INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

3rd December 2022

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) You are a Pricing Actuary with a multi-line general insurer in India which has exposure to turnover based Trade Credit Insurance.

i) Outline the factors that impact

a) the claims development pattern of turnover based Trade Credit Insurance. (3)

b) Insurer's eventual liability under turnover based Trade Credit Insurance. (5)

Note that your answer is expected to cover typical terminology associated with this product.

The insurer is contemplating underwriting Liability insurance for the first time with Public Liability Insurance Act policies (PLI - Act). One of the independent directors thinks it to be a very risky product and wants to have the capital requirement for this product stress tested under a range of scenarios.

ii) Prepare a draft response to the Director in relation to PLI – Act policies covering the following:

a) Outline the insurer's liability as defined under the Public Liability Insurance Act 1991, immediate relief that needs to be provided under different heads (namely fatal accidental, disability etc) and standard exclusions under this product. (6)

b) Also include a worst case stress test scenario of ten claims under this portfolio with the total claim amount exceeding the total underwritten premium, thereby rendering the portfolio highly unprofitable. Your response must clearly highlight all assumptions made. (4)

The CEO of your company is of the opinion that underwriting Crop and Weather insurance would be the best way to accelerate top line growth. He opines that reinsurance could be used as an alternative source of capital.

iii)

a) Outline the key factors that need to be taken into account when deciding whether to underwrite Crop and Weather Insurance. (10)

b) Explain why an Actuary cannot rely on the Basic Chain Ladder method to estimate reserves for the unfinished cropping season. As per APS34, describe the qualifications an Actuary will need to make in his/her report if reliance is placed on the expected loss ratio method for the unfinished cropping season while estimating IBNR provisions for this line of business. (5)

[33]

Q. 2) You are the Chief Actuary of a general insurance company which has been in operation since the year 2000.

i) One of the shareholders in your company desires information around the Pools in operation in India, the capacity of each of these Pools and the liability of the insurer in case of an event leading to a claim payout from the Pool. A Pool is defined as 'operational' if premium is ceded to that Pool in the current financial year. (5)

The company monitors the profitability of products sold by each of its distribution channels based on the financial year net loss ratios. It further monitors the combined operating ratio and return on capital (based on the existing factor-based capital requirement) and uses this information for strategic decision making.

The ratios are influenced by the methodology used by the Finance team for allocating claims, premium etc to individual distribution channels and you have been provided with the allocation methodology for the following three components:

- IBNR – incremental product level IBNR allocated to each distribution channel basis net earned premium share of each distribution channel in the financial year under consideration
- Operating Expense – expenses which are not directly attributable to any line of business are allocated basis net earned premium share
- Investment Income – allocated basis the average technical reserves

ii)

a) Comment on issues that may need to be addressed in the above IBNR allocation methodology used by the Finance team. (3)

b) Besides technical reserves, briefly explain alternative factors influencing the allocation of investment income. (4)

c) Barring the above three components, outline other monetary components that need to be considered by the Finance team in its allocation methodology, with the aim of improving the calculated net loss ratio. (5)

[17]

Q. 3) Digitization has impacted the lives of citizens considerably and this was further accelerated as a result of the pandemic. Due to the same, the online gaming industry has been exhibiting rapid growth. It is estimated that the gaming industry globally is growing at a CAGR (Compound Annual Growth Rate) of 38% and is expected to exceed $5 billion in mobile gaming revenue by the end of 2025. In view of the same, there is an increased interest to insure such online gaming companies.

i) Describe the types of insurance products which will be required by these gaming companies along with the contingencies which will be covered under these products. (8)

ii) Outline the risks (with reasons) an insurance company may face from launching such products to cover gaming companies. (7)

iii) Define latent claims along with an example of latent claims which may arise under the insurance products covering gaming companies. (2)

iv) Outline the reserving approach for latent claims under the insurance products covering gaming companies. (15)

v) Explain how an insurer can mitigate its risk to latent claims from these products. (5)

vi) Outline how these latent claims can be considered for the purpose of capital modelling under a risk-based capital approach, assuming that the existing Economic Capital model will be adopted for risk-based capital in future. (8)

vii) While pricing this insurance cover, an insurance company has decided to use a catastrophe model for Cyber risk provided by an external vendor. Discuss the disadvantages of using such a model. (5)

[50]

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