

INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

1st December 2022

Subject SP1 – Health and Care

Time allowed: 3 Hours 15 Minutes (10.15 – 13.30 Hours)

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. 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.*
- 3. Attempt all questions beginning your answer to each question on a separate sheet.*
- 4. Mark allocations are shown in brackets.*
- 5. 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. You are not allowed to carry the question paper in any form with you.

- Q. 1)** The regulator has recently issued a guideline for standardization of certain exclusions in health insurance indemnity policies.
As per the guideline, some of the exclusions such as modern treatment and advanced technology treatments are now required to be covered.
- i)** List possible reasons for the regulatory decision for standardizing exclusions. (2)
 - ii)** Discuss the factors you would consider in revising your morbidity and severity assumptions to allow for the impact of including some of the earlier exclusions, as part of the health insurance indemnity policy. (4)
- One of the health insurance companies is exploring to launch a health insurance policy which will cover the policyholder for all medically necessary treatments that would require 24-hours hospitalization and day care surgeries.
- iii)** Discuss the challenges related to the sources of data that the insurance company will face and how they can be overcome. (5)
 - iv)** Discuss the factors you will consider while assessing the above proposal. (5)
 - v)** Discuss the main risks associated with this product and how they can be mitigated. (5)
 - vi)** What are the riders that can be offered along with this product? (4)
- [25]**
- Q. 2)** A health insurance company is considering design of an outpatient (OPD) insurance policy. This policy will typically cover the outpatient expenses incurred by an individual on a day-to-day basis such as consultations, diagnostic tests, vaccinations and medicines.
- i)** Comment on the need for such a product. (2)
 - ii)** What are the advantages and disadvantages of having this product for the policyholder as well as the insurer. (5)
- [7]**
- Q. 3)** The regulator of a particular country has recently issued a circular that will allow both non-life and life insurance companies to offer long-term health insurance products i.e., beyond a period of 5 years.
- i)** Outline the main risks faced by the insurance company when providing a long-term health insurance product. (5)
 - ii)** List with description some of the long-term health insurance products that the insurers can offer. (5)
 - iii)** Suggest ways in which a reinsurer can help the insurance company with the proposed product. (5)
 - iv)** Suggest a reinsurance structure suited for the proposed long-term health insurance product. (3)
- [18]**

- Q. 4)** You are working in a large health reinsurance company. Your manager has requested to evaluate Incurred But Not Reported (IBNR) claims reserves for statutory purpose using one of the following methods for Health Indemnity Portfolio:

Method 1: Investigate the historic development of claim numbers to estimate the proportion of claims expected to be unreported as at a certain date for a particular cohort of policies in force. Multiply this by the past average PMI claim size to get the IBNR reserve.

Method 2: Use a standard triangulation technique to project total claims reserves and deduct the reserves for outstanding reported claims.

Method 3: Take IBNR to be a fixed proportion of the reserve for outstanding claims reported in the previous accounting year.

- i) Discuss the appropriateness of each of these methods with suitable examples. (11)
 - ii) Outline briefly the data issues specific to reinsurers accepting inward reinsurance that you should consider when calculating the IBNR reserves. (6)
 - iii) Outline the additional analyses you should carry out before finalizing the IBNR reserves with appropriate examples. (13)
- [30]**

- Q. 5)** A large insurer has a portfolio of Health, Critical illness, Travel and Personal accident insurance products. In the last month few very large claims were reported from a plane crash and a boiler explosion in a factory. These claims have not yet been paid as closure reports of investigation are still awaited.

Describe three key risks/uncertainties to solvency arising because of the events mentioned and explain how the insurer can reduce its exposure to each. **[6]**

- Q. 6)** You are working in an actuarial consultancy firm and the management of a health insurance company has approached your firm to understand following:

- i) Scenarios when case estimation is more suitable than statistical estimation of claims reserves. (3)
- ii) List the factors that a claims assessor would consider when estimating the ultimate claims cost for an individual private medical insurance claim. (3)
- iii) The client has shared details of experience analysis of their Individual Health portfolio which reveals that the incidence rates have significantly increased in last two quarters. An in-depth analysis of the In-patient Hospitalization rate indicates that doctors are admitting patients with minor ailments so that patients can recover cost of treatment as the insurer does not cover OPD treatment in its products.

Suggest ways to mitigate this risk to a health insurer. (8)

[14]
