INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

May 2025

SP2 - Life Insurance

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

Q.1) ABC Life Insurance Company is a mid-sized life insurer based in India, operating primarily in traditional life insurance segments like endowment and term assurance. With the changing market landscape, including increased health awareness and demand for protection-oriented products, ABC Life has decided to venture into health-linked insurance products that provide lump-sum pay-outs upon the occurrence of defined adverse life events.

a) Discuss the factors that the company needs to consider when deciding to launch a new life insurance product. (10)

The company's actuarial team has been asked to design, price, and model this new product line. Before diving into assumption setting and product mechanics, the Chief Actuary has requested a comprehensive overview of how the model to price this product should be structured and validated.

b) State the operational issues to be considered when constructing a model. (4)

c) Outline the key steps involved in the development and validation of a model used to price a new life insurance product. (5)

Following initial model design planning, the actuarial team has been given the specific task of modelling and pricing a standalone Critical Illness product, aimed at urban, middle-income individuals aged 30-60 years. The product will provide a lump sum pay-out on the first confirmed diagnosis of any of a set of 20 listed critical illnesses. Optional riders for staged benefits and return of premium are also under consideration.

d) Suggest the key factors to consider when calibrating morbidity risk for a Critical Illness insurance product. (4)

The company lacks credible internal data on morbidity and is considering using incidence rates supplied by the reinsurer. Given the high uncertainty around claims experience and capital exposure, senior management has also asked for recommendations on reinsurance.

e) Evaluate the suitability of each of the following reinsurance arrangements for managing the product's risk exposure. Recommend a suitable structure or combination, giving reasons. (7)

- Quota Share Reinsurance
- Excess of Loss (XL) Reinsurance
- Stop Loss Reinsurance

f) Evaluate how the launch of a new critical illness (CI) product is likely to impact the Embedded Value (EV) of the company. Assume that company reports EV on market-consistent basis. (8)

Total Marks [38]

Q.2) Stating the investment principles, discuss a suitable investment strategy for each of the following products:

a) State the three principles of investment. (3)

b) Product A - Conventional joint-life immediate annuity with only 50% annuity payable after the death of first life. (5)

c) Product B - Conventional with profits whole life assurance that has been in force for 15 years, where surpluses are distributed as reversionary bonus only. There is no concept of terminal bonus. (8)

Total Marks [16]

Q.3) Describe the Value at Risk approach used to assess risk-based solvency capital requirement of a life insurance company. **Total Marks [8]**

Q.4) Suraksha Jeevan Insurance Ltd. is a mid-sized life insurer in India that has historically catered to salaried urban individuals. In light of plateauing new business growth and regulatory nudge towards rural insurance inclusion, the company has decided to target low-income, rural households. The aim is to expand insurance penetration while maintaining financial sustainability.

The company plans to introduce a simple term assurance product with small ticket sizes (₹1–2 lakh) and optional add-ons such as return of premium and a critical illness rider.

Initial Product Design Highlights:

- No medical tests up to age 50 and ₹2 lakh cover.
- 3 health questions at proposal stage.
- Monthly premium payment via mobile wallets.
- Group and individual policy variants.

a) Recommend measures that could be taken by:
- The Government of India
- Suraksha Jeevan Insurance Ltd.

to improve access and affordability of life insurance to rural and low-income households. (4)

b) Analyse the potential risk that such offering (minimal underwriting in lower ticket-sized market) poses to statutory reserve adequacy. (8)

c) The company is exploring methods to reduce claims volatility, strengthen controls, and ensure that reinsurance partners are aligned with the product strategy. Explain the advantages and disadvantages of using financial reinsurance to support this rural product launch. (4)

d) Outline a framework for experience monitoring and control mechanisms to track product performance and manage long-term sustainability. (4)

Total Marks [20]

Q.5) An established life insurance company which has primarily written unit-linked business is planning to get listed in stock market. However, given ULIPs are typically low-profitability products, the management has decided to push protection business as a strategy to bolster new business margins ahead of its IPO plans.

In the domestic market, price competition is very high at young ages, resulting in stress in protection business margins for young lives. Since the focus of the company is on profitability and it has a significant database of mid-aged existing clients, the company is planning to target individuals aged over 45 for its protection offering.

a) State six sources of information that a life insurance underwriter might use when assessing an information. (3)

b) Enlist possible outcomes of underwriting process when an application for life insurance is received. (3)

To expedite market entry and reduce acquisition costs, the company is contemplating a simplified underwriting process with limited medical underwriting. One such method being proposed is to introduce the concept of *free cover limits,* typically applied in group term insurance, whereby full underwriting is initiated for only if the benefit amount selected by policyholders surpasses the 'free cover limit' for individual term coverage.

c) Propose and justify strategies the company could employ in the product design and underwriting process to mitigate the risks associated with implementing a simplified underwriting process for this product while remaining competitive in the market. (12)

Total Marks [18]

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