INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

24th November 2023

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) You are the advisor to a multi-national Company that sponsors a final average salary Defined Benefit Pension Plan for its employees in India. Due to rising costs and as part of their global de-risking strategy, the Company had restructured this plan a few years back. After the restructuring, the DB plan was frozen for both service & salary and was replaced with a Defined Contribution (DC) plan for future accruals.

The DC plan of the Company has the following features:

- Voluntary employee contributions up to 10% of salary.
- Matching employer contributions of 100% of employee contributions up to a maximum of INR 2,50,000 per year.
- Company provides employees a range of investment options that they can choose for investment.
- Withdrawals are permitted every 2 years up to 25% of accumulated account balances, under certain circumstances.

You are given the following profile for two sample members:

	Member A	**Member B**
Age at freeze date	55	30
Service at freeze date	25	5

i) Compare and contrast three key risks faced by both participants. (12)

ii) Describe the risks of the plan design from the perspective of plan participants. (5)

Members are concerned that they are unlikely to get a reasonable retirement income under the DC plan. As part of your annual engagement, the Company's HR director has asked you to conduct a thorough review of the DC Plan.

iii) Recommend changes to the plan design that would help participants maximize retirement income. Justify your response. (5)

The HR director also wants to ensure that there is adequate flexibility available for members at the time of retirement. He wants to introduce the following options for members at the time of normal / early retirement:

- Withdraw the entire account balance as a lump sum.
- Make partial withdrawals from the account over a stipulated period of time.
- Convert balance into an annuity of their choice from an empaneled annuity service provider.

iv) Discuss the above distributions options from the perspective of:

a) Plan sponsor
b) Plan participants

(8)
[30]

Q. 2) A leading state-run oil marketing Company XPCL sponsors a post-retirement medical plan for its employees. The plan is generous and covers hospitalization and domiciliary expenses for the member and the spouse after retirement till death. The plan is highly valued by employees and has been a differentiating factor for the Company over the years.

The liability associated with this plan is rising rapidly, and the new Finance Director is concerned about the sustainability of the plan. He has also commented in the recent board meeting that such benefits are not very prevalent in the market; and has requested an independent review of this benefit. He has also suggested that some plan design changes shall be evaluated to ensure that the cost of providing this benefit can be controlled.

i) Identify reasons why the prevalence of employer-sponsored post-retirement medical plans has declined over the past several years. (4)

ii) Recommend at least four plan design changes, with justifications, to XPCL's Post-retirement medical plan that can mitigate the impact of rising health care costs. (8)

[12]

Q. 3) A reputed Company in Country X provides a Defined Contribution retirement plan for its employees. Country X has a Defined Benefit Social Security program, where contributions and benefits are based on covered pay up to a certain limit. The HR Director of the Company has asked you if the Company's retirement plan can be integrated with Country X's social security program.

i) Set out the advantages of integrating an employer provided retirement plan with a defined benefit social security program from the Company's perspective. (2)

ii) Propose two ways to integrate an employer provided retirement plan with a defined benefit social security program. (3)

iii) Describe the challenges in achieving full integration of an employer provided retirement plan with a defined benefit social security program. (3)

[8]

Q. 4) A prominent corporation in an industrialized nation administers a well-established, funded final salary pension plan. This plan is contributory, with assets being directly invested. The death in service in the scheme is fully insured.

A triennial actuarial assessment of the pension scheme was conducted, revealing a significant enhancement in its ongoing financial health.

i) Discuss the main reasons for analysing a surplus or deficit. (2)

The ongoing valuation basis includes an assumed rate of investment return of 6% *per annum* and salary growth of 4.5% *per annum*.

The following figures have been drawn from the previous and current valuation reports (amounts are in million in local currency):

	Previous Valuation	Current Valuation
Number of Active Members (Contributing)	10,000	10,000
Number of deferred and pensioners	7,000	9,000
Annual pensionable payroll	65	80
Annual pension in payment	10	15
Market Value of assets	200	300
Value of past service liabilities	200	250

ii) 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. (18)

iii) List seven reasons why the actual investment return may differ from that expected. (4)

iv) State the possible courses of action here which this scheme may take when a surplus is revealed following the valuation of a final salary pension scheme, and comment on their suitability. (10)

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Q. 5) The new Finance Director of a Company currently operates a small sized defined benefit scheme approaches you, an actuarial advisor.

He has provided you with limited membership information and financial records to do a quick valuation.

i) Describe how the summarized information along with the financial records of a funded pension scheme can be employed to verify the accuracy of the valuation information. (6)

You have written back to the Financial Director on why this information may not be suitable to carry out the valuation exercise properly.

ii) List the pitfalls of using the limited information given by the Finance Director and the reservations you may have in doing the valuation. (4)

The Finance Director is concerned with the increasing level of premium being paid to insure the death in service benefits provided by the scheme.

These benefits are currently:

- A lump sum of Ten times the member's basic salary.
- Immediate annuities to match member's retirement benefit.

iii) Outline the elements that you, in your role as the actuarial advisor to the Company, would incorporate into a correspondence addressed to the finance director elucidating the reasons behind potential premium hikes. (6)

[16]

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