

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

20th November 2013

Subject ST1 - Health and Care Insurance

Time allowed: Three 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. ** 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.*
7. *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)**
- i)** Define anti selection in the context of optional benefits (1)
 - ii)** Describe different possible ways in which the risk of anti selection can be allowed for in pricing different optional benefits under a group medical reimbursement policy. (2)
 - iii)** Describe the possible ways in which an insurance company can hold reserves for unexpired risks, given the short term nature of the insurance contract. (2)
- [5]**
- Q. 2)**
- i)** Describe possible approaches to underwriting a short term private medical insurance cover. (4)
 - ii)** Discuss the challenges faced by insurance companies in adopting moratorium underwriting for PMI contracts (3)
- [7]**
- Q. 3)** Company ABC has received some policy proposals which are deemed to represent a higher risk than assumed in the pricing assumption.
- Suggest with reasons the most appropriate underwriting action for the following risks:
- i)** A female applicant for a long term care plan who has high diabetes. (2)
 - ii)** An applicant for income protection plan who is working as a security guard to a politician. (2)
 - iii)** A young energetic applicant applying for critical illness plan who is very fond of rock climbing and mountaineering. (2)
- [6]**
- Q. 4)** As a senior actuary of a health insurance company you are preparing a note on the types of reserve held by the company and the reserving methodology adopted for calculating those reserves. For the purpose of the note:
- i)** List the components of reserve to be held in general and the qualitative factors to be taken into account while estimating the claim amount using a case by case method. (4)
 - ii)** List the possible adjustments that can be made in claims data to improve the reliability of the development factors in calculating the IBNR reserve. (1)
 - iii)** State the main reasons why the development factor approach might not represent the emerging experience correctly. (3)
- [8]**

Q. 5) You are working for a health insurance company which sells mainly income protection plans. The company is currently reviewing its reinsurance plan. The company always obtains reinsurance on a facultative basis.

- i) Explain the term “Facultative” in respect of ceding company and reinsurance company and discuss the advantages and disadvantages of this form of reinsurance to both the parties. (5)

You have asked two reinsurers to provide quotes for your portfolio which includes 50,000 policies as on 31st March 2013, which is split into

- 45,000 policies with 50,000 annual benefits
- 4,000 policies with 150,000 annual benefits
- 1,000 policies with 200,000 annual benefits

XYZ reinsurer has offered 75% quota share with a maximum retention for the ceding company of Rs.100,000 per annum per benefit. ABC reinsurer has offered a surplus arrangement with retention limit for the ceding company of Rs.75,000 per annum per benefit.

- ii) Calculate the reinsured sum insured in respect of the above policies under the arrangement proposed by XYZ. (2)

- iii) Explain which reinsurance arrangement is more suitable for the Income Protection portfolio of the company. (2)

[9]

Q. 6) A health insurance company is considering entering into a bancassurance partnership. As the company’s marketing actuary, you have been asked to prepare a business case for procuring business through this channel.

Describe the points you would make in your report in relation to each of the following:

- i) The bancassurance as a distribution channel and the major objective achieved using such an arrangement. (2)

- ii) The key advantages to the company through a bancassurance tie up. (2)

- iii) The kind of health products that can be sold through this channel highlighting specific features of the proposed products. (4)

- iv) The various customer segments to which the company would sell health insurance products through a bancassurance channel. (4)

[12]

- Q. 7)** A health insurance company has been selling a regular premium traditional 3 year renewable standalone critical illness plan for the last 10 years. Currently this plan includes only four critical illness conditions. The company is planning to sell a new product with 11 critical conditions on a unit linked platform.
- i)** Explain how the withdrawal experience would be analyzed, monitored and used to set assumptions for the new unit linked plan. (10)
 - ii)** Explain how the investment strategy of the company would change. (2)
- [12]**
- Q. 8)** A company offers regular premium traditional without profit pre-funded long term care products to its customers.
- i)** Explain the risks faced by the company in selling such products. (4)
 - ii)** Discuss the factors you would consider when setting the supervisory valuation basis for this business (6)
 - iii)** Suggest what type of asset the insurance company should hold. (3)
- [13]**
- Q. 9)** You are a senior pricing actuary of a health insurance company whose portfolio consists of mainly PMI products. The Head of Sales feels that in order to make the existing products more attractive to customers, the company should start offering additional benefits such as maternity benefit and dental benefits.
- i)** Outline the main drawbacks of using a formulae approach for calculating premiums for the additional benefits (2)
 - ii)** Describe the general considerations that should be kept in mind while setting assumptions for pricing the additional benefits (6)
 - iii)** Discuss the product development and pricing considerations that would be made before providing such new benefits (6)
- [14]**
- Q. 10)** You are the valuation actuary for a well-established health insurance company which writes mainly income protection plans.
- i)** Outline the measures you would take to ensure that the data used for claim analysis is complete and accurate. (8)
- The Board of Directors have asked you to prepare a report on how the recent claims experience might be improved.
- ii)** List the points you would cover in your report to the Board of Directors on ways of improving the claims experience. (6)
- [14]**
