INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

25th June 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) You have recently joined a large General Insurance Company, in your first role as Appointed Actuary. The Company has been in operation for over ten years and its book is heavily dependent on Motor insurance business.

While going through the annual statutory valuation exercise carried out previously, you have noticed that the Company had never considered Unallocated Loss Adjustment Expenses (ULAE) within the reserve provision. Also, no separate expense analysis had been carried out in past by the Actuarial department.

i) Explain the concept of ULAE with example. (2)

ii) As per the Actuarial Practice Standard (APS) 21 of the Institute of Actuaries of India what is the requirement from the Appointed Actuary in this regard? (2)

iii) You have decided to estimate the provision related to ULAE for internal Management review. Outline a method by which you can estimate this. Also state any limitations of your suggested method. (7)

iv) What options are available to you in terms of possible next course of action? (3)

The Promoter of the Company you work for is a Non-Banking Financial Institution (NBFC). Due to the applicability of Indian Accounting Standard for NBFCs, the Company's claim development triangles are published as part of the financial disclosures of the Promoter firm.

An insurance market analyst has used the published data triangle to perform some projections using a basic chain ladder approach. The analyst's projections indicate that there may be a material shortfall in the company's disclosed provisions with respect to the Private Car Third Party liability.

v) Discuss the potential implications of such analysis to the Company with regards to the reserving shortfall. (4)

vi) As the Appointed Actuary of the Company you have access to more in-depth information – discuss the impact of such additional information in your reserve projection.

(7)
[25]

Q. 2) You are the Appointed Actuary of "Different Insurance". The Company has been in operations for the past few years. The Company has been selling predominantly motor insurance, personal accident and fixed benefit insurance contracts.

In the initial years the Company managed to get a decent amount of market share in the motor insurance space, however, in the recent years the Company has been losing share in the market mainly because of fierce competition, lack of product differentiation and inability to pass on rate increases to the end customers.

The CEO is concerned about the loss in market share. He feels that the company can increase its market share by launching an innovative motor insurance product. The following idea has been proposed:

- 80% of the premiums paid by the policyholder, over 5 year period, will be refunded at the end of 5 years provided the policyholder has not made any claim in the policy in the last 5 continuous years with the company.

i) Discuss the relative merits and demerits of the proposed product structure. (7)

ii) Explain three significant assumptions that need to made at the time of pricing this innovative product. (3)

iii) Additionally, explain the considerations and methodology for setting up the reserves for the product including the differences, if any, from the traditional reserving approaches-allowed as per regulation. (8)

The regulator has informed the insurance companies that they are contemplating a new regulation which would require insurance companies to provide option to the policyholder to receive claim payments in installments instead of lump sum payments for the fixed benefits products.

iv) Explain the need of having such a regulation. (2)

v) Explain the implications of such a regulation for a general insurance company. (8)

vi) Outline the key considerations the regulator might specify while formulating such a regulation. (8)

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Q. 3) You are the Appointed Actuary of a General Insurance Company specialising in Commercial Insurance business. In the wake of several air accidents and war-like situations across the globe, the Commercial Underwriting Head has presented a proposal to the Product Management Committee (PMC) of the Insurer to launch an Aviation Insurance Policy.

i) List down the typical covers of such an Aviation Insurance Policy. (4)

ii) Discuss the role of Appointed Actuary as one of the key PMC members in this circumstance. (8)

The Company's Chief Reinsurance Officer has talked about the significance of catastrophic nature of risk involved and the appropriate assessment of reinsurance in this context.

iii) Describe how catastrophe models can be used here in context of reinsurance purchase. (3)

The company currently uses its reinsurance broker to run its exposures through some of the proprietary catastrophe models available in the market.

iv) Explain the different challenges you would face as an Actuary while interpreting and using the output of such catastrophe models. (7)

v) As per the IRDAI Reinsurance regulation 2018, what is required from the Insurance Companies with respect to the Catastrophic Risk Protection? (3)

[25]

Q. 4) You work as an Appointed Actuary in "ABC Insurance" company. The CEO feels that the current reinsurance strategy is sub-optimal and wants to make the same more cost effective. He has asked you to perform some analysis on the same and ensure that the reinsurance strategy works in the most cost efficient manner. You have got the following data:

EML (Estimated Maximum Loss) = 300 crores

Treaty Layers: 5 layers of 50 crores each up to EML above the deductible

Deductible: 50 Crores

Layer	Cost of Capital	Rate on Line	Return Period: Exposure Years per 1 Expected Breach	Expected Severity
50 cr xs 50 cr	1%	5.1%	20	39,00,00,000
50 Cr xs 100 Cr	1.5%	4.3%	50	43,50,00,000
50 Cr xs 150 Cr	2.25%	3.0%	100	45,00,00,000
50 Cr Xs 200 Cr	3%	2.5%	200	46,50,00,000
50 Cr xs 250 Cr	4%	1.3%	400	48,00,00,000

The company is required to hold capital at 99.5 percentile as a mandate from the shareholders.

i) Calculate the capital that the company needs to hold at different deductible options. (5)

ii) What is the optimal level of deductible for this treaty? State any assumptions made during this process. (9)

[14]

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