

# **INSTITUTE OF ACTUARIES OF INDIA**

## **EXAMINATIONS**

**6<sup>th</sup> November 2008**

**Subject ST3 — General Insurance**

**Time allowed: Three hours (14.15\* pm – 17.30 Hours)**

**Total Marks: 100**

### **INSTRUCTIONS TO THE CANDIDATES**

1. Please read the instructions on the front 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 to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.
3. You must not start writing your answers in the answer sheet until 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.

**AT THE END OF THE EXAMINATION**

**Please return your answer book and this question paper to the supervisor separately.**

- Q. 1)** Define the following terms and explain why they are used in an insurance contract
- (a) Risk attaching basis
  - (b) First loss
  - (c) Discovery period
- [6]**
- Q. 2)** A general insurance company that writes only motor business exclusively through brokers has experienced a gradual but increasing reduction in its market share over the past five years. The company has decided to use the internet with a view to preventing further reduction and achieving 50% of its sales through this medium within the next five years. Discuss the possible effect this strategy may have in the following areas of the company's business:
- The cost structure
  - Broker arrangements
  - Calculation of premiums
  - Business mix and volumes
  - Reinsurance arrangements
- [12]**
- Q. 3)** A general insurance company expects to write business at a loss ratio of 70% and incurs expenses of 10% commission and 10% other management expenses. It pays taxes of 30% of profits. It also pays out 10% of its post tax profits to shareholders in the form of a dividend. The insurance regulator requires it to demonstrate a minimum solvency ratio of 50% at the end of the year. Its current solvency ratio is 50%.
- (i) Calculate the maximum growth rate that it can sustain without recourse to additional capital, stating any assumptions that you make. (5)
- (ii) Suggest ways in which this insurer might be able to grow more quickly than the rate calculated in part (i). (6)
- [ 11 ]**
- Q. 4)** A large industrial company in India is planning to expand its operations on a global scale. The company wishes to ensure that it has appropriate insurance arrangements to adequately manage the risks involved in existing business, and make any appropriate changes in respect of the expansion.
- You are the appointed actuary for a large public sector general insurance company in India that provides most forms of insurance cover, with the exception of fixed benefits related insurance. Your company already insures some of the risks of this industrial company and those of some other industrial companies with global operations. You have been asked to assist the company with the insurance aspects of their existing business and possible expansion of business.
- (i) Describe in general terms how you would determine which risks are insurable. (2)
- (ii) Describe briefly the various types of insurance product that might be appropriate

- in helping to manage the risks of this industrial company. (8)
- (iii) Recommend the factors that you would consider in assessing the extent to which your company can insure the industrial company's various insurable risks. (7)
- (iv) Discuss the various reinsurance arrangements that your company will need to have in place, assuming that your company decides to provide insurance coverage for the industrial company for all the insurance products in (ii). (6)
- (v) Suggest which factors you expect your lead reinsurer to consider in deciding to what extent they will accept the placement of the active risks. (5)
- [28]**
- Q. 5)** Describe how actuarial techniques can be used to develop an asset-liability matching strategy for a general insurance company. **[10]**
- Q. 6)**
- (i) (a) State the basic principle to be followed while performing a claims and exposure analysis.
- (b) List the main purposes of a claims and exposure analysis
- (c) List the three main points to be borne in mind while deciding the extent to which the analysis should be split by rating factor. (7)
- (ii) List all the aspects of claims data that should be checked before proceeding with the analysis of claims, indicating for each aspect the purpose for which it is examined. (7)
- (iii) When carrying out a claims experience analysis for the purpose of premium rating, explain to what extent large claims should be eliminated or re-spread over all cells. (2)
- (iv) In a claim analysis, explain what will be the impact of each of the following indicating how each should be dealt with:
- partial payments
  - recoveries
  - claim handling expenses? (5)
- [21]**
- Q. 7)**
- (i) (a) Explain, in one sentence, the fundamental reason why statistical methods may not be appropriate when estimating outstanding claim reserves.
- (b) List the possible sources of error when using statistical methods. (6)
- (ii) With reference to results declared in 2008, distinguish between accident-year and three year accounts in terms of the periods exposed to risk, assuming that all accounting periods run from 1 January to 31 December.) (4)

You are given the following data for a particular class of business:

Realistic solvency margin ratio	75 %
Shareholders' required rate of return	18 %
Expected rate of investment return on low risk assets	10 %

- (ii) Calculate the profit loading on the office premium for annual policies for this class.

(2)

[12]

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