INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

28th October 2015

Subject CA1 – Actuarial Risk Management (Paper II)

Time allowed: 3 Hours (14.45* - 18.00 Hrs)

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. *Attempt all questions, beginning your answer to each question on a separate sheet.*
3. **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 then have 3 hours to complete the paper.*
4. *You must not start writing your answers until instructed to do so by the Supervisor.*
5. *Mark allocations are shown in brackets.*
6. *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.

Q. 1) You are an actuary to a health insurance company. Outline the exercise you would carry out to establish the accuracy and completeness of policy data used for setting up supervisory reserves. **[7]**

Q. 2) A life insurance company established six months ago sells only term insurance policies. The company is about to calculate its supervisory reserves.

i) List the assumptions that will be required for carrying out the exercise. (3)

ii) Outline how each of the assumptions mentioned in part (i) above would be determined for calculating the supervisory reserves (7)

[10]

Q. 3) A life insurance company selling group term insurance plans has the following reinsurance treaties in place.

- A quota share treaty with the insurer's share being 40% of all risks.
- An aggregate excess of loss treaty to cover losses in excess of Rs 50 Million on the group term portfolio.

The reinsurance premiums paid for the above agreements has been consistently above the claim payments received from reinsurers for the last 3 years. Your CFO has complained that this is contrary to market experience and hence the treaties need to be revisited.

i) Explain why the reinsurance premiums could be more than the reinsurance claims received. (5)

ii) Discuss the investigations you would perform before taking a decision to review the existing treaties. (7)

[12]

Q. 4) **i)** List the requirements of a 'Good Model'. (5)

ii) What are the important features that a claims model of a motor insurance company should capture? (5)

iii) List the interactions you need to keep in mind while preparing the model (5)

[15]

Q. 5) A general insurance company specializes in property damage insurance. The Regulator has observed that the company has breached the minimum solvency capital requirement.

i) Outline the major reasons that could have led to the company breaching the minimum solvency capital requirement. (9)

ii) Outline the steps that a regulator could take to ensure that general insurance companies do not breach the minimum solvency capital requirement. (9)

[18]

Q. 6) A large construction company gets the contract to build an expressway between two cities. In return the company has the right to collect the toll for the next 25 years. All maintenance during this period is the responsibility of the construction company. The road shall be handed over to a government agency post this period. The construction company is considering taking insurance to cover its risks.

i) Outline the risks for the construction company in this project. (9)

ii) Suggest various insurance covers the company should consider. (10)

[19]

Q. 7) In a developing country where pension regulations are minimal, a large company runs a defined contribution scheme for its employees. The fund is currently managed by the employer himself with the help of investment consultants. At the time of exit of an employee the accumulated fund is used to purchase annuity from a large insurance company. The contributions are made by both the employer and employees. The annuity type can be chosen by an employee at the time of exit depending on his need and available annuity products with the insurance company. There is a suggestion that there should be a regular disclosure on the scheme to the employees. A director has discouraged this on the grounds that the costs involved could be high.

i) Outline the advantages of making disclosure to the employees. (4)

ii) Discuss the information that the disclosure to employees could include. (8)

The director has further suggested that since the insurance company while pricing the annuity will load for its profits, the employer should self-manage the accumulated fund and pay annuities and avoid this additional cost.

iii) Briefly explain the factors the employer should take into account for taking a decision. (7)

[19]

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