# INSTITUTE OF ACTUARIES OF INDIA

# EXAMINATIONS

## 6$^{th}$ December 2022

## 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 Finance Minister of a developing Country is reviewing the State provided benefits schemes and noticed that the cost of the current pension scheme is increasing, however the cost of the long-term care scheme has not increased.

**i)** Explain why long-term care scheme does not create such a cost burden for the state. (3)

He has plans to review the State provided retirement benefits scheme, which was first set up 25 years ago.

The Scheme provides a flat rate pension at age 58, which is payable for life and available to all citizens who have paid at least twelve years' contribution to the state @ 3% of their wages.

The benefit was set at a level equivalent to 40% of national average wages initially; since then, the flat rate has been adjusted annually in line with the price inflation.

**ii)** Suggest possible reasons for the increasing cost burden in current pension scheme with comments on why some of the reasons may not be a plausible reason of increasing cost, given that there has been a reduction in the cost in the long-term health care scheme. (6)

**iii)** Discuss the measures the State could introduce to ease the problem with the possible issues that might arise in implementation of the new scheme. (8)

Due to increase in the cost burden, the Government plans to encourage individuals to opt out for private provision, so as to reduce the number of people who claim pension benefits from the State.

**iv)** In order to encourage private provision, the Government will grant tax concessions to schemes who comply with new legislation on benefits. List the tax concessions that could be granted. (4)

**v)** The Government also wishes to reduce early retirement numbers so citizens contribute to State benefits for longer. Outline possible restrictions the Government could impose to meet this wish, and other likely restrictions to be applied on early retirement benefits. (4)

**[25]**

**Q. 2)** You are the Actuary to a newly established final salary scheme in a developed country. The Finance Controller of the Sponsor has asked you to provide a note on the Funding and Investment strategy.

**i)** Define the criteria used to choose the funding strategy for funding future benefit payments. (3)

**ii)** Outline the considerations for determining an appropriate investment strategy if the scheme is to be funded. (9)

A new trustee to a defined benefit pension scheme has suggested the following investments for the scheme's assets:

- 25% in a Plot/Land.
- 25% in physical Gold.
- 25% in the property occupied by the sponsoring employer.
- 25% in a portfolio of Index Linked Bonds.

**iii)** Comment on the new trustee's suggestions. (4)

Given the disadvantages of other investments, the trustee suggests that the bonds are the best investment for the Defined Benefit Schemes.

**iv)** Give reasons why a defined benefit pension scheme may hold domestic fixed-interest bonds. (4)

The Finance Controller believes that investing in equities may give higher returns than bonds in the long term and may also be good to manage the cost to the sponsor.

**v)** Outline the investment characteristics of bonds compared to equities. (5)

**[25]**

**Q. 3)** A reputed company sponsors a final salary linked Defined Benefit Pension Scheme for management staff employees. The Scheme has deferred and existing pensioners, who are paid pensions directly from the fund. The pensions are regularly increased with inflation. You have been the Actuary for the Scheme for the past several years. You have also been advising the trustees on the investment strategy of the Scheme.

In the recent trustee meeting, you have been asked to conduct an Asset-Liability Modeling (ALM) exercise.

**i)** Explain how an ALM exercise can help the trustees to determine a suitable investment strategy and the limitations of their use. (8)

The most recent valuation has revealed a significant deficit. The company feels that this is mainly due to the high salary increases that management employees have been receiving, and they have asked you to investigate this further.

**ii)** Describe how you would analyze the salary increase experience of the scheme. (7)

**iii)** In connection with the deficit, state the possible courses of action that the scheme may take and comment on the suitability of each action. (10)

The company is concerned about the sustainability of the scheme. After careful consideration and as part of a major de-risking exercise, the company is looking to close this scheme to future accruals.

**iv)** Outline the points to explain the impact of proposed closure of the scheme on the investment policy being followed. (10)

**v)** Explain how you may choose the assumptions for the funding valuation of a closed scheme as opposed to the valuation of an ongoing scheme. (5)

**[40]**

**Q. 4)** You are the Actuary to mature pension scheme which provides generous benefits to its members. As part of the scheme design, the company provides death-in-service benefits. This benefit, although quite generous, is considered to be very important and is a major attraction and retention differentiator, especially after COVID. In the most recent funding valuation, you have calculated the cost of the death-in-service benefit to be about 2% of salary, using the Attained Age Method. The company recently invited quotations from three top life insurers, and the average cost of insuring these benefits is turning out to be about 1% of salary.

**i)** State the formula which may be used to calculate the value of death-in-service benefits under the Attained Age method. (2)

**ii)** Discuss the reasons as to why the above figures could differ so substantially. (8)
**[10]**

************************