INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

November 2025

SP1 - Health and Care

Time allowed: 3 Hours 15 Minutes

Total Marks: 100

Q. 1)

i) Define what the following terms mean when applied to Health Insurance product pricing

a) Risk Factor and Rating Factor (2)

b) Experience Rating (1)

c) Credibility Factor (1)

d) Burning Cost (1)

ii) List the reasons why a simple comparison of premiums and claims paid in a calendar year may fail to give a proper view of the profitability of a group disability contract.

(5)
[10]

Q. 2) You are the pricing actuary working for a health insurance company. You have been asked to give advice in respect of a large group hospital cash scheme insured with the company.

i) Describe the key features of a typical hospital cash contract. (4)

You have extracted from the company database the following historical data on one group scheme for hospital cash contract for the 2012 to 2016 scheme years.

Policy UW Year	Gross Written Premium	Incurred Claims
	In INR'000	In INR'000
2012	150	130
2013	160	145
2014	100	105
2015	120	110
2016	140	130

Rates increased for the 2014 scheme year by 10%. There has been no other rate Changes. You also know that claims inflation has been running at 1% per annum over this period for this group scheme.

ii) Before renewal of the scheme in 2017, the client wants to understand the loss ratio of the scheme as of 2017 in current terms. Calculate the loss ratio that can be expected for 2017 for this group assuming that there is no rate increase at the 2017 renewal, based on all the historical experience and the rate change and inflation assumptions given above, stating any assumptions you make. (8)

iii) Calculate the rate increase required at the 2017 renewal to bring the target loss ratio for this group for the 2017 scheme year up to 85%. (1)

iv) State any other information other than claims experience that you would require for determining whether this group scheme can be profitable in 2017. (4)

v) Suggest possible reasons why the claim inflation rate is so low. (3)
[20]

Q. 3) The pricing team in a health and care insurance company is reviewing its approach to allowing for the non-financial risks of the products that it is writing. Financial risks are defined as movements in the stock market and in interest rates, and other macroeconomic risks involved in the business. Non-financial risks are all the other risks undertaken.

It intends to implement a change to the approach for its next pricing exercise, which will be for its accelerated critical illness product line.

i) Describe eight non-financial risks to be considered for the accelerated critical illness product. (5)

Three options are being considered for the allowance for non-financial risks:

Option A: the risk discount rate used will be increased to allow for the level of nonfinancial risk in the product, with the same adjustment to the discount rate being used for each product.

Option B: the risk discount rate used will be increased to allow for the level of nonfinancial risk in the product, with a different adjustment being used for each product.

Option C: a margin will be included in each assumption to allow for the risk of adverse deviation.

ii) Discuss the relative merits of each proposal. (12)

[17]

Q. 4)

i) Describe the approach for investigating the expense experience of a health and care insurer. (10)

A small health and care insurer has been experiencing fluctuating new business volumes and increasing expenses for several years. The CFO has suggested the possibility of outsourcing the administration and client servicing functions to an external provider.

ii) List the advantages and disadvantages of this suggestion of the CFO. (8)

[18]

Q. 5) A small health insurance company writes accelerated critical illness, stand alone critical illness and income protection business.

i) Explain why initial underwriting would be used by this company for the purpose of risk management. (5)

An applicant is normally required to disclose any significant change in personal circumstances between the policy application date and the risk commencement date. Failure to disclose this information will result in the health insurance company not paying a claim and cancelling all cover under that policy.

ii) List six personal circumstances that are likely to be included under this requirement. (3)

The company's current underwriting limit at which a medical examination is automatic is in line with general market practice. With the aim of making a significant reduction in underwriting costs, the marketing manager has proposed increasing the underwriting limit of the accelerated critical illness and stand alone critical illness business. The proposed increase is substantial.

iii) Discuss the factors to consider relating to this proposal. (9)

Under the current underwriting model, sales advisers gather all the risk information directly from the applicant and then pass it to the underwriting department. Your underwriting manager has proposed that instead of using sales advisers to gather the risk information, a dedicated team of trained nurses will interview applicants over the phone to gather risk information. The current level of sales remuneration will be maintained.

iv) Discuss the merits of this proposal from the point of view of:

a) Sales advisers
b) Company
c) Customers

(9)
[26]

Q. 6) In the country X where Private Medical Insurance is sold (around 90% of the Health Insurance policies), insurers use strict underwriting to accept the policy proposals. In the process, a significant number of policy proposals are declined.

Insurance regulator has issued a mandate which requires that no policy proposal can be declined. Heath and Care Insurers need to have products for all medical conditions so that no proposals are declined.

i) Discuss the impact of the regulator 's mandate on following

a. Underwriting Policy of the insurers
b. Pricing of products designed for conditions that were declined before the mandate

(4)

The Federal Government has exempted the individual (including family) health insurance polices from Tax which was 18% till now

ii) Discuss the impact of the exemption of tax on all stake holders of Health Care Insurance. (5)
[9]

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