INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

20 April 2022 (am)

Subject SA1 – Health Care
Specialist Advanced

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

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1 A health and care insurance company sells group and individual Critical Illness (CI) business in Country A. The insurance company's customer helpline has been experiencing a large increase in calls from policyholders looking to lapse their individual CI policies. The most common reason given for lapsing is uncertainty over future employment and income levels due to a recent economic recession. Many policyholders are therefore looking to save money by stopping paying the premiums on their CI policies.

(i) Discuss how an increase in lapses could adversely affect the insurance company. [5]

(ii) Suggest possible actions the insurance company could take to minimise the incidence and the impact of adverse lapse behaviour for:

(a) the existing policies.

(b) new policies.

[9]

For individual CI policies, the only option currently available to policyholders who wish to stop paying their CI premiums is to lapse their policy. The insurance company's Board has asked the Chief Actuary to consider the implications of its proposal to introduce the following two alternative options for individual policyholders:

Option A: A premium holiday – where premiums cease for a period, with no later collection of any premiums missed by the policyholder.

Option B: A delay to premiums – where premiums cease for a period, but the policyholder will be required to pay any missing premiums at a later date.

(iii) Outline the advantages and disadvantages to the insurance company of each of the two proposed options compared to the current option to lapse. [5]

The insurance company's Chief Actuary has stated that they have a professional duty to act in the public interest, and that there are many stakeholders affected by the Board's proposal.

(iv) Outline, for each of the following stakeholders, why they have an interest in the options available:

(a) the insurance company's shareholders

(b) the individual policyholders

(c) the government

(d) distributors

(e) the insurance company's staff.

[5]

For group CI policies sold to employers, there is no option to lapse during the policy year. The insurance company will adjust the premiums paid on each group policy to reflect changes in the risk exposure during the policy year. The premium adjustment for a group CI policy over a policy year works as follows:

- A premium is agreed at the start of the policy year and paid by the employer, either in advance or monthly.
- At the end of the policy year, the employer provides the insurance company with a count of its employees and a summary of their demographic profile.
- The insurance company makes an assumption that employees joined or left employment at a uniform rate throughout the policy year.
- The insurance company then calculates an updated risk exposure for the policy year.
- The insurance company determines the premium adjustment given the updated risk exposure, and this adjustment is applied, either as a return of premium or increase in premium, to the next policy year's premium.

Due to the economic recession, a high number of redundancies are occurring in Country A. The Head of Underwriting has suggested that the risk underlying many group CI policies may change significantly during the next policy year. The Chief Actuary has stated that the existing method of adjusting premiums is generally considered appropriate but has suggested further consideration given the unusual conditions this year.

(v) Outline the factors that should be considered when assessing the amount of the return of the premium by:

(a) the insurance company. [3]

(b) the employer. [1]

[Total 4]

(vi) Discuss the factors that should be considered when negotiating next year's group CI policy premium by:

(a) the insurance company. [3]

(b) the employer. [5]

[Total 8]

The insurance company's Board has raised concerns that, with reduced premium income from the individual CI business, there may be a need to raise short-term liquidity by selling assets.

(vii) List four short-term liabilities the insurance company could normally meet with premium income. [2]

With the ongoing economic uncertainty, the financial markets in Country A have been increasingly volatile. A number of investors in Country A have moved to hold 'safe-haven' assets such as gold, government-backed assets such as gilts and also cash-like instruments. There has been a corresponding increase in the price of these assets.

(viii) Describe the likely implications of increasing gilt prices on the value of the insurance company's liabilities. [3]

Given the economic climate, and the anticipated change to the insurance company's cashflows, the Head of Investment is reviewing the insurance company's investment policy.

(ix) Discuss how the investment policy may need to be changed. [7]

[Total 48]

2 Country B has a private healthcare sector characterised by a small number of large hospital groups, of which Hospital A is one. Company X specialises in Private Medical Insurance (PMI) and is one of several health and care insurance companies that provide PMI cover in Country B.

Company X has recently carried out its annual experience review. The results show that the claims experience over the last 12 months has been worse than expected.

(i) Describe the factors that could have led to Company X's PMI claims experience being worse than expected. [8]

(ii) Suggest possible actions that Company X could take to reduce the difference between actual and expected claims experience. [8]

Company X is investigating whether minor surgeries could be performed in day clinics rather than in hospital settings. The product development team believes that this could deliver substantial cost savings.

In response, Hospital A has approached Company X and proposed a capitation arrangement as an alternative to the fee-for-service model currently offered. Under the capitation arrangement, Company X will pay Hospital A an annual upfront amount in respect of each policyholder, rather than having to pay for Hospital A's medical fees in the event of a claim. Hospital A will then provide the necessary medical care, including both inpatient and outpatient services, to the policyholders of Company X as and when claims occur.

(iii) Suggest possible reasons for Hospital A's proposal. [4]

(iv) Outline the main risks that Hospital A could face under each of the approaches below:

(a) a fee-for-service model

(b) a capitation arrangement.

[3]

(v) Suggest possible actions Hospital A could take to mitigate the risks in part (iv). [3]

(vi) Outline the risks that Company X could face by introducing a capitation arrangement with Hospital A. [3]

(vii) Suggest possible actions that Company X could take to mitigate the risks in part (vi). [3]

[Total 32]

3 Company Y is a health and care insurance company that has a large portfolio of group and individual Income Protection (IP) business.

A specialist underwriting company has approached Company Y to offer an underwriting tool they have developed. The tool allows applicants to take a photograph of their face with a smartphone and upload the photograph directly to the insurance company. Based on the photograph, the underwriting tool has the capability to determine some of the applicant's personal characteristics including age, gender, smoker status and weight. The specialist underwriting company claims to be able to estimate both the healthy life expectancy and overall life expectancy of the applicant based on the photo provided. Company Y is considering introducing this tool to determine policy acceptance for its IP applicants.

(i) Outline how using the underwriting tool will impact Company Y's processes for individual and group IP business in respect of:

(a) pricing.

(b) policyholder application and underwriting.

[8]

(ii) Discuss the risks to Company Y of using the underwriting tool to determine whether or not to accept a policyholder's application. [8]

Company Y's Board are considering whether the underwriting tool has broader applications beyond pricing and policy acceptance.

(iii) Suggest, with reasons, other areas of Company Y's business where the tool could be used. [4]

[Total 20]

END OF PAPER