INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

26^{th} November 2019

Subject SA4 – Pensions and Other Benefits

Time allowed: 3 Hours 15 Minutes (14.45 - 18.00 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 expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which is meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However, if application specific to any other country is quoted in the answer the candidate should answer the question with reference to Indian environment.*
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) A private sector company in India has a defined benefit pension plan that pays the pensions directly to retirees (i.e. does not purchase annuities). The management has decided to close the plan to new employees with effect 1 April 2020. Existing members continue to accrue benefits as before.

The last accounting valuation was as at 31 March 2019 and it showed a funding ratio of 55%. The total defined benefit obligation was Rs. 120 crore, of which Rs. 40 crore was for retirees/beneficiaries in payment. The scheme's weighted duration is 25 years. This valuation was done by a consulting actuary (different from you).

The scheme benefits summary is as follows:

Normal Retirement Age	65
Benefit on retirement	Monthly pension of 50% of last drawn monthly pensionable salary subject to completing 10 years' membership. No increases to the pension in payment are given.
Pensionable salary	Average of last 60 months Basic salary
Benefit on death	Before retirement: as per normal retirement payable to the beneficiary. After retirement: 50% of pension payable continues to the spouse/dependent.
Benefit on exit	As per the normal retirement pension subject to at least 10 years' membership and the applicable adjustment factors. Pension starts immediately.
Adjustment factors	For any benefits commencing before normal retirement age, a reduction of 3% per annum simple for each year earlier than age 55 (pro-rata monthly for any part year).
Commutation	Up to one-third pension can be exchanged for a lump sum at the time of retirement/exit. Each rupee annual pension is exchanged for Rs 25.
Restoration of commuted pension	If the retiree is alive at age 75, then the commuted pension is restored. This includes restoration of 50% dependent's pension also.

Now the scheme has been closed, the Trustees and Company want to develop a funding strategy to achieve a target funding ratio of 90%. In addition, they want to make sure of a governance that the funding ratio should not be below 80% in any quarter (else the Company will inject immediate contributions to bridge that gap to 80%). Assets are self-managed through an income tax recognised Trust.

The Company also has an exempt Provident Fund.

i) Having met the CFO at a recent conference and as a consulting actuary, you have been asked to prepare a paper outlining the qualitative considerations for developing the funding strategy and a funding valuation for the pension plan.

Outline the main points you would include, covering:

a) Different types of valuations, their purpose and their relevance in this situation. (3)

b) Legislative and other professional considerations. (3)

c) Approach to assumption setting. (3)

d) Recommendation of the funding method with a justification and an outline of its impact on likely pattern of contributions. (3)

e) Any other points when considering a decision on setting contributions. (3)

Having submitted your paper, the CFO and her Treasury Head ask for a meeting with you to educate them on how the investment strategy should be considered.

ii) Describe the nature of investigations one would conduct and outline key considerations for assumptions for an asset liability study, over and above the funding valuation. (7)

iii) Set out the investment pattern compliance for the pension plan the scheme should adhere to and within that what options does the scheme have to manage investment strategy. (9)

iv) State how this would differ for the Exempt Provident Fund Trust run by the Company. (1)

You become aware that the accounting valuation has no assumption for commutation and early retirement. On further examination you find that 100% of retirees/exits take full commutation value and there are 60% of the beneficiaries in payment that started their pensions, on average 10 years earlier than age 65.

v) Given the scheme benefits, what impact that could have on the funding status of the plan. (4)

vi) Describe the points you would make about reviewing the various scheme commutation and early retirement factors, including making them more future proof. This may include some reasonable recommendation for the early retirement factor to adopt. (14)

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Q. 2) A large Public Sector Organisation (PSO) in India has been providing final salary pension to its employees over a long period. A number of other benefits such as family pension, dearness allowance on Pensions, minimum pension etc. similar to the benefits provided to Government employees are also provided under the scheme.

The scheme was closed to new entrants 15 years back and a separate defined contribution pension scheme had been introduced for the new employees with effect from 01.04.2004.

The profile of the old scheme as on 31.03.2019 is as under:

Category of members	**Number of members**	**Average age**	**Average pension per month (Rs.)**	**Estimated liability(in million rupees)**
Pensioners	**25,000**	**69**	**12,000**	**55,000**
Family Pensioners	**8,000**	**58**	**7,500**	**10,400**
In-service members	**30,000**	**50**	**25,000***	**147,500**
Total	**63,000**	**58.56**	**17,619**	**212,900**
Total fund				**188,720**
Deficit				**24,180**

*Pension accrued to date, payable from retirement or NRA 60, whichever is earlier.

i) Discuss the changing profile of the closed final salary pension scheme and the risks associated with it from the perspective of the employer. (12)

As a part of de-risking process the PSO is considering the following proposal:

"Pensioners will be given a one-time option by which they have a choice to forgo 30% of their current pension immediately for a lump sum to be paid at the time of death of the pensioner."

ii) Discuss the factors to be considered by the PSO and the approach to be used in determining the lump sum to be paid on death. (15)

The PSO is also considering another proposal as a part of de-risking exercise by which it proposes to buy annuities from an insurance company.

iii) Discuss the factors to be considered by the PSO before going ahead with such proposal. (8)

iv) List other measures that can be taken by the PSO to manage the deficit. (5)

The PSO is also having a gratuity scheme for its employees. You are the Scheme Actuary of this gratuity scheme and are providing actuarial valuation and the funding advice to the PSO. In your valuation report for the year 2018-2019, you have recommended a contribution of 17% of the annual wage bill (AWB) with details as under:

Average Age	**Number of members**	**Average annual wages (in "000s)**	**Contribution rate**
25	**7,500**	**180**	**6%**
35	**14,000**	**360**	**11%**
45	**18,000**	**600**	**17%**
55	**15,000**	**1,000**	**20%**
Total	**54,500**	**590.64**	**17%**

While the PSO has accepted your recommendation, *it has requested you to provide the employee wise break-up of contribution of the members with the intent of using the same in CTC of employees.*

v) Discuss the appropriate contribution rate of a gratuity scheme for CTC purpose of individual employees and why the rate calculated for funding of a scheme should not be used for CTC purpose. (10)

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