

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

15th September 2016

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 inside the cover 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 leading health insurance company has been writing substantial amounts of fully underwritten regular premium Individual Income Protection business through direct sales force for many years. The product pays a regular monthly income that increases annually in line with retail price inflation and the amount that it has risen to is paid whilst the policyholder is unable to follow their own occupation due to illness or accident (and it is also indexed whilst in payment).

A few years back the company added an option to the product that allows both existing and new policyholders to buy a critical illness rider after completion of 5 policy years without further evidence of health, for rest of the policy term, for a sum assured equal to 100 times' the original monthly income.

The Company has hired you as a consulting actuary to review the appropriateness of assumptions used in the calculation of reserves for its last statutory reporting.

- i)** Outline the principles that you would take into account while reviewing each of the following assumptions for the product:
- a)** Morbidity
 - b)** Expenses
 - c)** Valuation rate of interest

(12)

You notice that the valuation rate of interest used by the company is significantly higher than those used by other health insurers in the market for similar products.

- ii)** Discuss briefly the possible reasons for this. (3)

The take up rate for the critical illness rider is observed to be 3%.

- iii)** Discuss the possible reasons for such a low take-up and the measures that the company can take to improve the take-up rate. (6)

[21]

- Q. 2)** You are the pricing actuary working for a life and health insurance Company that writes individual Term Insurance, Hospital Cash and Critical Illness products. The Company is planning to launch a PMI product to be sold both individually and on a group platform.

- i)** Outline the typical features available under a PMI product. (4)

Apart from the typical features, the Company has decided to include the following features in the product that are first of their kind in the market, in order to be innovative and to differentiate itself from its competitors:

- Emergency medical transportation and medical second opinion services
- Speciality medical treatment overseas to the extent that such a treatment is not available in the country, including the cost of transportation for the insured and one accompanying person

- ii) State the assumptions required to price the PMI product and the likely key sources of data for setting those assumptions. (11)
- iii) Explain the key risks to the company of launching the product and the risk mitigation options. (7)
[22]

Q. 3) A leading software company has entered into a joint venture agreement with a renowned international hospital chain to form a health and care insurance company that will offer a variety of health and care products sold only online via the internet. The health and care insurance company (referred to as the 'company' hereinafter) will leverage the partners' expertise and infrastructure to commence the operations quickly.

You are a consulting actuary and the company has asked you to prepare financial projections to be included as part of the business plan to be submitted to the regulator. The projections should include projected Revenue Account, Profit and Loss account, Balance sheet, Capital requirements and Solvency position for each of the first 5 years of operation of the company.

- i) List the information you would require from the company for the projection exercise. (3)
- ii) Discuss the assumptions you would require for the projections. (11)
- iii) Outline briefly how the solvency capital requirement for the company would be projected. (3)
[17]

Q. 4) You are the newly appointed chief actuary of a health and care insurer that has written individual Income Protection, Critical Illness and PMI products for the last 10 years. The company has been reinsuring on a risk premium 50:50 quota share basis.

The CFO is concerned that the current reinsurance arrangements are giving away too much profit to the reinsurer and has requested you to review the arrangements and recommend alternatives as appropriate.

- i) Describe the analysis you would carry out for the review. (9)
- ii) Outline, apart from the reinsurance premium to claim recovery, the other factors you would take into account in coming up with your recommendations. (4)
[13]

Q. 5) You are the product development actuary of a leading life and health insurance company. The CEO of the company has asked you come up with a pre-funded long term care product for physically challenged persons to meet their needs for care after attaining 60 years of age. The intention is to go to the Government with the product design and seek premium subsidy for the policyholders.

- i) Suggest a suitable design for the product. (8)

The Chief Investment Officer of the company has suggested that all investments for the product should be made in Government securities.

- ii) Comment on this suggestion. (4)
[12]

Q. 6) A health and care insurer has been selling only individual PMI policies, mostly through tied agents. It has now decided to launch a Group version of the product.

- i)** Outline the differences in terms of underwriting between individual and Group versions of the PMI product. (4)

The marketing director of the Company has suggested that the Group PMI product should be distributed through brokers only.

- ii)** Discuss the merits of the suggestion. (6)

A recent study of the PMI products experience in the market by one of the actuarial consulting firms revealed that the Group PMI products are making underwriting losses while the individual products are marginally profitable.

- iii)** Discuss the possible reasons for the difference in the level of profitability of the individual and group PMI products. (5)

[15]
