INSTITUTE OF ACTUARIES OF INDIA

EXAMINATIONS

November 2026

SP1 - Health and Care

Time allowed: 3 Hours 15 Minutes

Q.1) A stand-alone health insurer covers the delivery riders of a large e-commerce logistics company under a group health scheme. Riders are paid per delivery. Riders join via the company's app on self-declaration alone, and the covered population turns over by more than 60% each quarter. Road-traffic injury claims rise sharply each year in the festival months of October–November.

i) List the sources of risk that a health insurer providing this type of group scheme is exposed to. **[5]**

ii)

a) Explain, with reference to the scheme described above, which three of the risks identified in (i) are likely to be most significant, and reasons thereof. **[4]**

b) Recommend actions the insurer could take to manage each of the three risks identified in (a). **[4]**

iii) The insurer is reviewing whether reinsurance would help it manage the volatility in this scheme. Discuss the factors to be considered by the insurer on reinsurance strategy for the scheme, and recommend a structure with justification. **[7]**

[20 Marks]

Q.2) A standalone health insurer is pricing a new individual super top-up health product, with a deductible of ₹5,00,000 and cover of a further ₹15,00,000 above that for eligible hospitalisation costs. The insurer has not previously sold this product.

i) Explain how the equation of value is used to derive the premium for this product, and the main items of data required. **[4]**

ii) The product was priced assuming an annual incidence rate of 1.8% (the probability of a policyholder's claims exceeding the deductible in a year). The insurer has since sold the product to 48,000 policyholders (on average, over the year) and recorded 950 Incurred claims above the deductible in the first year. Calculate the Actual to Expected (A/E) ratio for the number of claims, stating any assumptions you make. **[4]**

iii) Explain why the reserving basis for this product might reasonably differ from the pricing basis. **[3]**

iv) Discuss the extent to which a passive or an active approach would be more appropriate for valuing the insurer's liabilities on this product, and recommend an approach, with justification. **[5]**

[16 Marks]

Q.3) A mid-sized standalone health insurer administers a group health scheme for a corporate client with around 2,000 employees. The insurer proposes adding a wellness feature: employees who complete a company-funded annual health check-up (covering blood pressure, BMI, blood sugar and cholesterol) at a network diagnostic centre receive a flat discount on their premium at the next renewal, regardless of the results.

i) Describe the principles that should be considered when designing a health and care insurance product, and the interests of the stakeholders involved in that process. **[4]**

ii)

a) Explain the product design considerations relevant to introducing this health-check-linked discount feature, from the perspectives of the insurer and of employees. **[4]**

b) Describe the practical and pricing challenges the insurer would need to address in implementing this feature. **[4]**

iii) Critically evaluate whether this health-check-linked discount design is likely to improve the insurer's risk profile and persistency on this scheme, considering the incentives it creates for different groups of employees and any

unintended consequences it may give rise to. Recommend, with justification, any changes you would make to the design. **[8]**

[20 Marks]

Q.4) A health insurer has been selling a combined Hospital Cash (HC) and Personal Accident (PA) product to individuals for three years. HC pays a fixed cash benefit for each day of hospitalisation, regardless of the actual medical expenses incurred; PA pays a lump sum on accidental death or specified injury.

i) State the different types of reserve a health and care insurer would need to hold for this combined product, distinguishing between the HC and PA elements, and explain why it is important for a health and care insurer to monitor its experience. **[4]**

ii) Explain the key assumptions the insurer would need to set for pricing this combined product, distinguishing between assumptions specific to the HC element, specific to the PA element, and common to both. **[4]**

After three years, the insurer's own claims experience for the HC element is not yet fully credible. The insurer has obtained the following information to help set the HC incidence rate assumption at the next repricing:

Insurer's own exposure (policy years)	9,000
Insurer's own observed HC incidence rate (per 1,000 lives)	15
Industry/reinsurer benchmark HC incidence rate (per 1,000 lives)	11
Full credibility standard (policy years)	36,000

(It can be assumed that 1 policy year of exposure is equivalent to 1 life)

iii) Using the partial credibility approach $Z = \sqrt{\frac{n}{n(full)}}$

calculate the credibility-weighted HC incidence rate assumption the insurer should adopt at the next repricing, stating any assumptions you make. **[6]**

iv) Critically evaluate the insurer's use of credibility theory to set this assumption, and recommend, with justification, any further steps management should take before finalising the assumption. **[6]**

[20 Marks]

Q.5) A large Indian financial services group, which currently sells life insurance and asset management products mainly in major cities, is considering setting up a new standalone health insurer to sell individual health cover to middle-income customers in India's smaller towns and cities. Health insurance penetration in these areas is currently low, and most residents currently rely on a mix of out-of-pocket payment and limited state-funded healthcare facilities.

i) Discuss the economic, social, demographic, technological and regulatory factors in the external environment that are relevant to the group's decision to enter this market, and explain how each applies to the specific market described above. **[10]**

ii) Discuss the product design and distribution considerations relevant to reaching this target market, and explain how these differ from the group's existing experience. **[7]**

iii) Discuss the key risks the group would face in entering this market as a new insurer, and the practical steps it could take to address them. **[7]**

[24 Marks]

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