INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

20th June 2019

Subject SP4 – Pensions and Other Benefits

Time allowed: 3 Hours 15 Minutes (10.15 – 13.30 Hours)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. ***Please read the instructions inside the cover page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception.***
2. ***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.***
3. ***Attempt all questions, beginning your answer to each question on a separate sheet.***
4. ***Mark allocations are shown in brackets.***
5. ***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. You are not allowed to carry the question paper in any form with you.

Q. 1) The Government of a Country has offered a flat-rate pension which increases in payment with national average earnings and is payable to all citizens who have paid contributions to the social security system for at least 20 years of their working lifetime.

The cost has increased exorbitantly and in order to control costs, the Minister of Finance has asked your Actuarial firm to explain:

i) The demographic factors that have led to the cost of State retirement benefit provision increasing in many developed countries. (4)

ii) Ways in which the State may respond to these increasing costs. (5)

The Government is considering amending the pension as follows:

- Pension to be means-tested dependent upon an individual's level of other income.
- Pension payable based on contributions being made for at least 30 years of an individual's working lifetime.
- The pension to increase with consumer price inflation.

iii) Discuss the merits of this proposal. (10)

iv) It has been further proposed during the ministry meeting that the State pension provision should be eliminated. Instead, pensions would have to be provided for all by individuals and employers through compulsory saving in the private sector.

Discuss this proposal. (6)

[25]

Q. 2) A global manufacturing company provides a final salary scheme to its employees worldwide. Under the Scheme, pensions in payments are guaranteed to increase at the lower of price inflation or 5% each year. The investments were earlier being managed solely by the Trustees and none of them were actuaries.

You are newly appointed as Scheme Actuary of the Company and want to review the current Investment Strategy of the scheme; however, the trustees are not familiar with the term investment strategy and want to understand why the review is required. They have asked you to:

i) Describe the characteristics of the liabilities of the scheme for different members (Active, deferred and Pensioners). (10)

After the review, you advise them to invest in assets that are backing up the liabilities.

ii) Outline with reasons suitable matching assets that might be held by the scheme. (8)

One of the trustees raises objection on matching the assets with the liabilities as this will affect the expected returns on investments and hence will increase the cost of the scheme.

iii) List the factors that affect the degree to which the scheme might mismatch assets and liabilities. (7)

[25]

Q. 3) An employer which has historically offered a traditional final salary defined benefit scheme is planning to set up a Defined Contribution Scheme for new hires. The employer has reached out to you to help with the design of the new Defined Contribution Scheme. The employer wants the contribution rates to be age-related and has also mentioned that benefits will be bought out at retirement.

i) List the assumptions that may be required to set the contribution rates to provide a target benefit. (3)

ii) Discuss the factors to be considered in setting these assumptions. (7)

[10]

Q. 4) You have been approached by the trustees of a large Defined Benefit Pension Fund that is being offered to the employees of a major Public Sector company. The last actuarial valuation was carried out three years ago and had led to a large deficit. The trustees have requested you to carry out a formal funding valuation of the Fund. One of the new trustees has worked in a matured pensions market before and is keen to implement some of the best practices involved in a funding valuation for the current exercise.

i) List three market-related methods that could be used to set the discount rate for valuing the liabilities. (6)

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

iii) List the main sections you would expect to find in a funding valuation report. (8)

A significant portion (over 50%) of the liabilities are represented by pensions in payment. Pensions are paid out from the Trust and are not bought out by purchasing annuities.

iv) Outline the assumptions that you may need to make in order to value the pensioners' liability. (4)

v) You have been instructed to undertake an analysis of the mortality experience of the pensioners over the previous three years. Outline the steps that are involved in this analysis. (4)

[28]

Q. 5) An employer is setting up a Defined Contribution Superannuation Plan. Each year, the employer will contribute 15% of salary, which will accumulate with interest until retirement. The interest rate will be declared by the trustees based on investment performance. At retirement, the total accumulate balance will be used to provide benefits for the member.

i) The employer has asked your advice over whether, when a pension is provided, the plan should purchase an annuity from an insurance company or whether annuities should be provided within the plan, using terms set by the plan's actuary. Describe the disadvantages of providing annuities directly from the plan from the viewpoint of the employer and the members. (6)

The employer is also keen to provide additional benefits on death in service in addition to the accumulated corpus. Their proposal is to pay a lump sum of 5 x annual salary on death in service.

ii) Outline the advantages and disadvantages of insuring the benefits payable on death in service. (6)

[12]

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