

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

18<sup>th</sup> May 2010

**Subject ST1 — Health and Care Insurance**

**Time allowed: Three hours (14.45\* pm – 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. *\* 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 three hours to complete the paper.*
3. *You must not start writing your answers in the answer sheet until instructed to do so by the supervisor*
4. *The answers are not expected to be any country or jurisdiction specific. However, if Examples/illustrations are required for any answer, the country or jurisdiction from which they are drawn should be mentioned.*
5. *Attempt all questions, beginning your answer to each question on a separate sheet.*
6. *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) (i)** Outline the targets to be considered while designing and pricing a health insurance product. (4)
- (ii)** Describe the potential conflicts amongst the targets stated above. (4)
- (iii)** Describe briefly the significance of these conflicts for a health insurer who enjoys monopoly status in the market in which it operates? (1)
- A health and care company is proposing to launch a unit-linked regular premium critical illness product. The company will deduct regular charges, in respect of the difference between the selected level of cover and the value of the units allocated, by cancelling units. The unit fund is payable should the insured die without a valid claim occurring. If insufficient units are available to meet the morbidity charges at any time the level of cover may be reduced, additional premiums may be payable or the contract may lapse.
- (iv)** Discuss the factors that should be considered when determining the suitability of this contract design. (11)  
[20]
- Q. 2)** Describe what is worksite marketing and how this marketing is different from an agency force. [6]
- Q. 3)** You are the Appointed Actuary of a health & care insurance company which sells mainly PMI products. The Chief Executive Officer (CEO) of the company calls you and the Chief Financial Officer (CFO) for a meeting to discuss how the company can cut costs and manage expenses.
- Discuss the points you would put forward in the discussions with the CFO and CEO. [5]
- Q. 4)** A health and care insurance company is considering using industry-average sickness rates collected over a period of three years, ending two years ago, for pricing a new income protection contract.
- Discuss the risks the company would face in using these data. [5]
- Q. 5)** A life insurance company transacts regular premium health insurance contracts for both individuals and groups of employees. The contracts contain an optional waiver of premium rider benefit for which an additional premium is charged. Currently, the same premium rates and underwriting conditions apply to members of groups as to individuals. Life cover is not available under the contracts. The marketing manager has suggested that for group policies there should be no underwriting. He also argues that, in view of the economies of scale available, the rider benefit should be provided free of charge to groups.
- Comment on the marketing manager's suggestions. [8]

- Q. 6)** You are a consulting actuary specializing in health insurance policy data management. A health insurance company which is struggling with poor data quality has engaged you to help identify and mitigate the data issues.
- (i) Outline how the policy data can be a source of risk to the health insurer. (3)
  - (ii) List the possible causes of poor data quality for the health insurer. (3)
  - (iii) Outline the steps that the insurer could take in order to mitigate the data issues. (5)
- [11]**
- Q. 7)** A proprietary health and care insurer is transacting both individual and group income protection insurance business.
- (i) Briefly describe the types of reserve that are required to be held by the insurer. (5)
  - (ii) Describe the advantages and disadvantages to the insurer of holding larger reserves than the minimum required by the supervisory authorities. (5)
- The insurer is carrying out an analysis of its claim experience in order to review its premium rates.
- (iii) List the factors by which the data would be sub-divided for the analysis. (3)
- The claim experience analysis indicates that the premium rates need to be increased. However, the revised rates would not be competitive.
- (iv) Discuss possible reasons for this and the courses of action open to the company if it wishes to offer more competitive premium rates. (12)
- An analysis of lapse experience has indicated that there has been a lot of mis-selling of the income protection insurance products.
- (v) Describe the actions that the insurer should consider in order to monitor and control mis-selling. (5)
- [30]**
- Q. 8)** A proprietary small health insurer who has been writing only hospital cash plans is about to launch a critical illness product under which a lump sum is paid on diagnosis of one of the critical illnesses specified in the policy in return for a series of annual premiums. The company is evaluating reinsurance options for the product. After consulting a few reinsurers, the company decides to put in place the following reinsurance arrangement: *Cede 90% of the sum assured in excess of R.*
- (i) Outline the advantages and disadvantages to the insurer of having this type of reinsurance arrangement relative to a quota share. (2)

The insurer, however, is concerned about the cost of reinsurance and therefore would like to examine if the level of reinsurance can be reduced by setting up an appropriate risk experience fluctuation reserve.

- (ii) Describe how the insurer would go about determining a suitable value for R. (8)  
One of the insurer's board of directors suggested that the reserve, if set up, should be invested in equities in order to get higher returns.
- (iii) Comment on the director's suggestion. (5)

[15]

\*\*\*\*\*