INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

25th November 2023

Subject SP8 – General Insurance: Pricing

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. *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.*
3. *Attempt all questions beginning your answer to each question on a separate sheet.*
4. *Mark allocations are shown in brackets.*
5. *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)

i) Define Loss Portfolio Transfer (LPT). (1)

ii) Outline using an example the primary objective pursued by insurance companies through LPT. (4)

iii) Outline the factors an Actuary should consider while evaluating the appropriateness of a LPT in respect of portfolios having extended loss development periods. (3)

iv) Compare and contrast Loss Portfolio Transfer with alternative risk transfer mechanisms. (3)

v) Discuss the circumstances under which an insurance company might opt for LPT over alternative risk transfer options. (2)

vi) Examine the potential complexities and challenges arising during pricing and negotiation stages of LPT. (4)

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Q. 2) You are a Pricing Actuary for a General Insurance Company. The last pricing (rating) exercise was done more than 10 years ago (in 2010) for its property line of business and the Company is planning to revisit the rates charged. The table below provides summary of its experience within property lines of business:

Year	Exposure	Gross Premium	Net Premium	Gross Ult Claims	Net Ult Claims
2011	12,000	1,200	1,100	360	360
2012	13,500	1,350	1,250	405	405
2013	15,000	1,500	1,400	450	450
2014	16,500	1,650	1,500	825	600
2015	18,000	1,800	1,800	540	540
2016	20,000	2,000	1,800	600	600
2017	22,000	2,200	2,000	880	800
2018	25,000	2,500	2,250	1,250	1,250
2019	27,500	2,750	2,500	1,100	1,100
2020	30,000	3,000	2,750	3,600	1,925
2021	33,000	3,300	3,000	1,650	1,650
2022	35,000	3,500	3,200	1,400	1,400

i) Outline any four broad categories of pricing. (4)

ii) Estimate the Target Claim Ratio (as a % of Exposure) clearly highlighting the assumptions made. (4)

iii) Comment on the Claim Ratio trends and the choice of the estimated Target Claim Ratio. (6)

iv) The Appointed Actuary has asked you to estimate a target Loss Ratio and Premium as % of Exposure assuming the claims handling expenses are 10% of the claims cost and commission expense is 30% of the Premium. Additionally, the Company incurs an additional 50% of the commission costs as other total admin expenses and allows for 10% Profit loading. (10)

The CEO of the Company is concerned about climate change and has enquired with you if any such risks has been allowed for in the premium rates.

v) Explain the critical data elements one need to collect and analyse for effective pricing of climate-related risks i.e. assessing exposure, estimating premium rates and financial stability of the insurance company. (6)

vi) Identify potential challenges linked to data acquisition and utilization in the context of climate risk assessment and propose strategies to address these challenges. (3)

vii) Discuss how can one allow for climate-change related risk in the above Premiums. (6)

Due to the increasing climate change risks, the Chief Financial Officer (CFO) wants to optimize its reinsurance arrangements and purchasing more/different types of Reinsurance (RI) covers.

viii) What are the different types of Reinsurance arrangements that you'd suggest to the primary insurer? (4)

ix) What is the information that the Reinsurer may ask from the insurer? (3)

x) Describe how the Reinsurer might price each part of the reinsurance policy. (8)

xi) How will the above decision impact the premium rate calculation? (5)
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Q. 3) An emerging general insurance company in India is focusing on underwriting a small but diverse portfolio of risks, encompassing segments such as motor, property, health, and marine insurance.

i) Describe in detail the risks and uncertainties faced by the Company while managing its small heterogeneous book of business. (10)

ii) Suggest how effectively can the Company navigate the risks and uncertainties. (2)
[12]

Q. 4) The Indian market has witnessed significant technological advancements and shifting of customer behaviours.

i) Describe briefly the influence of the above changes on conventional actuarial methodologies and risk assessment processes. (8)

ii) Comment how insurance companies can adapt to this evolving landscape. (4)
[12]

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