

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

15<sup>th</sup> November 2010

**Subject SA1 — Health and Care Insurance**

**Time allowed: Three hours (9.45\* - 13.00 Hours)**

**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 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. The core reading also contains some material which is India Specific, mostly the IRDA regulation. In view of this, 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.*
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)**
1. Health Insurance products are designed to cover certain customer needs. Please name five needs health insurance products are covering. (5)
  2. Please describe how a critical illness product could cover those needs. (3)
  3. Name and briefly describe the most common health insurance product categories - besides critical illness products. (8)

**[16]**

- Q 2)**
1. Explain why Health Insurance is especially exposed to anti-selection. (2)
  2. An Insurer decided to increase the premiums for his annual renewable inpatient reimbursement health insurance product by 40% due to deteriorating performance. The Regulator did approve this already. What is a key risk the Insurer is going to face? (2)
  3. Please describe how these risks can adversely affect the performance of this portfolio (described under 2.2). (5)
  4. Due to the deteriorating performance of the product portfolio the Insurer did opt to increase the premiums. What other principle options would he have had to stabilize or improve the performance of the portfolio? You may describe measures for new and renewal business separate. (4)
  5. The premium table of the portfolio described under 2.2 looks like the following:

Age	Female	Male
0-35	1000	850
36-55	1400	1600
56-65	2800	3000
65-75	3200	2700

Based on this information what could likely be an important reason for the experienced deteriorating performance? Please mention also what average incident rate you would expect for an inpatient product. (4)

**[17]**

- Q 3)** The product development team of a health insurance company discusses the option of guaranteeing the premium of its retail reimbursement health product for at least 3 years or ideally longer.
1. Discuss the risks involved related to this potential change and support your arguments with examples as far as possible. (8)
  2. Describe briefly the expected difference in premiums between the guaranteed and annual renewable product, and describe how to make an estimation of a minimum premium difference. (2)
  3. In terms of market response and pricing, what are the consequences if annual renewable and guaranteed products (with same or similar health coverage) are offered at the same time in the market? (2)
  4. The health insurance company came to the conclusion that the new product should have annual renewable level premiums (e.g., entry age dependent premiums) with expiry age 100. The level premium is based on the currently applicable annual renewable risk rates.
    - a. After 3 years the insurer requires to increase the entry age dependent premium table by 20% due to ongoing medical inflation. How would the existing insured be affected – bearing in mind the level premium structure. (3)
    - b. What potential risks would this mean for the insurer? (2)
- [17]
- Q 4)** Please discuss the notion of “Moral Hazard” as it relates to a Medical policy such as Mediclaim which primarily covers the costs associated with hospital inpatient admissions.
- Specifically:
1. Provide the definition of “Moral Hazard”. (2)
  2. Describe how this notion of Moral Hazard applies to medical insurance such as Mediclaim. (3)
- [5]
- Q 5)**
1. Please list some of the demographic issues in the UK that might affect health insurers. (4)
  2. Please discuss the implications of these issues on health insurers. (2)
- [6]
- Q 6)** Underwriting is an important feature of product design and the effective management of risk.

1. List six ways that medical underwriting can be used to manage risk. (6)
  2. Outline briefly the particular underwriting features of group products in the UK and some other areas. (4)
  3. When underwriting, it is very common to request information such as the current state of health, personal medical history, family medical history, occupation, pastimes and leisure activities. What other information might be requested on a proposal form and why? (2)
  4. List the factors that should be considered in deciding how to approach underwriting a health insurance product. (5)
- [17]

**Q 7)** Capital is needed to issue new products.

1. Explain why this is the case? (3)
  2. Explain how the initial capital needs would typically be determined? (10)
  3. Explain how an insurer's cost of capital translates into a cost for the policyholder? (5)
  4. What happens if the company's supply of capital is exceeded? (1)
  5. How does a product that leads to poor morbidity "tie up capital"? (3)
- [22]

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