

# Actuarial Society of India

## EXAMINATIONS

30<sup>th</sup> October 2006

### Subject SA1 – Health and Care Insurance Specialist Applications

**Time allowed: Three Hours (10.15\*am – 1.30 pm)**

#### *INSTRUCTIONS TO THE CANDIDATE*

1. *Do not write your name anywhere on the answer scripts. You have to write only your Candidate Number on every answer sheet/s*
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 have then three hours to complete the paper.*
3. *Mark allocations are shown in brackets.*
4. *You must not start writing your answers in the answer papers until instructed to do so by the Supervisor.*
5. *Attempt all questions, beginning your answer to each question on a separate sheet.*
6. *Fasten your answer sheets together in the numerical order of the questions.*
7. *The answers are expected to be India Specific application for the syllabus and corresponding core reading. However, substantially the core reading material is still taken from material supplied by Actuarial Education Company which are meant for UK Fellowship examination. It should be noted that focal point of answers is expected to be India Specific application. However if application specific to any other country is quoted in the answer the same should answer the question with reference to Indian environment.*
8. *In addition to this paper you should have available Actuarial Tables and your own calculator.*

#### **Professional Conduct:**

“It is brought to your notice that in accordance with provisions contained in the Professional Conduct Standards, If any candidate is found copying or involved in any other form of malpractice, during or in connection with the examination, Disciplinary action will be taken against the candidate which may include expulsion or suspension from the membership of ASI.”

**Candidates are advised that a reasonable standard of handwriting legibility is expected by the examiners and that candidates may be penalized if undue effort is required by the examiners to interpret scripts.**

***AT THE END OF THE EXAMINATION***

***Hand in BOTH your answer script and this question paper to the supervisor.***

- Q.1)** You are an actuary recruited by a large international insurance company, which is keen on launching a health and care company in India. You have been asked to provide advice to your managing director on this proposal.
- (a) Outline the approach that you would take in assessing the market for the launch of a health and care company. (20)  
The managing director has asked you to specifically focus on individual critical illness and individual income protection contracts.
- (b) Describe the methodology that you would adopt in determining the assumptions required to price these contracts. (10)
- [30]

**Q.2)** You are the consulting actuary advising a small Indian life insurance company, "Sunshine Insurance Company". The company currently transacts a wide range of individual life and health business, sold through independent financial advisers. The annual volume of new business has been roughly unchanged for several years while the insurer's market share has declined.

- (a) The insurer has decided to extend its product range. It is also considering whether to offer its new products through different distribution channels. It has identified a new type of healthcare product, which meets immediate-needs long-term care insurance providing regular cash payments, increasing in line with retail price inflation index. You have been asked to advise the company on the following aspects of this new product :

- ? a suitable underwriting policy (5)
- ? appropriate reinsurance arrangements (5)
- ? the main distribution channel(s) through which the product might be sold (4)
- ? the main costs and risks associated with developing and launching the product. (6)

Draft a reply addressing each of the above aspect.

- (b) Sunshine insurance company is also reviewing the pricing of its unit-linked critical illness product. You have been asked to investigate the withdrawal experience on the company's current unit-linked critical illness portfolio. The company stated writing this business eight years ago. For the first five years sales were good, but have been significantly lower over the last three years. The critical illness benefits are paid on diagnosis of a wide variety of conditions, and the expectation is that most policyholders will ultimately claim on the policy. A withdrawal benefit is available before the end of the term, but there are no death benefits. This company also sells a traditional non-linked version of the contract, which pays benefits only on a small number of conditions, and gives no withdrawal benefits.

- ? Describe how you would analyse the withdrawal experience, mentioning any problems you might encounter. (8)
- ? Discuss how you would use the results of the analysis to produce suitable withdrawal assumptions to be used in the re-pricing. (5)
- ? Comment on how your withdrawal assumptions for the supervisory valuation (for regulatory capital purposes) would differ from your pricing assumptions. (2)

[35]

- Q.3)** You are the pricing actuary for a well-established long term insurance office that wishes to launch income protection product in the market. You had submitted an earlier report to the Appointed Actuary (which has already been placed before the management) on the key risks and had also provided benchmark premium rates for such a product.

However, your sales director, who has recently returned from a workshop on income protection abroad, has sent you an email in which he expresses concern at the cost of income protection. He has also argued that the product cannot be successful unless the premium rates are reduced to make the product attractive and affordable.

Describe typical means of reducing the premium for income protection and the risks associated with each.

[20]

- Q.4)** ABC Ltd., is a health care insurance company, sells all four types of health insurance products, viz., critical illness, income protection, long term care insurance and medical insurance.

Describe a deterministic method to calculate a resilience capital requirement (RCR) for long-term health insurance portfolio. Which of the following actions will reduce the likely RCR?

- ? matching assets and liabilities more closely
- ? increasing the margins in the calculation of the published statutory reserves
- ? reducing the reserves held now to the minimum to increase free assets.

Explain your answer

[15]

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