

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

20 September 2022 (am)

Subject SA1 – Health Care Specialist Advanced

Time allowed: Three hours and twenty minutes

<p>In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.</p>
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If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

- 1** Country X has a mainly young and healthy population. Healthcare is provided entirely by the private sector.

For short-term health and care insurance provision, the main products available are individual Private Medical Insurance (PMI) or an individual Major Medical Expense (MME) policy, which pays a fixed amount on major surgery. These products have a maximum acceptable age on application of 65, the most common retirement age in Country X. A significant proportion of the younger population takes MME cover and pay out-of-pocket for other healthcare needs. PMI is most common in those over the age of 50.

For long-term health and care insurance provision, the main products are individual accelerated critical illness and pre-funded long-term care.

- (i) Suggest possible reasons why an individual may prefer MME to PMI. [3]

Company A and Company B are health and care insurers selling both short-term and long-term products, but have significantly different approaches to marketing and distribution. Company A markets to consumers via social media and only sells online, with no advice given to the consumer. Company B markets to consumers through a partnership with a high-wealth credit card provider and distributes solely through financial advisors.

- (ii) Describe, with reasons, the likely profile of each insurer's existing business in terms of demographics, and classes of business written. [6]

- (iii) Comment on, with reference to your answer to part (ii), how the key risks to a health and care insurer's business may differ between Company A and Company B. [10]

- (iv) Suggest, with reasons, appropriate risk management techniques to mitigate the risks identified in part (iii). [5]

Following the most recent submission of supervisory returns, the regulator in Country X has expressed concern about Company A's lack of diversification in the business written. The regulator has therefore asked Company A to 'remedy the situation' to protect policyholders.

- (v) Describe other possible actions the regulator could take to protect policyholders. [3]

News of Company A's situation is made public through the statutory disclosures. Another health and care insurance company (Company C) in a neighbouring country is looking to gain access to Country X and is considering a take-over of Company A. The regulator in Country X requires the involvement of an independent expert in the transfer of liabilities from one insurance company to another.

- (vi) Describe the potential role of an independent expert in this process. [3]

Company C wishes to transfer Company A's liabilities before the next reporting year to take advantage of this opportunity, otherwise the regulator in Country X will impose other conditions on Company A.

- (vii) Assess which of the two main ways that insurance business can be transferred between companies is likely to be preferable for Company C. [4]

[Total 34]

2 Data on drug prescribing and statutory sickness absence pay are publicly available in Country Z, split by geographical region.

In Company X, a health and care insurer based in Country Z, a data scientist in the actuarial team has suggested using this publicly available data to improve the precision of its reserves for long-term individual Income Protection (IP) business.

The actuarial team have the following information available internally:

- Policyholders' underwriting information by geographical region. This includes previous and existing medical conditions, and sickness record in prior years at the time of underwriting.
- Policyholders' claims information by geographical region. This includes the cause of claim and the total number of days of absence from work.
- A list of specific drugs commonly prescribed to individuals with muscular and abdominal pain, a leading risk factor for long-term IP claims. This list was provided by Company X's chief medical officer.

(i) Describe how this information could improve Company X's reserving. [3]

Before progressing with the approach proposed by the data scientist, the chief actuary has asked if using the new sources of information is ethical, in the public interest and whether it would be acceptable to the regulator and the public.

(ii) Discuss the chief actuary's concerns. [4]

(iii) Describe the potential operational challenges associated with implementing the data scientist's proposal. [5]

Following implementation of the proposal, a surplus has arisen. An actuary has been asked to undertake an analysis of surplus. Company X's board needs to prepare a statement regarding the intended use of the surplus for its parent company.

(iv) Describe the benefit to Company X of performing an analysis of surplus. [1]

(v) Describe potential sources of surplus with regard to the revised reserving approach. [4]

(vi) Discuss the potential uses of the surplus. [4]

The analysis shows that business is more profitable in the higher socio-economic geographical regions where most policyholders select guaranteed premiums. Business in lower socio-economic regions, where most policyholders select reviewable premiums, is less profitable. Following the revisions to the reserving process, it has been proposed that premiums be adjusted to reflect the improved understanding of risk.

(vii) Describe possible actions that could help to ensure customers are treated fairly. [6]

[Total 27]

- 3** Company C operates in a country where the majority of the population earns a very low income and have variable and irregular income streams. Company C is considering launching a new microinsurance product to the market. One of the objectives of microinsurance is to provide a social benefit and, as a result, benefits paid out to policyholders will be a key metric in evaluating the success of the product.

The new microinsurance product will offer a fixed cash benefit payable in the event of hospitalisation due to accident or illness, subject to a minimum hospitalisation period of three nights. The primary distribution will be through a direct sales force. The product will only be sold to individuals, and there will be no underwriting.

To allow for customers' irregular incomes, the product will allow customers to purchase insurance cover 1 month at a time, as and when it is needed. A waiting period will apply when the customer enrolls for the product for the first time. Gaps in cover will not be penalised.

- (i) Outline the key risks to Company C, in relation to:
 - (a) premiums. [7]
 - (b) claims. [7]
- (ii) Suggest possible product design features that could be introduced to mitigate the risks identified in parts (i)(a) and (b). [8]
- (iii) State the main reserves Company C should hold for the microinsurance product. [2]
- (iv) Outline the data requirements Company C would need in order to calculate each of the reserves identified in part (iii). [2]

Company C has now launched the product. Company C has been tracking the claims ratio, defined as claims paid over gross premium received, since the launch. The claims ratio has been lower than anticipated.

The chief actuary has asked the product team at Company C to investigate whether the product is meeting its social objective, and fulfilling the principle of treating customers fairly.

- (v) List the key investigations the product team should undertake, including:
 - (a) examples of the data needed to complete the investigation.
 - (b) the key issues the investigation will highlight. [8]

The chief actuary has asked the product team for proposals to increase the claims ratio for the product. Four proposals have been put forward:

- Increase the sum assured value.
- Amend the hospital definition to allow claims following a 2-night minimum stay.
- Reduce the premiums payable.
- Carry out an education and awareness programme for customers.

(vi) Discuss the advantages and disadvantages of each proposal from the perspective of:

- (a) the customer.
- (b) Company C.

[8]

The chief actuary has suggested that an outpatient benefit be added to the product. This benefit would provide a fixed cash sum to the policyholder in the event that they were required to visit an outpatient facility, clinic or doctor. Company C's board has responded to this by suggesting adding a deductible or coinsurance payment to the benefit.

(vii) Discuss the implications of introducing an outpatient benefit for Company C for both the insurance company and the customers.

[4]

[Total 39]

END OF PAPER