INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

27th November 2012

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 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 offering all types of products currently sells through agency and own sales force. It is now also considering “Direct Marketing” and “Worksite Marketing” to increase sales

[i] Explain briefly how the ‘Direct Marketing’ and ‘Worksite Marketing’ typically work and their advantages over agency and own sales force. (4)

[ii] Discuss the suitability of selling through the ‘Worksite marketing’ for each of the main types of health and care insurance products (3) **[7]**

Q.2) You are a consulting actuary advising a newly setup Health and Care Insurer which is considering buying a portfolio of individual Long Term Care business written by a well established Health and Care Insurance Company.

[i] Explain briefly an approach to determining the profitability of the portfolio that your client is considering buying. You should indicate how you would assess the level of statistical risk. (5)

[ii] Discuss other critical factors that should be considered in determining the final purchase price of the individual Long term care portfolio. (6)

[iii] Outline the reasons why the claims experience of the future new business from the purchased portfolio could be very different from the future claims experience of the existing business from the purchased portfolio. (6) **[17]**

Q.3) A large Healthcare Insurance company is writing without-profits, individual long-term income protection contracts. Premiums and benefits are fixed and level for the duration of the contract. The contract pays an income benefit while the policyholder is unable to work because of illness or accident, up to an expiry age of 65. No benefit is payable on expiry, death or withdrawal from the contract. Premiums are not paid by the policyholder during a claim.

[i] List the data required for estimating the transition rates for pricing an Income Protection product and explain how transition rates could be derived using these data (4)

[ii] Discuss ways of reducing the claims payout and hence the premium for a long term Income Protection product.

The company is now considering introducing an Income Protection product on a unit-linked platform. (6)

[iii] Describe the steps that should be followed when using a model to set the charges under the new unit-linked income protection product.

It has been suggested that since a large part of the investment risk to the insurer is passed on to the policyholder under a unit linked contract "Investment performance is not critical for the insurer". (8)

[iv] Comment on the statement. (4) **[22]**

Q.4) You are the pricing actuary of a leading reinsurer who has been approached by a large health and care insurer to develop an individual critical illness product that pays out a lump sum on diagnosis of one of the conditions listed. It has been proposed to add permanent mental health condition to the list of conditions covered. Such a feature will be first of its kind in the market.

[i] Describe the advantages and disadvantages of providing payout on mental health condition under a Critical Insurance product. (7)

[ii] Outline how you would develop the incidence assumption for the mental condition. (4)

[iii] Discuss a suitable reinsurance arrangement for the product. (2)

The marketing director has proposed introducing a critical illness product which provides a benefit in the form of an annual income from the date of diagnosis of critical illness till the end of the policy term or death. None of its competitors is currently offering critical illness products with this type of benefit payment.

[iv] Discuss the proposal and the risks associated with it. (8) **[21]**

Q.5) The government of a developing country is planning to introduce a health insurance scheme for the BPL (Below Poverty Line) families throughout the country. The scheme works as follows:

Hospitalization expenditure up to Rs 30,000 per year is reimbursed for a family of up to five members on a floater basis.
The payouts for various types of treatment are pre-defined.
Transportation allowance of Rs. 100 per hospitalization will be paid (with a limit of Rs. 1000 per year.)

The scheme will cover all pre existing diseases from day one and there is no age limit on the enrolment of the beneficiaries. After enrolment, a smart card is issued to the members for identification of the beneficiary through photograph and fingerprints, information regarding the patient and cashless transactions at the empanelled hospitals and portability of benefits across the country.

The Government will select insurance companies through an open tendering process and the technically qualified lowest bid will be selected. The entire country is split into zones and the insurance companies can bid for one or more of the zones. The Government will provide an upper limit for the premium rate for each zone, which is set in consultation with the insurance broker who manages the bidding process. Only one insurance company will be selected to cover the risk and administer the scheme in each zone. The premium quoted should be a unit rate per family and so could vary only by zone.

You are the appointed actuary of one of the proprietary insurance companies which has been asked to tender.

[i] Outline the factors you will consider before deciding on bidding for the business. (9)

[ii] Describe the risks involved in writing the business and how they may be mitigated. (10) **[19]**

Q.6) A health insurance company is selling a 10-year single premium without profit critical illness product which pays out a lump sum on the diagnosis of one of the illnesses listed in the policy. The product has an option for allowing the policy holder to increase the sum insured by 50% at the end of 5th policy year without providing any further evidence of health at the normal premium rates at the date on which the option is exercised.

Describe how you would calculate the cost of the option using stochastic modeling, stating any limitations of the approach. **[7]**

Q.7) You are working as the product development actuary of a small standalone health insurance company which writes both short term and long term health insurance business. Recently a new Managing Director has joined your company. He has heard the terms ‘Financial reinsurance’ and ‘Reinsurance financing’. You have been asked to prepare a short note on the same covering features and uses of such types of arrangements and any other issues which are relevant to consider.

Outline the points you would include in your note. **[7]**

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