



Institute of Actuaries of India

Statutory body established under an Act of Parliament

Unit No. F-206, 2nd Floor, F Wing, Tower II, Seawoods Grand Central,
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Subject

F2 - Actuarial Theory and Practice of Health Insurance



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Aim

The aim of this subject is to ensure successful candidates can suitably apply the main principles of actuarial theory and practice relevant to [a] the provision of health and care benefits and [b] management of Health Insurance Companies, with particular reference to the Indian context

Syllabus Topics and Expected Learning Outcomes

Introduction

Define the principal terms used in health and care provision in India.

1. Business Environment and Product Landscape:

- Understand and explain the general business landscape of the health and care insurance industry, the products and the value chain of how these products are bought and sold including the competitive environment.
- Describe the legal, taxation and regulatory framework as applicable to health and care insurance and be able to explain how that influences the product lifecycle and risk management.
- Explain the role of the State in the provision of alternative or complementary health and care protection.
- Understand the considerations underlying the provision of national health care systems and examples of how this has been applied in India
- Describe the stakeholders in the value chain and explain their role as applicable to the Indian health and care insurance landscape
- Outline the main types of Health and Care insurance products and evaluating these products from the standpoints of meeting consumer needs; and risks presented to both the insured and insurer.
- Understand the unique aspects of the business environment and product landscape in the Indian context

2. Regulatory and Professional environment -With Particular Reference to the Indian context

- Describe and apply the requirements of Actuarial Professional Standards and guidance relevant to actuaries practicing in Indian health and care operations- particularly the role and responsibilities of the Appointed Actuary.



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- Have an knowledge of, and apply, the legal, taxation and regulatory framework as applicable to Indian health and care insurance

- Acquire a working knowledge of the relevant IRDAI Regulations

3. Product Development and Design

- Outline the main determinants of a health and care insurance contract that meet the needs various stakeholders in the value chain and advise on an appropriate design for a product given a situation
- Compare, contrast and analyse the main types of health & care products
- Discuss the relative merits of different product designs against a variety of attributes and for a given situation.
- Design and price health and care insurance products sold in India, given the various stakeholder's interests and regulations in India
- Understand the working of Mass Health Insurance Schemes that are prevalent in India including their administration, pricing, evaluation, risks, etc.

4. Identification, Assessment and Management of Risks

- Identify and assess the key sources of risk to a health and care insurance company - insurance risks, market risk, credit risk and operational risk
- Understand and evaluate the key risk responses such as underwriting, reinsurance and asset-liability matching strategies
- Understand the sources of operational risks for a health & care insurance company and propose ways of mitigating these risks.
- Understand the role of capital management and its linkage to risk management
- Define economic capital and understand the risk optimization approaches based on economic capital
- Define "Emerging Risks" and discuss a framework for identifying & assessing "Emerging Risks" in the context of a health insurance company.
- Discuss the significance of extreme event management; and the application of scenario analysis & extreme value theory in modelling extreme events
- Demonstrate an understanding of the global best practices related to risk management in the context of health & care insurance companies



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- Understand the risk management practices and capital management strategies adopted by health and care insurers in India.

5. Actuarial Models

- Describe the main purposes and features of actuarial models used in a health and care insurance company - with particular reference to product pricing; calculation of reserves; economic and solvency capital requirements ;and calculation of embedded values
- Compare the different modelling approaches (e.g. deterministic/stochastic and formula/cashflow and passive and active valuation approaches.); and evaluate different types of models for a given purpose.
- Describe features of a multi-state model.
- Discuss the applications of data science in actuarial modelling for health & care insurance applications.
- Demonstrate an understanding of model risk; and parameter risk; and discuss ways of addressing these risks in the context of health & care insurance actuarial models
- Understand and apply the techniques used in pricing health and care insurance products in India
- Outline the various methods of measuring solvency including dynamic solvency testing and risk-based measures.
- Understand the different types of economic capital models; and discuss the approach for designing an economic capital model for a health & care insurance company.
- Understand the risk based solvency frameworks in the global health insurance landscape [e.g. Solvency II]
- Explain how supervisory reserves and solvency capital requirements of a health & care insurance company are determined in the Indian context and the emerging risk based solvency framework in the Indian context.

6. Assumption Setting Process and Experience Analysis

- Describe the principles of setting assumptions for health insurance business.
- Recommend approaches to setting assumptions for various purposes in a specific situation



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- Highlight how different assumptions may be set for different purposes in the Indian context
 - Demonstrate the importance of experience monitoring to a health insurance company and the role it plays in setting assumptions.
 - Describe the typical approaches used for monitoring actual experience with reference to morbidity mortality, lapses, expenses and investment performance.
 - Describe the purpose, benefits and uses of analysis of surplus or profit.
