INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

26th November 2019

Subject SA3 – General Insurance

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 expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which is meant for UK Fellowship examination. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, it should be noted that focal point of answers is expected to be India Specific application. However, if application specific to any other country is quoted in the answer the candidate should answer the question with reference to Indian environment.*
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) A large reinsurer in the Country has recently asked the insurers participating in its treaty to quote higher premium rates for providing fire insurance covers to certain industries.

i) What could be the reason behind this stand from the Reinsurer? (2)

ii) Considering sum insured as the usual exposure measure in case of Commercial fire insurance, indicate the key challenges associated with such exposure measure. (3)

You work as an Actuarial Consultant with the Insurance Information Bureau of the Country. A committee has been set up to undertake the exercise of arriving at the Burning Costs for the fire portfolio. The Committee has sought your advice in this regard. The Bureau has large volume of data from the Industry participants which has been made available to you.

iii) Describe how you would carry out this exercise. Your description should include how you would analyse the available data and the methodology to be adopted in the exercise. (11)

iv) The actual premium charged for a Commercial fire insurance policy can vary significantly from technical pricing and also between different insurers depending on how insurers approach the pricing process. Explain different factors that can drive this variation. (4)

Your friend works with a medium sized general insurance company leading the actuarial pricing function. At her capacity, she has to advise on the pricing of smaller commercial insurance risks. She has mentioned to you that the role of actuaries in pricing large commercial risks is rather limited.

v) Comment on the views shared by your friend by distinguishing the role of actuary in case of small to medium sized risk as compared to the large commercial risks. (3)

vi) You think that actuaries can add value in checking rate adequacy in case of large commercial portfolios. Suggest and outline four different analyses you can carry out while checking rate adequacy. (4)

vii) Discuss the various implications of the rise in premium rates as asked by the reinsurer on the General Insurers in the Country. (6)

[33]

Q. 2) You are an actuary in ABC Insurance. The company has been writing motor insurance, but the volumes have been relatively very low. The company is looking to increase its presence in retail lines by focusing more on the Motor Insurance market. However, the CEO is concerned as it has been observed that the insurance players cutting rates due to fiercely competitive market and hence is worried about the underlying profitability of the portfolio. As a part of the exercise you have obtained quotes from a web aggregator for 7 competitors for 3 highest selling car models for the Motor Own Damage component and following is the analysis of the same:

Model

Model	Average IDV	Minimum Premium	Maximum Premium
1	425000	8900	12750
2	320000	6700	9800
3	785000	20500	27200

The internal pricing guideline set forth by the company has produced the following premium rates for the models respectively:

Model	ABC Insurance Premium
1	13800
2	5300
3	28400

i) Explain the reasons for the huge variation in the prices quoted by different insurance companies. (10)

ii) How will you justify that the prices calculated by you are accurate? (5)

Recently, the regulator has come out with a Regulatory sandbox for testing of new market concepts. The management of the company is keen to experiment with new product concepts to increase its market share and offer differentiated products to the end customers.

iii) The company has been approached by a large toy manufacturer to insure the toys which are sold to children. The insurance will be attached to the product at the time of buying of the toy. The following are the broad level coverages offered:

- Claim amount up to a maximum of Rs.5000 per instance will be paid for damage to the toy.
- Up to 5 toys can be insured during the policy period.
- Maximum of 2 claims can be made.
- Policy can be bought at the time of buying of the toy and not at a later date.
- Theft of the toy will be covered.

The price for the same has been fixed by the toy manufacturer at INR 1500 and the average price of the toy is mentioned as Rs.7500.

The CEO is keen on following up on the proposal received as he feels it is an untapped market and that the product will give them good traction and help the young population understand the importance of insurance.

Write a note expressing your opinion on the challenges of the product design and pricing of such a product. (10)

[25]

Q. 3) You work for a large General Insurance company as a Reserving Actuary. One of your colleagues from the Finance function has recently attended a session on the potential impact of proposed IFRS 17 accounting standard on the General Insurance companies in India. He has made a comment to you that the Companies profit will be higher post implementation of this standard as the reserve will be lower. But he could not understand the concept of “Risk Adjustment”. He has sought your help in this.

i) Comment on your colleague’s view about lower reserve. (2)

ii) Suggest two risk measures which can be used in determining the risk adjustment and mention any limitations. (4)

iii) If the selection of discount rate is left to the Insurers, describe the various factors to be considered while deciding a suitable discount rate. (3)

iv) Currently you estimate IBNR at a line of business level. The same Finance colleague has also mentioned to you that as per the proposed accounting standard, IBNR will be estimated at more granular level by grouping contracts at lower level.

a) What do you think should be the basis of such grouping? Give an example how an insurer can aggregate contracts for the purpose of liability valuation. (2)

b) Comment on how the industry practices can be considered when assessing the level of aggregation? Outline the issues with the level of aggregation requirements. (4)

v) Briefly discuss the effect of regulation on this aspect. (2)

[17]

Q. 4) You are an actuary working with the reinsurance department of an insurance company. The company has been historically risk averse and hence the objective has been to rely on reinsurance arrangements to reduce the capital at risk. The following are the reinsurance arrangements in place for the company:

<u>Motor Lines</u>:

Expected GWP: 100 Crores

Reinsurance arrangement:

Motor XOL: 75 Lacs in excess of 25 lacs (only for Own Damage Component)

Quota Share: 92.5% of the risk is retained by the insurer

Reinsurance Premium XOL: 2.5% of Premium

Commission Paid: 15% of GWP

Commission Received: 15%

<u>Commercial Lines</u>:

Expected GWP: 50 crores:

15 lines of surplus with line size of 10 cr in excess of retained risk of 10 cr

Quota share: 40% retained and 60% reinsurance of the retained risks

Reinsurance Premium (including Quota Share) : 85% of GWP

Commission Paid: 22% of GWP

Commission Received: 15% of GWP

Additional Reinsurance Arrangements:

Cat XOL Reinsurance: 50 crores in excess of 50 crores for all lines of business

Rate on Line: 1.5%

Portfolio XOL

3.5 crore in excess of 0.5 crore

Rate on Line: 3%

Expenses of Management: 25% of the GWP

i) Calculate the reinsurance premium payable along with expenses and commissions and the net risk premium for both the lines of business. (6)

ii) Calculate the ultimate net retention for a commercial risk with sum insured of 100 crores. (3)

iii) Remark on the reinsurance philosophy of the company considering its objectives. (6)

The regulator is concerned about the aggregate exposures taken by the company and is concerned that the current solvency regime does not take into account the exposures taken by insurance companies. As such the regulator has expressed opinion to move from a factor-based solvency regime to a risk based solvency regime:

iv) Discuss the relative merits and demerits of both the factor based and risk-based capital solvency regimes. (10)

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