INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

26th May 2014
Subject ST4 - Pensions and Other Employee Benefits
Time allowed: Three hours (14.45* – 18.00 Hrs)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

1. *Please read the instructions on the front page of answer booklet and instructions to examinees sent along with hall ticket carefully and follow without exception.*
2. ** You have 15 minutes at the start of the examination in which you are required to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*
3. *You must not start writing your answers in the answer sheet until instructed to do so by the supervisor.*
4. *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.*
5. *Attempt all questions, beginning your answer to each question on a separate sheet.*
6. *Mark allocations are shown in brackets.*
7. *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.

Q. 1) A country is considering legislation that requires defined benefit pension plans to:

- determine their funding valuation liabilities using a discount rate linked to long-term government bond yields; and
- maintain a fully funded status.

Discuss this legislative proposal from the perspectives of the following stakeholders:

- Plan sponsors
- Members
- Shareholders
- Legislators **[10]**

Q. 2) A Company is considering introducing a pension plan for its employees. The following two options are being considered.

Option 1:

- A defined benefit plan that aims to provide an annual benefit upon retirement determined as a fixed percentage of final salary for each year of service.
- The Company will fund the plan with contributions equal to 10% of members' salary each year. This contribution level is expected to be sufficient to provide the targeted level of benefits.
- If the plan is underfunded, benefits may be reduced.

Option 2:

- A defined contribution plan where the Company contributes 10% of salary each year for each participant to a notional account.
- The notional account earns interest based on the return of the overall plan assets, as invested by the Company, with a minimum return of 5% per year.
- The notional account balance is paid out as a lump sum to each employee upon termination or retirement.

i) Compare and contrast the two plan design options from the employees' perspective with respect to each of the following risks:

- Longevity
- Inflation
- Investment return (4)

ii) Describe the advantages and disadvantages of each plan design option to the Company. (5)

[9]

Q. 3) The assets of a defined benefit pension plan are invested in a portfolio which is invested 70% in equities and 30% in fixed income.

Describe the advantages and disadvantages of the current asset allocation in respect of the following stakeholders:

- shareholders;
- plan participants
- the company **[10]**

Q. 4) A major Multinational Company is looking to start up business in India. You have been advising the Company on what benefits they need to offer to their employees. They are aware that gratuity benefits are mandatory in India (Gratuity is a Defined Benefit Scheme that provides a lump sum based on final salary and service on termination, death or retirement after 5 years of service). They have asked you whether they should be funding the gratuity scheme and if they do, whether they should be administering it in-house or take up a standard group gratuity product from an insurance company that is available in the market (the group product is only an investment vehicle and does not transfer any DB risks from the company).

i) Discuss the advantages and disadvantages of funding the gratuity scheme. (4)

ii) Set out the key advantages of external funding through a group product of an insurance company. (4)

The Company is also evaluating whether to offer pension and death benefits. The Global HR Head of the Company is of the view that there is no point in providing pension benefits since employees prefer cash to pension benefits. He also feels that providing life insurance benefits is a waste of money since most employees have no dependants and therefore there is no need for a death benefit. The others that have dependants will have adequate insurance anyway.

iii) Discuss the reasons why the Company should consider providing pension and death benefits. (6)

You have been able to convince the Company about offering a pension scheme. The Company sponsors a final salary scheme in other countries across the world, however the Global HR Head has noted that defined contribution schemes are becoming more common and has asked for your advice on whether a final salary scheme or defined contribution scheme would be most appropriate for the Indian business.

iv) Outline the points you would make to him, focusing on the advantages and disadvantages of final salary schemes from an employer’s perspective. (7)

[21]

Q. 5) Mr Nadella, aged 35, the CEO of an IT company decides to leave his company having a final salary pension scheme with an entitlement to a deferred pension from Scheme A. Instead of keeping the deferred pension, he decides to take a transfer value into his new IT Company, also having a final salary pension scheme, Scheme B. Scheme B provides a service credit of 4 years 6 months, in lieu of the transfer value of Rs 21,50,000 incorporating a minimum guarantee.

The minimum guarantee is such that on subsequently leaving Scheme B, the benefits in respect of the service credit will be compared to the original transfer value rolled up with interest @ 6% p.a. for the period from date of receipt of the transferred in amount to the date of subsequent exit. The higher of the value of the service credit on the then current transfer value basis and guarantee will be granted.

i) When Mr Nadella left Scheme A he had 6 years' pensionable service. Outline possible reasons why the service credit provided by Scheme B is less than 6 years. (5)

ii) After 10 years' pensionable service as a member of Scheme B, Mr Nadella then leaves that Scheme and requests another transfer value of his benefits. If the transfer value in respect of the 10 years' pensionable service is Rs 78,00,000 calculate the total transfer value available, assuming that scheme B is fully funded on a transfer value basis. (3)

iii) Describe the condition where this minimum guarantee under Scheme B is likely to bite. (4)

iv) Discuss the principal factors to take into account in setting the investment strategy for Scheme B, including reference to the above guarantee. (7)

[19]

Q. 6) The Government of a large country is considering introducing a social security system and appoints a committee to propose a framework of it on an urgent basis. The elections are nearby and introducing the social security scheme will give the Government an edge in the coming elections. The committee members appoint you as an Actuary to advise them.

In your report, you suggest the use of a partially funded approach for financing the social security benefits but one of the committee members does not agree and says that this will create problem as the population ages. He recommends that a fully funded approach is used.

i) List the advantages and disadvantages of using funded approaches in social security schemes. (2.5)

ii) Define the general average premium (GAP) approach of funding and comment on the stability of the GAP contribution rate. (4.5)

In your report, you also mentioned the need for regular actuarial statutory valuations and the data needed for setting the assumptions.

iii) Explain the differences between projecting social security benefits and projecting benefits from occupational schemes. (2.5)

iv) List the critical assumptions required for projections of social security benefits. (2.5)

[12]

Q. 7) A manufacturing company closed its defined benefit pension scheme to new entrants a number of years ago. A recent actuarial valuation report shows that the recommended contribution rate and the deficit have both increased since the last valuation.

i) Outline the factors in general and in specific to the scheme that may have contributed to the increases to the deficit and the recommended contribution rate. (5)

ii) Discuss the key issues and implications for the pension scheme being closed to new entrants under the following headings:

- Membership profile
- Funding Method & Assumptions
- Investment strategy

(9)

The company has also closed the hiring since then but they have plans to recruit people based on their recent business plan. The CFO of the company suggests that providing a DC scheme would be more suitable for new entrants.

iii) Comment on the following points made by him:

"The total cost to the company of a defined contribution scheme is known in advance." (5)

[19]

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