

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

11th May 2011

Subject CA1 – Core Application Concept (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 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.*

AT THE END OF THE EXAMINATION

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

- Q. 1)** Outline how, in general, an insurance company could use reinsurance to manage its mortality risk? [5]
- Q. 2)** Describe the factors to be considered while setting the discontinuance terms of a life insurance product? [6]
- Q. 3)** a) Outline why an insurance company would need to hold individual policy reserves? (4)
b) Explain why the insurance company would need global reserves over and above individual policy reserves? (5) [9]
- Q. 4)** a) Explain why it is important for a general insurance company to analyse its required expense loadings when pricing products. (3)
b) Describe the various ways in which expenses could be classified while performing an expense analysis for the purpose of product pricing. (5)
c) Set out the various ways of loading for such expenses when setting premium rates? (4) [12]
- Q. 5)** You are an actuary working in the product development department of a large life company. The marketing director of your company has asked your assistance in preparing suitable responses to queries raised by customers on the products being offered by the company:
- a) “Instead of buying an immediate annuity for life from the insurer, I can myself buy the fixed interest securities which the insurer is going to invest my money in and hence get similar benefits. I will at least save on the insurer’s expenses and profit loadings.” (6)
- b) “I am better off taking out two single life covers rather than taking joint life cover for the same amount on myself and my spouse, as the joint life premium rate is almost equal to the sum of the single life premium rates. But on the joint life policy, you would only pay once on the earlier death. That is, for a similar total cost, I have a greater chance of higher benefits from the two single life policies.” (4)
- c) “My health insurance premium from your company is more expensive than the premium company XYZ would charge me” (4)
- Discuss the points you would make when responding to each of these customer queries? [14]

- Q. 6)** An employer sponsors a large defined benefit pension scheme. The scheme is currently well funded but the employer is going through financial difficulties and wants to manage its future pension costs. They have approached an independent consulting actuary for suggestions as to ways that such costs could be controlled.
- a) Outline the professional issues that the consultant needs to consider before accepting this assignment. (4)
- b) Discuss the suggestions that the consultant could cover in his report to the employer? (12)
- [16]**
- Q. 7)** Company A, a proprietary life insurance company mainly writes unit linked business. Till five years ago it had written a block of without profit long term health reimbursement insurance policies. This line is closed for new business and the company doesn't intend to re-enter this line of business in the near future. Existing policyholders will continue to pay premiums at current rates
- Another Company B, a proprietary standalone health insurance company, writes variety of health products. Company B is interested in buying the block of health business from company A on a cash basis.
- a) Discuss the principal issues that would need to be considered by both companies when deciding whether or not to proceed with this transaction. (14)
- b) Describe an appropriate methodology for putting a value on the block of business? (4)
- [18]**
- Q. 8)** a) List the main possible factors that could influence the surplus or deficit arising from a block of with profit endowment policies over an inter-valuation period. (4)
- b) For each source of surplus, give possible reasons for deterioration in experience compared to valuation assumptions. (12)
- c) Explain the implications of such poor experience on the surplus distribution policy in respect of this block of business. (4)
- [20]**
