INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

November 2025

SP4 - Pensions and Other Benefits

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

Q.1) The Government of a Country with huge, diverse population and working mainly in informal sector is considering reforms to its public pension system in response to increasing life expectancy and an ageing population. Currently, the system provides a universal flat-rate old-age pension.

i) List key objectives of a state-sponsored pension system and explain their importance. (6)

The finance minister is considering a move from the current universal flat-rate pension model to a means-tested benefit scheme. To prepare for cabinet discussions, the Minister's office requests an analysis detailing the probable outcomes of this shift, focusing on demographic trends, fiscal pressures, and the country's unique mix of formal and informal workers.

ii) Analyse the likely impact of replacing the universal flat-rate pension with a means-tested benefit scheme in the context of the country's ageing population. (10)

A government policy advisory group has been commissioned to evaluate whether the proposed means-tested pension system will ensure both sustainability and adequacy for future retirees.

iii) Evaluate the long-term challenges this policy may pose for the sustainability and adequacy of old-age income in the Country. (10)

[26]

Q. 2) The finance department of a large manufacturing firm has convened a meeting to seek greater clarity on the respective roles and responsibilities of the pension scheme sponsor and the trustees in light of the company's recent financial decline and ongoing funding challenges.

i) State the roles of the scheme sponsor and trustees in a Defined Benefit (DB) pension scheme. (7)

The trustees are worried about the scheme's funding security as the sponsor's finances decline and want to know what steps they can take to protect members' benefits.

ii) Describe actions the trustees could take in this situation. (7)

The sponsor faces potential insolvency, creating conflict between protecting members' benefits and supporting the company's survival. Trustees must consider this balance.

iii) Critically assess the challenges in balancing the interests of members and the sponsor if the sponsor is at risk of insolvency. (10)

[24]

Q. 3) A retail group's defined benefit (DB) final salary pension scheme is undergoing its latest funding review. Last year:

- Investment returns were higher than expected by 3%,
- Salary increases exceeded assumptions by 2%.

The funding team wants to understand how these differing experience items affect the scheme's actuarial surplus or deficit.

i) Explain how each of these experience items (investment returns, salary increases) impacts the actuarial analysis of surplus or deficit. (2)

ii) Estimate qualitatively the likely combined effect on the actuarial surplus if the scheme had total assets of 500 crore and projected liabilities of 600 crore before considering these deviations. (2)

iii) Explain, using this situation, how the analysis of surplus can be used to inform future assumption setting. (10)

Despite its value, surplus analysis may have shortcomings in guiding long-term funding decisions, especially in volatile market and economic conditions. The committee seeks a critical evaluation of these limitations.

iv) Evaluate the limitations of standard surplus analysis in guiding long-term funding decisions, particularly in volatile environments. (10)

[24]

Q. 4) XYZ Corporation operates globally and sponsors a range of employee benefit arrangements, including defined benefit (DB), defined contribution (DC) and hybrid pension schemes across multiple jurisdictions.

Each scheme operates under different economic, regulatory and demographic environments.

Recent developments include:

- Significant market volatility affecting both asset values and funding levels;
- Increasing longevity trends, with marked regional variations;
- Regulatory changes introducing higher minimum benefit requirements and stricter funding standards;
- Integration issues following the merger of two large pension funds; and
- Increasing stakeholder expectations for transparency and improved governance of risks.

As the appointed actuary to XYZ Corporation:

i) Identify the key factors influencing pension scheme design in a multinational context. and discuss how these factors affect the choice between DB, DC and risk-sharing arrangements, with reference to implications for cost control, risk allocation and member benefit security. (10)

ii) Describe the main funding methods applicable to DB pension schemes and evaluate how different funding approaches influence contribution stability, intergenerational equity and sponsor risk exposure, particularly in volatile and diverse regulatory environments. (8)

iii) Identify the key risks associated with this multinational pension schemes and explain how XYZ Corporation could establish an effective framework to identify, monitor, and manage them, ensuring that it effectively addresses risks impacting the level and timing of benefits and contributions, the returns generated on assets, the potential depletion of assets during members' lifetimes, and the overall security of members' benefits. (8)

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