INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

8th September 2016

Subject ST7 – General Insurance: Reserving & Capital Modeling

Time allowed: Three Hours (14.45* – 18.00 Hrs)

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. ** You have 15 minutes at the start of the examination in which you are required to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You have then three hours to complete the paper.*
3. *You must not start writing your answers in the answer sheet unless instructed to do so by the supervisor.*
4. *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.*
5. *Attempt all questions, beginning your answer to each question on a separate sheet.*
6. *Mark allocations are shown in brackets.*
7. *Please check if you have received complete Question paper and no page is missing. If so, kindly get a 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.

Q. 1) The Insurance Regulator of a particular country has proposed changes in the public disclosures to bring in added transparency within the market. The Director of a particular company is worried that regulatory authority could impose requirements in order to minimize risks related to insurance company's failure. Give examples of requirements that regulatory authority could impose. **[5]**

Q. 2) You have recently been appointed as Appointed Actuary to a newly established reinsurer looking to write both inward reinsurance and retrocession business across all lines of business.

  i) Outline the data the reinsurer would request from an insurance company in respect of establishing its claims reserves (5)

The Appointed Actuary plans to use chain ladder method for establishing the claims reserves.

  ii) List the different ways in which the premiums and claims data should be grouped for reserving purposes. (5)

  iii) Discuss the challenges while using some of the groupings. (3)

The Appointed Actuary proposes to use the following methods to determine the reserves in respect of inward reinsurances:

  a) Separate projections of gross and net of reinsurance triangles.
  b) Using net to gross ratios.

Further, the actuary wants to develop a method for quantifying the levels of uncertainty within the reserve estimates. The actuary proposes to use the Mack method on the gross claims data to calculate the gross-of-reinsurance reserve range and then apply a recovery ratio (i.e. 1 – net-to-gross ratio) to determine the reserve range.

  iv) Discuss the suitability of the approaches suggested by the Appointed Actuary to determine claims reserves. (9)

  v) List the benefits of quantifying uncertainty in reserve estimates. (3)

  vi) Explain suitability of the approach to determine reserve range and suggest an alternative approach (4)

[29]

Q. 3) A general insurance company primarily writes property insurance business. The company is considering takeover of a similar size company in the same market who writes only health and travel insurance business. Outline the major actuarial investigations an Appointed Actuary should undertake to support the company's aspirations. **[10]**

Q. 4) Explain with a suitable example difference between the following terms within an excess of loss program

  a) Each and every loss

  b) Each and every loss occurrence **[3]**

Q. 5) Explain the following terms

    a) Actual Total Loss
    b) Constructive Total loss
    c) Adverse Development Cover   **[3]**

Q. 6) Define following basis of coverage and give example where each of them may be appropriate

    a) First loss basis
    b) Indemnity
    c) Replacement basis   **[6]**

Q. 7) Increasing use of information technology in business world has brought forth new perils which may not have adequate coverage under traditional insurance policies. A general insurance company is planning to launch cyber insurance policy to cater to this market.

    i) What could be the coverage that company may provide?   (3)

    ii) What exclusions will you suggest to the company?   (3)

    iii) What challenges the company may face in underwriting this product?   (4)

    iv) Please list the risk factors and rating factors   (6)
                                                                                                                      [16]

Q. 8) You are a consulting actuary and a general insurance company has approached your organization to help the board of the company understand need for economic capital.

Please prepare a note for the board of directors covering following:

    i) Difference between economic capital and regulatory capital   (2)

    ii) Why it may be important to understand economic capital requirement of the company even though the company currently is not required by regulation to carry out such assessment?   (8)

    iii) The role of board in the economic capital assessment   (2)

    iv) Describe various uses of the economic capital model?   (4)
                                                                                                                      [16]

Q. 9) You are an actuary working in the investment department of general insurance company specializing in travel insurance.

    i) Describe the characteristics of liability arising from travel insurance business?   (4)

    ii) List the key risks faced by your company?   (4)

    iii) What are the various factors you will consider while designing the investment strategy of the company?   (4)
                                                                                                                      [12]

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