

# **INSTITUTE OF ACTUARIES OF INDIA**

## **EXAMINATIONS**

**21<sup>st</sup> November 2023**

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

**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. Attempt all questions beginning your answer to each question on a separate sheet.*
- 3. Mark allocations are shown in brackets.*
- 4. 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)** Outline the benefits provided and the customer needs met by the following contracts:
- a) Renewable Group Term (1.5)
  - b) Motor Third Party liability (1.5)
  - c) Deferred Annuity (1)  
[4]
- Q. 2)** A defined benefit scheme (“The Scheme”) offers pension benefits linked to the final salary. Pension in payment is guaranteed to increase in line with a market index. The Scheme invests a significant proportion of its funds in a variety of investment instruments of Country A. A rating agency has recently downgraded the sovereign rating of Country A from AA+ to AA. The country has witnessed a significant increase in the price inflation in recent times due to which the central bank has indicated an increase in the repo rate during coming months and such increases in the rates are expected to continue if the inflation continues to increase or remain at higher than the desired level.
- Describe the likely impact on the asset and liability position of the scheme because of increase in the interest rates in Country A and its Sovereign downgrade. [5]
- Q. 3)**
- i) What is an Aggregate Excess of Loss? (2)
  - ii) A General Insurance (GI) Company has the following reinsurance arrangements which operate in the order listed:
    1. A risk Excess of Loss (XL) treaty covering INR 5,00,000 in excess of INR 3,00,000
    2. An Aggregate XL treaty covering INR 20,00,000 in excess of INR 7,00,000

Recently there have been three claims, covered by these treaties, for the following amounts:

    - INR 8,00,000
    - INR 5,50,000
    - INR 1,50,000
    - a) What is the total claim amount recoverable under each reinsurance treaty? (3)
    - b) Outline the key methods of liability provisioning in General Insurance Industry? (4)  
[9]
- Q. 4)**
- i) Define Cyber Risk? (2)

In the backdrop of increasing ransomware attacks on different companies, CISO (Chief Information Security Officer) of a General Insurance Company has proposed that the company should take Cyber Risk insurance cover. He has come to you for help and requested you to prepare a note on Cyber Risk.

- ii) What would be the key areas of focus that will be part of your Company's Cyber Risk assessment? (11)  
[13]

**Q. 5)** The Regulator of a country "UTOPIA" is in the process of releasing "Risk Based Capital (RBC)" framework for the insurance industry. The industry has represented to the Regulator requesting to allow for Internal Models as part of the framework in addition to the Standard Formulae approach.

- i) Briefly discuss the key reasons why the Industry has made this representation and what could be the possible reasons as to why the Regulator may not be keen to allow internal models? (7)

Regulator is concerned about the equity allocation in the With-Profit Fund of various life insurance companies as equities is the highest risk class of asset and may adversely impact the benefits of the policyholders as well as the Estate in case of fall in equity markets. Therefore, the regulator has asked the With-Profit Committees (WPC) of the life insurance companies to review the Strategic Asset Allocation (SAA) of their respective With-Profit Funds. Appointed Actuary of your company has asked you to prepare a note which shall be presented to the WPC in its upcoming meeting.

- ii) Discuss the key factors you would consider for investing in Equity class of asset in the With-Profit Fund. (7)  
[14]

**Q. 6)** You are working in the risk department of "WeAreBest" life insurance company. In the Investment Committee meeting, the Actuary presented an analysis on how a Term product could be more interest rate sensitive than Return of Premium Term (ROP) product.

- i) Discuss the scenarios where the Actuary's analysis will hold true. (5)

As part of the company's effort to attract best of the talent from the Industry and also to live upto its name "WeAreBest", the company has proposed to provide a "loss of earning cover" benefit which shall be paid to an employee if he/she gets injured at work. The level of benefit shall be determined based on the number of years/months that the employee is expected to be out of work following the date of injury. The Chief Human Resource Officer (CHRO) of the company has approached you (Head – Products) for a discussion on the proposal.

- ii) Discuss briefly various points you would consider to put forward regarding the said proposal in your meeting with the CHRO. (10)  
[15]

**Q. 7)** ABC General Insurance Company which has been selling non-life insurance products in the market for a few years wants to start *digital only* life insurance business.

- i) Discuss *key* factors that the company shall consider for evaluating an overall business and economic environment in the country for life insurance business and how such factors would influence the company's decision. (10)

- ii) What are the additional and specific operational challenges that the company may have to deal with because of selling life insurance products? (4)

- iii)** Describe the potential leverages that the company might use from its non-life operations in writing life insurance business. (6)  
[20]

**Q. 8)** Hyperbola Life Insurance Company has been writing non-linked With-Profits life business, non-linked non-participating life business, term business and unit linked business. Company's new business has been declining in recent years. The Board of Directors has sought a report from the company's management on the declining new business.

The CEO of the Company has asked you to draft a note highlighting the key reasons for the decline and possible mitigation mechanisms that company can implement to improve the new business.

The report has been submitted to the Board elaborating the various steps that the company would need to take to improve the new business.

- i)** What could be the key reasons for decline in new business and suggest possible steps that the company could take to improve new business? (8)

One of the reasons for declining business as suggested by the report related to the lower investment return on its savings products compared to other savings instruments available in the market. You have been asked to review the current Asset Liability Management (ALM) position of the company.

- ii)** Describe how company's free assets & ALM can be used to improve the company's investment performance. (6)
- iii)** Describe the key factors that would be considered in reviewing the following assumptions used in its product pricing.
- a)** Mortality assumption (3)
- b)** Investment Return assumption (3)  
[20]

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