

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

30 April 2020 (am)

Subject SP1 – Health and Care Specialist Principles

Time allowed: Three hours and fifteen minutes

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

- 1** A health and care insurance company is carrying out a review of its individual Income Protection (IP) claims assumptions for pricing.

An actuary is considering whether to use the insurance company's own historical claims experience data to determine its Income Protection claims assumptions for pricing new individual IP business.

- (i) Outline the key criteria the insurer's claim experience data would need to meet. [4]

The actuary is considering how many years of data should be used in order to perform the analysis.

- (ii) Outline the factors that the actuary will need to consider. [4]
[Total 8]

- 2** The Sales Director of a successful health and care insurance company has noted that the company's main competitor charges premium rates for individual Income Protection business that are cheaper at the key comparison points, shown below.

Monthly premium per \$1,000 p.m. of individual Income Protection benefit		
	<i>Own rates</i>	<i>Competitor rates</i>
Male/female aged 35	\$17.00	\$14.00
Male/female aged 45	\$29.00	\$25.00

Explain why this may have arisen. [9]

- 3** A large health and care insurer currently writes a range of Health and Care products.

Discuss the main types of reinsurance that may be appropriate. [13]

- 4** In Country A the state provides a large proportion of health and care services, which are funded by taxation.

A health and care insurance company is considering launching a Private Medical Insurance (PMI) product in Country A.

- (i) Propose, with reasons, the benefits under the PMI product that may be:
- (a) complementary to the state provision and therefore appropriate for inclusion in a PMI product. [9]
 - (b) an alternative to the existing state benefits. [6]
- (ii) Discuss for each of the following segments of the population whether or not PMI may be appropriate:
- (a) full-time students
 - (b) unemployed individuals
 - (c) retired individuals
 - (d) retired military personnel of working age.

[8]

[Total 23]

- 5** In Country B the reserves calculated to be included in an insurer's accounts for the purpose of solvency supervision must be done so on a prudent basis.

A large health and care insurer writes both long-term individual and short-term group Critical Illness (CI) business, in Country B only. The premiums on the long-term individual policies are guaranteed throughout the policy term, while premiums on the short-term group policies are reviewable annually. The insurer is currently calculating its liabilities to be shown in its accounts.

- (i) Describe the methodology and assumptions that will typically be used for calculating the supervisory reserves for:
- (a) the long-term individual CI policies. [5]
 - (b) the short-term group CI policies. [3]
- (ii) Describe how the methodology and assumptions in part (i) would differ for the purpose of determining best estimate reserves. [4]

[Total 12]

6 (i) Define the following terms in relation to Income Protection (IP) insurance:

- (a) Deferred period [1]
- (b) Replacement ratio [1]
- (c) Proportionate benefit [2]
- (d) Rehabilitation benefit. [2]

A health insurer writes an individual IP product with the following features:

- The policyholder selects a benefit level and is charged a monthly premium for that level of cover.
- Premiums are paid on the first day of each month but are not paid after the claim has been notified.
- Policyholders are rated up by a multiple of the basic premium rate.
- On 1 January 2015 the policy fee is £2 per month.
- The policy fee is increased by the lower of 2% and the annual increase in prices on 1 January each year.
- Benefit payment is made if the policyholder is unable to carry out their own occupation.
- The maximum replacement ratio is 80% of the net salary on disability.
- On each policy anniversary, the benefit level is increased by 5%; increases continue if the claim is still in payment.
- Claim payments start from the date of incapacity with no deferred period.
- Claims must be notified within 4 weeks of the date of incapacity; if a claim is not notified within this time the claim will only start to run from the date of notification.

You have been provided with the following information in respect of two policies, A and B:

<i>Policy</i>	<i>Date on which the policy commenced</i>	<i>Original benefit (per month)</i>	<i>Monthly premium rates per 100 per month of benefit</i>	<i>Rating factor</i>	<i>Date of incapacity</i>	<i>Date of claim notification</i>	<i>Net salary on date of disability (per month)</i>
A	1 May 2015	200	7.80	50%	1 June 2016	1 August 2016	300
B	1 January 2016	500	6.50	–	1 January 2018	12 January 2018	400

<i>Annual increase in prices on 1 January</i>	
2016	2.1%
2017	1.5%
2018	1.0%

- (ii) Calculate the monthly premium at the date of claim notification, for each policy. [4]
- (iii) Calculate the total monthly IP benefit payable during the year 2018 and the year 2019, for each policy. [4]
- [Total 14]

7 The regulator in Country C requires any health and care insurance company authorised in that jurisdiction to provide all potential customers with a document containing key information about the company's insurance products. The purpose of this document is to enable potential customers to make an informed decision whether to purchase the policy. The information must be easy to read and understandable by the average consumer.

Set out, with reasons, the information expected to be included in the document for an individual Income Protection insurance product. [10]

8 Country D has a comprehensive health care system provided by the state and funded by taxation. There is a small market for Private Medical Insurance (PMI). Policyholders include individuals and some employers who purchase the policies as a benefit for their employees.

The PMI policies provide cover for non-emergency treatment from private health providers in the event that waiting lists for state-funded treatment exceed a minimum period.

In Country D there is currently a tax levied on PMI premiums, set at 10% of the premium and payable by the policyholder. The government of Country D is considering reducing the premium tax on PMI.

Discuss the probable impacts if the premium tax is reduced on the following groups:

- (a) PMI insurers and consumers [7]
- (b) The government and private health and care providers. [4]

[Total 11]

END OF PAPER