

# **INSTITUTE OF ACTUARIES OF INDIA**

## **EXAMINATIONS**

**24<sup>th</sup> March 2022**

**Subject CP1 – Actuarial Practice  
(Paper B)**

**Time allowed: 3 Hours 30 Minutes (09.30 - 13.00 Hours)**

**Total Marks: 100**

- Q. 1)** A private Indian life insurer has experienced significant increase in the mortality claims over the last one year on account of pandemic.
- i)** State the main purposes of monitoring the claims data for the life insurer. (4)
  - ii)** Discuss the risks faced by the insurer because of significant increase in the mortality claims. (11)
  - iii)** The insurer is in need to raise capital to strengthen its balance sheet. What are the benefits for the insurer in raising capital through following sources?
    - a)** Subordinated Debt (3)
    - b)** Financial Reinsurance (3)
  - iv)** The Chief Actuary of the insurer expects the pandemic to occur more frequently in the future rather than once in a 100-year event. Highlight the reasons why Chief Actuary thinks that the pandemic may occur more frequently in the future. (9)
  - v)** The insurer has recently started writing a single premium non-linked immediate annuity business and is evaluating whether to back a proportion of annuity liabilities with equities. Explain the suitability of the equity asset class for backing the annuity business. (8)
  - vi)** The insurer wants to sell protection plans through the web aggregator XYZ\_onlinebazaar. What are the benefits to the prospective policyholder to buy the policy online through the web aggregators? (6)
  - vii)** The business volume through the web aggregator has not picked up despite selling the protection plans for several quarters. What could be the reasons for the volume not increasing for the insurer through the web aggregator? (6)
- [50]**
- Q. 2)** The financial services regulator in a country shared the following text on climate change and the financial risks arising from such a change.
- The financial risks arising from climate change mainly are on account of:
- Physical risks – Arising from increased damage and losses from physical phenomena associated with both climate trends (i.e., changing weather patterns, sea level rise) and events (i.e., natural disasters, extreme weather)
- Transition risks – Arising from disruptions and shifts associated with the transition to a low-carbon economy, which may affect the value of assets or the costs of doing business for firms. Transition risks may be motivated by policy changes, market dynamics, technological innovation, or reputational factors
- Liability risks – Include the risk of climate-related claims under liability policies, as well as direct claims against insurers for failing to manage climate risks.
- i)** Discuss the key implications of climate change for the life, general and health insurance industry. (9)
  - ii)** Discuss the key implications of climate change for capital markets. (4)

Recognising the implications of climate change for the insurance industry, the Regulatory Authority of country X, requested the insurers to embed the climate change related risks into their risk management process. The Regulator also requested the insurers to develop models to carry out scenario analysis to understand the impact of the financial risks from climate change on their overall risk profile and business strategy.

**iii)** List the steps involved in including the climate change related financial risks in the company's risk management process and discuss each step briefly. (7)

**iv)** Briefly describe the operational issues that need to be considered while constructing actuarial models for carrying out scenario analysis. (3)

A general insurance Company A is operating in a country X. The Company A is considering issuing Catastrophe Bonds to transfer the huge risks that may arise from climate change.

**v)** Describe the technique of Securitisation as a form of Alternate Risk Transfer. (2)

**vi)** Explain how a Catastrophe Bond works in transferring the risk from the insurance company. (2)

**vii)** Discuss the risk characteristics of investment in Catastrophe Bonds. (5)

So far, the Government in the country X is providing financial support to the farmers for any loss of crop due to natural perils. Considering the changes in climate, the Government proposed to promote Crop Insurance business on commercial basis.

Considering these changes, the CEO of the insurer proposed to enter into "Crop Insurance" business. The product is proposed to provide cover to agricultural producers, including farmers against the loss of their crops due to natural disasters.

**viii)** List out the natural perils for a crop insurance business. (3)

**ix)** Discuss the factors that should be considered while determining a suitable design for the proposed Crop Insurance product. (15)

**[50]**

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