward and convert past service benefits to Plan A. For employees who convert past service to Plan A, the lump sum value of their accrued pension in Plan X on the date of conversion becomes the initial account balance in Plan A.

In each option new entrants will join Plan A. Assume all options are legally permissible in this jurisdiction.

i) Analyze the impact of each of the three options on the following:

a) Accounting cost to the merged company
b) Administrative cost to the merged company
c) Disruption to current employees (12)

Company ABC has selected Option 3.

ii) Recommend which plan the following employees should ideally choose:

a) 30-year old with one year of service in Plan X
b) 55-year old with 25 years of service in Plan X

No calculations are required. Justify your response. (4)
[16]

Q. 3) You are advising an employer who has never offered a pension plan before. The Company is unsure about whether to offer a Defined Benefit (DB) or a Defined Contribution (DC) Scheme. The CFO has prior experience of managing DB schemes and he feels that a DC scheme would be more suitable.

i) In a recent meeting, the CFO has commented that he feels that a DC scheme is more appropriate as the Cost of the Scheme is known in advance. Comment on the point above. (5)

ii) He has also mentioned that the ongoing administration of a DC scheme is simpler than for a DB scheme. Provide a response to his comment above. (5)

After due deliberation, it has been decided to set up a DC scheme. You have now been asked to recommend the contribution rate payable by both the employer and the employees to the new DC scheme.

iii) Discuss the factors to consider before making your recommendation. (9)

iv) Comment on the main economic assumptions you would need to consider in determining the contribution rates. (6)
[25]

Q. 4) You are the actuary for a large Defined Benefit Pension Scheme. Members are required to contribute to the scheme at the rate of 5% of Pensionable salaries. The employer meets the balance of the cost.

The normal retirement age is 60 years. The scheme provides a pension on retirement equal to 2% of final pensionable salary for each year of pensionable service. Discretionary increases are provided to pensions, where pensions are increased each year in line with the national price inflation index, up to a ceiling of 4% per annum.

Spouse's pensions on death after retirement are equal to half the member's pension, as increased since retirement. On death in service, a 50% spouse pension based on prospective service is paid. Additionally, a lump sum of four times the member's annual pensionable salary at death is paid out.

You recently undertook a valuation of the scheme, where you used the Attained Age Method of funding. The valuation disclosed a significant deficit of assets, compared with the actuarial liability. The employer standard contribution rate was calculated as 18% of pensionable salary.

i) List the actuarial liability and the standard contribution rate for the four main funding methods. Detailed formulae are not required. (6)

At the recent Trustee meeting, the preliminary results were discussed. At that meeting the following suggestions are made by the trustees. Comment on each suggestion in turn.

ii) No additional discretionary increases should be granted to pensions this year, or in future, until the deficit is wholly cleared. (5)

iii) The lump sum paid on death in service are unnecessarily generous where members are single or female; and should be reduced to two times annual pensionable salary for those members. (4)

iv) If the actuarial assumptions were made a little less cautious, then the problem would be solved, in part at least. Using the Projected Unit Method would also help solve the current situation. (6)

v) Future accrual of benefits should be reduced. An example might be to change the annual pension fraction from 2% to 1.5%. (4)

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