

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

06th May 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)** Why is there a need to regulate financial markets more than other markets [4]
- Q. 2)** Discuss why a unit linked product structure could be more beneficial than a conventional regular premium without profit endowment product to a customer planning for long term savings. [4]
- Q. 3)** Describe the advantages and disadvantages of formula method of pricing a life insurance product over any other method. [5]
- Q. 4)** A medium sized general insurance company transacts Motor and Health Insurance business. In order to increase its market share the company is looking at acquiring XYZ Ltd, a medium sized general insurance company.
- Discuss the factors to be considered when interpreting the annual accounts of Company XYZ. [12]
- Q. 5)** There is an increasing need to provide real returns to pensioners. Conventional immediate annuity plans mainly invest in fixed income assets due to the long term guarantee associated with annuity rates.
- A large company is planning to come up with an immediate annuity plan where the premium will be invested in equities. The regular annuity amount will be linked to an equity index. The only guarantee given by the insurance company is that at no time the annuity amount will be less than x% of the previous month's annuity.
- Discuss factors the company should take into account before it launches this product? [12]
- Q. 6)**
- i)** Why would the actual price of a product differ from its theoretical cost? (5)
 - ii)** A medium sized life insurance company selling term assurance plan is planning to introduce differential premium rates for smokers and non-smokers. So far the term premiums has varied only by gender.
 - a)** List the possible sources of data that could be used by the company to set its pricing mortality assumption. (3)
 - b)** Describe what adjustments should be made to such data before using it in pricing. (5)
- [13]
- Q. 7)**
- i)** Explain why regulators require insurance companies to maintain a minimum level of solvency capital. (4)
 - ii)** Outline all the possible internal capital management tools available to a general insurance company. (4)
 - iii)** List the factors that would impact the choice between the tools mentioned above. (5)
- [13]

- Q. 8)** A large manufacturing company has a defined benefit pension scheme. The benefits are defined in relation to the final salary of a member. You are about to value the scheme's assets and liabilities. The scheme was valued three years ago when the scheme was only restricted to the management cadre. Since then the scheme has been extended to cover all other employees of the company.
- i)** List all the stakeholders in the scheme. (3)
 - ii)** List the demographic assumptions that will be required for valuing the scheme (4)
 - iii)** Describe briefly with reasons how suitable demographic assumptions could be determined for valuing the scheme and how it may vary between employees in the management cadre and others. (11)
- [18]**
- Q. 9)** A proprietary life insurance company writes with profit, without profit and unit linked lines of business. You are an actuary in the company and you are about to do yearly supervisory valuation of the company's policies. You observe that there is a 25% increase in management expenses in the current year compared to the previous year.
- i)** What all investigations you will carry out relating to the expense incurred and its likely impact on the valuation expense assumption. (7)
 - ii)** What courses of action are available to management to control management expenses? (8)
 - iii)** The increase in expense assumption for supervisory valuation will lower the statutory solvency ratio of the company. Outline immediate course of action available so that the statutory solvency levels can be maintained. (4)
- [19]**
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