

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

19th November 2012

Subject CA1 – Actuarial Risk Management (Paper I)

Time allowed: 3 Hours (9.45* - 13.00 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** Mark allocations are shown in brackets.
- 3** *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
- 4** You must not start writing your answers until instructed to do so by the Supervisor.
- 5** Attempt all questions, beginning your answer to each question on a separate sheet. However, answers to objective type questions could be written on the same sheet.
- 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 working in a consultancy firm specializing in giving advice to new startup companies. List the areas in which your advice would be beneficial to a new startup technology company. **[4]**
- Q.2)** A general insurance company operating in a developed market has decided to set up a 100% subsidiary company in a developing country. It is planning to apply for insurance license and has set up a project team to manage the licensing process.
Briefly discuss what would be the contents of a written strategy document for this project. **[6]**
- Q.3)** The government of a developing country with a sizeable proportion of rural population is looking to encourage general insurance companies to offer livestock insurance as a cover. Livestock insurance aims to provide protection to the farmers and cattle owners against any eventual loss of their animals.
- [i] Explain why livestock insurance may be important in such a country? (2)
- [ii] Discuss the main issues, from a claims management perspective, that need to be considered by an insurance company when introducing such a product. (5) **[7]**
- Q.4)** A Finance Company is concerned about their employee attrition. To improve employee retention, the company is considering a proposal to institute an award - "LOYAL EMPLOYEE AWARD".
- This award is payable as a lump sum benefit to an employee who has continuously put in a service of 5 years with the company. The benefit is equal to $40\% \times 12 \times$ monthly salary, where monthly salary is the salary as on date of completing 5 years of service.
- [i] List the different approaches the company may adopt to finance this benefit. (3)
- The CFO of the company feels that the company should fund this benefit by purchasing 5 year single premium pure endowment policies, with each employee as life assured, from a life insurance company.
- [ii] Briefly, discuss the pros and cons of this method of funding. (5) **[8]**
- Q.5)** [i] Describe briefly the various types of regulatory regimes and the forms in which they can be adopted. (6)
- In a large developing country with a rapidly growing insurance sector, insurance brokers are currently under the supervision of the insurance regulator of that country. The Government of the country is looking to shift brokers' supervision to a self-regulatory regime.
- [ii] Discuss the merits and de-merits of this proposal. (5) **[11]**

- Q.6)** A medium sized life insurance company, operating for the last few years, has sold only traditional life and pension products.
- The Regulator has now introduced new norms for pension products, whereby, at the end of accumulation phase, the return to policyholder on the premiums paid should be at least 4.5% p.a.
- [i] Suggest with reasoning the type of model, required to be developed to design a product, which is compliant with the above regulatory norms. (2)
 - [ii] Discuss the steps necessary to develop this model. (6)
 - [iii] List the main requirements that the model needs to satisfy to be called a 'good model'. (3) **[11]**
- Q.7)** A life insurance company is developing its first unit linked product to be sold through agents and bancassurance. The company is analyzing its current level of expenses before finalizing the charging structure for the unit linked product.
- [i] List the main types of expense that may be incurred in acquiring and managing unit linked policies. (3)
 - [ii] Explain why the company will analyze its current expenses while developing the charging structure for the new product. (2)
 - [iii] Discuss the factors to be taken into account while determining the types of charge that could be made in order to cover expenses. (9) **[14]**
- Q.8)** The life expectancy at 60 years in a large developing country has increased by almost 10 years over the last two decades and is expected to improve further in the future. Although the country has a number of life insurance companies operating, very few of these are offering immediate annuity products. The bond market is also not well developed. Most employers have set up defined contribution schemes for their employees. The government pension scheme has also moved to a defined contribution arrangement recently.
- [i] Discuss the need for immediate annuity products in this country. (2)
 - [ii] Describe the reasons why the immediate annuity market may not be well-developed. (9)
 - [iii] Suggest the steps that the government could take to promote the immediate annuity market. (6) **[17]**

Q.9) A large transport company manages a fleet of buses providing transportation services to reputed companies and schools. The company is carrying out internal risk assessment and management exercises.

[i] Describe the major sources of risk that the company is exposed to. (9)

[ii] State actions that such a non-financial company would include as part of its risk management process. (5)

[iii] Outline the major approaches to managing risk. (2)

The company is considering buying new buses as the demand for services has increased. One of the Directors has suggested going for a lease of buses instead of cash purchase of new buses.

[iv] Compare and contrast these two options. (6) **[22]**
