INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

04th May 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 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 insurer offers both long term individual and yearly renewable group income protection products.

i) Outline the key purposes of underwriting (4)

ii) Suggest possible rating factors for these products. (3)

The insurer has identified that its cost of operations with respect to these products has increased significantly over recent years.

iii) Suggest possible reasons for this. (12)

In order to reduce costs, the insurer is proposing to simplify the underwriting at the time of proposal from 'full medical underwriting' to a 'close-ended Short Medical Questionnaire (SMQ) (that is, the questions will require a 'Yes' or 'No' response) based underwriting' for the individual product and no individual member level underwriting for the group product.

iv) Discuss the likely impact of the proposed changes to the underwriting on the morbidity experience of the products. (6)

[25]

Q. 2) A leading health insurer has been writing substantial amounts of yearly renewable individual Private Medical Insurance (PMI) business for the past 8 years. The product offers guaranteed renewability for life of the policyholder.

i) Outline the reasons why the persistency experience of the product should be monitored regularly. (4)

The insurer's market share for the PMI business has fallen sharply in the last year due to cuts in premium rates by competitors. Hence, the insurer has decided to review the premium rates for its PMI product.

ii) Describe all the steps that would be involved in the review. (18)

Profit testing using the lowest premium rates offered by one of the competitors implies a significant reduction in the insurer's profitability

iii) Suggest with reasons possible measures that the insurer could undertake to improve its market share without compromising on profitability. (6)

[28]

Q. 3) You are the valuation actuary of a health insurance company. A member of the Board of Directors of the company has commented that the solvency capital locks in funds in an unproductive manner and therefore the company should not provide for any additional capital when provisions for policy liabilities have already been made in the form of reserves.

Discuss the reasons for companies holding solvency capital and its interaction with the mathematical reserves. **[4]**

Q. 4) A large and well established life insurance company has decided to make a foray into health insurance by first launching an innovative hospital cash product. The product is an individual long term product with guaranteed renewability for life and premium rates remain level and reviewable every five years. It pays out a cash benefit, for a continuous period of hospitalization, of X per day for the first week of hospitalization, 2X per day for the second week, 3X per day for the third week and so on. The maximum number of weeks for which the benefit is payable is 12 weeks in any given policy year and 52 weeks for the life time. The policyholder can choose X from INR 1,000 to INR 5,000 in multiples of INR 1,000.

i) Briefly explain the various types of reinsurance arrangement that can be considered for the product. (7)

ii) Discuss the various aspects that the company has to consider in order to determine the type and level of reinsurance for the product. (7)

[14]

Q. 5) You are the appointed actuary of a health insurance company which has been selling a long term critical illness indemnity product for the past 5 years. The product reimburses the actual expenses incurred for treatment of critical illnesses listed in the product, subject to a maximum of the sum assured. The premium rates are guaranteed for three years. No other insurance company in the market is currently selling this type of product.

The insurance regulator requires a review and submission of all health products for fresh approval every five years after launch.

i) Outline the aspects that the regulator would expect you to have examined before submission for fresh approval after five years. (7)

The Chief Claims Officer of the company has proposed that the maximum amount payable should be linked to the severity of the illness and so should be different for different critical illnesses covered.

ii) Comment on the proposal. (4)

[11]

Q. 6) A life insurance company offers an option under its 10-year without-profits term insurance policies to purchase a 20-year Critical Illness term insurance policy, at the expiry of the 10-year term, for a sum insured equivalent to that of term insurance, without further evidence of health.

i) Describe the key risk to the insurer of offering the option and how it can be mitigated, including any suggestions on amending the product features. (7)

A policyholder aged exactly 25 years wishes to purchase a 10-year without-profits term assurance policy, for a sum insured of INR 50 lacs.

ii) Calculate the additional single premium, payable at the outset, for the option using the conventional method, on the following assumptions:

Mortality: AM92 Select
Critical Illness Incidence: AM92 Select rated up 10 years
Interest rate: 4% p.a.
Ignore expenses. (5)

[12]

Q. 7) You are the investment actuary of a fast growing health insurance company writing an individual pre-funded Long Term Care product. A member of the Investment Committee of the company has proposed that the assets and liabilities of the product would need to be matched as closely as possible in order to improve solvency and investment returns.

i) Comment on the proposal. (3)

ii) Outline with reasons the types of assets that would closely match the product liabilities. (3)

[6]

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