

# INSTITUTE OF ACTUARIES OF INDIA

## EXAMINATIONS

12<sup>th</sup> May 2015

**Subject SA1 – 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 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 candidate 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.*
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 Life Insurance Company is considering launching a Unit Linked Health Insurance Indemnity Plan. Under the Plan, the Company shall provide comprehensive hospitalization insurance cover together with the benefit of health saving account. This entitles the policyholder to claim reimbursement from the health savings account for health care expenses incurred by the insured which are not covered under the hospitalization benefit. Some of such expenses include medicines and drugs, diagnostics expenses, co-pays or deductibles etc.
- i)** What could be the possible charges applied to the policyholder under the plan? (2)
  - ii)** In order to take pricing decisions, discuss how the Company will project the charges for this product? (8)
  - iii)** How critical investment return will be for such a product for the policyholder and the insurer? (4)
  - iv)** What could be the other salient features of the product in order to protect shareholders and policyholder's interest? (8)
  - v)** Suggest possible underwriting approach for the product? (2)
  - vi)** In order to mitigate the morbidity risk, the Company is also considering reinsurance arrangement. Discuss, what type of reinsurance is best suited for this product and the factors the Company will consider before deciding on final Reinsurance structure? (3)
  - vii)** Given the Indian regulations, what challenges/constraints the Company might face in deciding the product design and pricing for such a product? (3)
- [30]**
- Q. 2)** A General Insurance Company currently predominantly sells Motor, Fire and Marine Insurance. Currently, it doesn't sell any Health Insurance business. In the recent annual board meeting, it is decided that the Company now wants to focus on Health Insurance and is open to various options for growing this line of business.
- i)** As a consultant actuary to the Company, you have been asked by the CEO to prepare a note on the various options available to grow the health business along with the relative pros and cons. Prepare the note. (8)
  - ii)** Basis the note and further discussions, it has been decided to perform an actuarial due diligence on the health book of an existing General Insurance Company for a potential buyout of the Health book only. List down the data requirements and discuss the steps involved in reviewing the adequacy of reserves and solvency calculations as part of the due diligence. (7)
  - iii)** Besides this, you have been asked to perform the valuation of the existing Health book of the General insurance Company. Elaborate on the steps involved in performing the valuation of the business using Discounted Cash-flow Method.

Further, it is expected that the Health distribution (Agency force selling Health policies only) and the Health underwriting and claims system is likely to be transferred along with the Health business. Comment on how would you place a value to such transfer? (8)

iv) To be in a better position to take informed decisions, the Company has also requested you to prepare a post takeover joint business plan (Revenue account, Profit & Loss Account, Balance Sheet and Cash-flow Statement) for the next 5 years. Discuss the factors you will consider in preparing the business plan. (9)

v) What are the implications to the policyholders of the acquired company? (3)

vi) Based on the valuation in (iii), and the business plan in (iv) above, the acquiring company expects to sell the Health book in open market in 5 years' time at a price of 3X of the current valuation. Suggest how would you calculate the internal rate of return on such a transaction? (3)

[38]

**Q. 3)** You are the product Actuary in a Health Insurance Company in India which has been doing PMI business for the last six years. Your company has decided to introduce an aggregate deductible based PMI product in the market. The Marketing Head has requested you to design a product and determine premium.

i) Discuss the factors you will consider while designing the proposed product. (6)

ii) Explain in detail the steps you will follow to build the Actuarial pricing model to determine the risk premium of an individual risk based policy for the proposed product. (10)

iii) What additional adjustments, you will be required to incorporate in the model in order to ascertain the risk premium of a floater based policy for the proposed product? (5)

iv) Discuss in detail how and what additional adjustments you will make to derive the final premium along with the reason. (6)

v) Share your thoughts on the right marketing strategy of this product. (5)

[32]

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