

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

04th November 2015

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 you are required 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)** A health insurance company mainly sells individual PMI indemnity plans and critical illness plans.
- i)** Explain the reasons the company would analyse its new business data, and describe the types of analysis that would be carried out. (7)
 - ii)** Comment why the company would analyse its persistency experience. (4)
- [11]**
- Q. 2)** A large well-established health insurer which writes only individual PMI and IP business is planning to launch a new Long Term Care product. A student actuary has prepared its pricing model and has generated premium rates for males and females for different age groups.
- Outline the checks that should be performed to ensure that the results from the pricing model are correct. **[10]**
- Q. 3)** You are an actuary of a new health insurance company “Happy Health Ltd” which is planning to launch two new health insurance products; one is indemnity based medical reimbursement product for individuals and the other is group income protection product for corporate clients. The CEO of your company has asked you to prepare a note for the actuary of a leading reinsurance company, describing the various types of reinsurance arrangement that might be suitable to manage the risks under these products for your company.
- i)** Describe the suitable reinsurance arrangements for these products, which you would cover in your note. (6)
 - ii)** Outline the advantages and disadvantages of the suggested reinsurance arrangements to enable the management of the company to finalise a suitable reinsurance strategy. (4)
- [10]**
- Q. 4)**
- i)** Define embedded value of a health insurance company (2)
 - ii)** State four reasons why the analysis of embedded value movement is important. (2)
 - iii)** Describe the principles of setting statutory reserves for a health insurance company which is selling long term individual health insurance products. (5)
 - iv)** Outline the types of reserves that the company would need to hold for the long term individual health insurance policies sold by it. (2)
- One of the directors of a health insurance company has observed that future surrenders of the existing policies have been ignored in setting the supervisory reserves and asked the Valuation Actuary to explain if this is consistent with the principles of setting supervisory reserves of the company.
- v)** Explain the points which you would make in your reply. (4)
- [15]**

Q. 5) You are part of an actuarial team which is designing a pre-funded income protection plan. You have been assigned to produce a short report comparing the benefits offered by competitors in the market.

- i)** List the features that you would consider in your report. (4)

The company has decided to launch a new individual health insurance product for gym instructors. The product would pay out a fixed benefit of Rs 6,000 per week whilst the instructor is unable to work due to a work-related injury. The product would be renewable annually.

The initial underwriting for this product will be done using a short questionnaire with exclusions of pre-existing work-related conditions.

- ii)** Suggest the possible rating factors for this product. (3)

- iii)** Discuss the most appropriate distribution methods for this product. (3)

- iv)** Describe the risks specifically associated with this product for the insurer. (6)

[16]

Q. 6) You are the investment actuary of a health insurance company which sells both short term and long term health insurance policies.

- i)** Describe the fundamental principles of investment that should guide the investment strategy. (3)

One of the directors of the company has observed that the overall investment return earned on assets belonging to annually renewable PMI products is lower than the returns earned on the assets belonging to long term health insurance products. He suggested that the fund manager should be advised to align the investment strategy for PMI product with the investment strategy of other long term products, to increase the overall investment returns under PMI business.

- ii)** Discuss the suggestion made by the director to align the investment strategy for the annually renewable PMI products with that adopted for long term products. (5)

[8]

Q. 7) An established health insurance company XYZ is a market leader in selling fixed benefit health insurance products. Under the fixed benefit products the claim payments are made for fixed amounts linked to the nature of defined illnesses. The Board of XYZ wants to leverage its experience and strengths by introducing reimbursement based annually reviewable medical insurance products for individual life.

Describe the various risks associated with such a strategy of introducing new reimbursement based indemnity products. [10]

- Q. 8) i)** Outline the four key objectives that a government would wish to achieve by providing healthcare to its citizens. (4)

The country of ACTUARIA has a State funded policy to provide healthcare services to all its citizens. This has turned out to be very expensive in the last few years due to the increasing cost of healthcare services.

The government of ACTUARIA is planning to re-design the State healthcare policy in order to increase self-provision and reduce the funding burden on government. The government has hired you as an external consultant to design the policy.

- ii)** Outline the key factors that should be considered in designing the policy. (10)

The government is further planning to provide State-funded income benefits, payable weekly, for those who are unable to earn a livelihood as a result of sickness or injury. The weekly income benefit will be 80% of the individual's average weekly earnings in the last thirteen weeks of his employment. This benefit will be paid for the first 26 weeks of sickness. The subsequent benefit will be 40% of the average national earnings with increases of 5% after each 12 months.

- iii)** Discuss the advantages and disadvantages of the scheme for the government. (6)
[20]
