

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

28th May 2014

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)** Define the following terms:
- a) No Worse Terms
 - b) Capitation
 - c) Community Rating
 - d) Personal Capability Assessment [4]
- Q. 2)** i) List the benefits which are normally covered in private medical insurance (PMI) plan and the exclusions. (3)
- ii) To overcome some of the limitations applicable to PMI products, an insurance company is thinking of combining PMI products with other forms of health insurance products.
- Outline the advantages and disadvantages for both customers and insurance companies of offering PMI as a combined product with critical illness. (4)
[7]
- Q. 3)** The insurance regulator has recently announced a guideline which allows individual tied agents of a life insurance company or a non-life insurance company to serve one standalone health insurance company as well.
- Discuss the possible advantages and disadvantages of the stated regulation for a standalone health insurance company. [6]
- Q. 4)** The following methods are being considered by an insurer as a way of reducing claims costs under its PMI products. Discuss the advantages and disadvantages to the insurer of each method.
- i) No claim discount of 10% of premium for each claim free year which can accumulate to a maximum of 50%. Following a claim, the discount decreases in the same manner as it was increased (2)
 - ii) A fixed level of excess applicable to each claim. (2)
 - iii) A limit on total amount of claims payments in a year. (2)
- [6]
- Q. 5)** A large health insurance company in a developing country has shown a cumulative annualized growth rate of 30% per annum over last seven years. The average combined loss ratio for health insurance business has been above 100%. This has drawn the attention of the Government which is considering taking steps to control the environment in which companies operate. Describe the steps that could be taken by the Government to control the loss ratio without compromising the growth of the health insurance industry. [10]
- Q. 6)** A health insurance company sells critical illness cover contracts. The proposal form contains questions on the applicant's current and past medical history and treatments. The company requests a full medical examination of the applicant if:
- the applicant has been diagnosed ill or taken treatment within last 5 years or
 - the proposed sum insured exceeds a certain limit.

The sales team insists that calls for an additional medical examination should be done away with and instead the terms to be offered should be determined on the basis of information in the application form alone.

- i) Discuss the advantage and disadvantage of the proposed change for the company. (7)

Two years after the change has been implemented, the company is reviewing the impact of the change.

- ii) Describe the investigations the company would carry out to do this. (10)

[17]

Q. 7) The government of a developing country has proposed to sponsor a group health insurance scheme for families whose income fall Below Poverty Line (BPL). The government has asked health insurance companies in the country to propose health schemes for the group for which the companies would receive premiums defined by the state government.

- i) Describe the key features of the benefit coverage that would be useful to the target population (3)

- ii) Discuss how the enrolment process of the BPL families into the scheme could be structured (3)

- iii) Discuss the challenges the insurance companies might face in enrolling the families (4)

- iv) Discuss how the companies might deal with the challenge of a lack of credible data for pricing and reserving (2)

[12]

Q. 8) i) List the ways in which the results from the experience studies for the health insurance portfolio can be used in the business. (4)

- ii) The renewability trend and loss ratio for 13,490 new policies sold in 2007 under yearly renewable inpatient indemnity product is given below in the table:

Year	Loss Ratio	No. of Inforce Policies
2007	56%	13,490
2008	60%	12,141
2009	72%	9,470
2010	81%	7,481

- a) List possible reasons for the trend of increasing loss ratios (4)

- b) Describe the disadvantages of analyzing experience on a policy year basis (2)

[10]

Q. 9) A medium sized health insurer writes most of the health insurance products except long term care plan. The company is reviewing the reserving methodology for its PMI products.

- i) Describe the steps that insurer should consider when calculating reserves for unexpired risk. (7)

- ii) Describe how each of the following situations would affect the reserves for existing business of accelerated critical illness, income protection and a PMI product:
- Improvements in recovery rates from cancer.
 - An extensive flood in a large city
 - An increase in the take-up rate of a diagnostic test for a serious cancer, following a high profile celebrity awareness campaign.

(9)

[16]

Q. 10) You are the valuation actuary of a health insurance company writing only accelerated critical illness business.

For accelerated critical illness business, the gross sum assured is INR 102 mn and mathematical reserve is INR 13 mn as on Dec 31st, 2013. The reinsurance arrangement is 40% quota share.

The following table shows the balance sheet items of the company as on Dec 31st, 2013.

Items	INR Million
Policyholders' Assets	16
Shareholders' Investments	189
Current Assets	12
Policyholders' Liabilities	13
Current Liabilities and Provisions	2.5

The regulatory required solvency margin (RSM) is calculated using various factors. The first factor is calculated on reserves and the second factor is calculated on the sum at risk where,

First Factor = Max (85%, Net Reserves/Gross Reserves)

Second Factor = Max (50%, Net Sum Assured/Gross Sum Assured)

The Sum at risk is calculated as the total sum assured less the mathematical reserves

The Required Solvency Margin = First Factor * Gross Reserves + Second Factor * Sum at risk

The company has inadmissible assets worth INR 3.4mn which are not to be considered for available solvency capital (ASM).

Solvency Ratio is calculated as ASM divided by RSM.

- i) Calculate the solvency ratio as on Dec 31st, 2013. (3)
- ii) Describe four major actions that the company can take to improve its solvency position. (4)
- iii) The company is planning to launch a With Profit Income Protection product as a new line of business.

Explain how the company can use a model office approach to project future capital injection requirements and solvency positions for the business. (5)

[12]
