

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

1st September 2021

Subject SA3 – General Insurance

Time allowed: 3 Hours 30 Minutes (14.30 - 18.00 Hours)

Total Marks: 100

INSTRUCTIONS TO THE CANDIDATES

- 1. Please read the 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. Mark allocations are shown in brackets.*

Q. 1) You are working for a relatively small-sized insurer which writes mainly motor insurance. In the recent two years, the insurer has expanded into residential property insurance which is a vastly under-penetrated segment in the country. The insurer expects residential property to account for almost half of the business volumes in the upcoming year. Both structure and contents are covered under the residential property insurance.

For Residential Property and Motor Own Damage insurance, the premium charged by the insurer towards natural perils is a fixed proportion of the exposure and it does not depend on the location.

The insurer is acquiring a catastrophe model so that it can transition to pricing of natural perils in the future based on catastrophe model.

- i) Outline the advantages and disadvantages of the existing pricing approach. (5)
- ii) Outline the reasons why the insurer might want to undertake a detailed assessment of the potential challenges during transition from the existing pricing approach to the pricing based on catastrophe model. (3)
- iii) Discuss the key aspects of the impact assessment of the transition and potential challenges, along with mitigation steps if any, which need to be considered during the transition. (7)

Being highly customer centric, your company is concerned that the insurance claims due to natural perils take a long time to settle. Hence it is planning to adopt a new initiative for faster settlement of claims due to natural perils as a pilot product. As per this initiative, the insurer would pay a pre-defined proportion of the exposure depending on the severity of the natural peril event. The factors considered are the water level inside the house in the event of flood, wind speed recorded in the nearest area in the event of a cyclone or earthquake intensity recorded in the nearest area in the event of Earthquake. In case the insured does not agree with the amount determined by this approach in the event of a loss, then the insured would be indemnified as per the detailed loss assessment procedure which is followed currently.

- iv) Outline the advantages of above claims settlement initiative. (3)
- v) Discuss the key challenges along with mitigation steps, under this initiative. Also discuss how these challenges will be monitored after implementation. (10)

Your company is also planning to acquire detailed industry data on in-force exposure and the claims data for the historical CAT events. You have been asked if this data can be used for pricing natural perils instead of CAT models and also if this industry data can be used to establish the pre-defined claim amounts in the claims settlement initiative described above.

- vi) Discuss how the industry data can help above two initiatives on Pricing and Claims Settlement. (7)

[35]

Q. 2) You have been approached as an Actuary working in a consulting firm to provide advice on certain matters present in the general insurance company. In the current pandemic situation the liability products have seen an increased demand from professionals for wrongful and malpractices resulting in injury, death, medical expenses including the costs of lawsuits and settlements if any resulting from the same.

The CEO of the insurance company has asked you to price a product to cater to these needs of different professions demanding liability insurance:

i) Describe the below mentioned terminologies:

- a) Risk attaching basis
- b) Loss occurring basis

(2)

ii) Describe the advantages of each basis and what would be the preference from insurers standpoint.

(3)

It has come to the claims team notice that a recent court judgement has a potential to increase the current and future pay-out amounts on the professional indemnity claims. The same has been highlighted by the claims team to the CFO. The CFO has asked you to estimate the change in reserves at a gross and net basis. The company currently has both proportional and non proportional insurance including some amount of facultative insurance arrangements which could not be placed directly through the treaty.

iii) Describe the investigation that you need to carry out to re-estimate the liability.

(10)

As a part of another assignment, a reinsurance company has approached you to provide advice on its proportional treaty arrangement and has provided you the following data:

Year	GWP	Incurred Losses	Average Rate = Average Premium/ Average Sum Insured
2015	175	80	9%
2016	260	120	10%
2017	420	200	11%
2018	570	290	12%
2019	635	360	14%
2020	700	435	15%
2021	740	920	17%
2022 (forecast)	850	600	19%
2023			20%

- Claims inflation is around 5%
- Ceding commission is 20%
- Profit commission over and above the ceding commission of 15% post allowance for a 5% expense provision of the reinsurer

iv) Explain if as a Consulting Actuary you would recommend writing this treaty and specify the assumptions made and calculations performed to arrive at the decision

(15)

[30]

Q. 3) You are working for a large general insurance company writing both commercial and retail lines of business. The insurer writes direct and inward business for both domestic and international market.

i) List the main components of the Asset liability matching (ALM) policy and elaborate possible ALM considerations for the insurance company.

(10)

ii) Due to the ongoing pandemic situation the credit rating agencies have been actively reviewing the credit ratings for various companies and analyzing the resilience of the companies to various stress scenarios. It has come to the notice that few bonds in your portfolio have been downgraded to junk status. Describe the impact of the downgrade on the ALM position of the company. (5)

iii) The regulator is concerned that the overall impact on the economy due to the downgrades is likely to continue for some time and wants to understand how resilient the insurance companies are to various stresses. The regulator is planning to come up with various stress scenarios and ask companies to demonstrate the impact of these stresses on their portfolio. Specify with reason 3 stresses/scenarios which can be formulated by the regulator and the likely impact of the same on the insurance companies financials. (5)

[20]

Q. 4) There has been a growing public awareness of the increasing risk of becoming the victim of a cyber incident in the backdrop of the growing dependence on technology. The usage of internet / mobile banking, social media, online transactions has increased significantly. To cater to this need, a few insurers have recently launched products catering to individuals and families for cyber risk insurance.

You are working for a medium sized insurer. It is contemplating to enter this segment to offer the coverage against loss due to cyber frauds or digital risks which is typically offered under cyber risk insurance.

A few salient coverage features are:

- Legal expenses incurred due to events such as identity theft, unauthorized transaction, reputational injury, cyberbullying, malware intrusion and claim for damages lodged by the insured against a third party for privacy breach / data breach .
- Financial Loss resulting from an unauthorized transaction such as fraudulent use of bank accounts, credit cards, mobile wallets and e-mail phishing.

Discuss the key challenges, and how they can be addressed to some extent, about the product in the areas such as product coverage, pricing, reserving, distribution of the product, or any other relevant area. Also discuss the approach to monitor and assess the product performance after its launch vis-à-vis these challenges.

[15]
