INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

24 September 2019 (pm)

Subject SP1 – Health and Care Specialist Principles

Time allowed: Three hours and fifteen minutes

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of your answer booklet.*

2. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*

3. *Mark allocations are shown in brackets.*

4. *Attempt all questions, begin your answer to each question on a new page.*

5. *Candidates should show calculations where this is appropriate.*

Graph paper is NOT required for this paper.

AT THE END OF THE EXAMINATION

Hand in BOTH your answer booklet, with any additional sheets firmly attached, and this question paper.

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.

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1 Company A is an established provider of individual Income Protection (IP) insurance. It sells most of its policies through intermediaries (brokers) and a small proportion online. The Marketing Director suggests that a new individual IP product should be designed to be sold primarily online.

Discuss the advantages and disadvantages of the Marketing Director's suggestion and what the insurer might do to try to make the launch of the new product on the online channel successful. [10]

2 A health and care insurer is to enter the Income Protection market and is developing a non-profit Income Protection product that will be sold via independent financial advisers.

Describe how the pricing actuary would determine the following assumptions including, where relevant, possible data sources and any necessary adjustments to the data.

(i) Disability rates. [9]

(ii) Termination rates. [4]

(iii) Lapse rates. [5]

(iv) Investment rates of return. [3]

[Note: You are not required to describe the calculation process for the rates.]

[Total 21]

3 Company A is a health and care insurer specialising in Private Medical Insurance.

(i) Explain the purpose of underwriting and how it can be used to manage risk for Company A. [4]

(ii) Describe the following underwriting approaches:

(a) Full medical underwriting. [3]

(b) Medical history disregarded underwriting. [2]

(c) Moratorium underwriting. [3]

(iii) Explain the purpose of claims management and how it can be used to manage risk for Company A. [2]

(iv) Set out the information and checks that will typically be required under the claims management process. [5]

[Total 19]

4 (i) Describe the following models of co-existence of health insurance and state health care:

(a) insurance as an optional alternative
(b) insurance as an optional complement
(c) insurance as a compulsory alternative
(d) insurance as a compulsory complement.

[4]

(ii) Explain, with examples, why most Private Medical Insurance products in many countries do not cover the full range of health and care treatments and services that an individual may require during their life. [8]

[Total 12]

5 Policyholder Reasonable Expectation (PRE) is a concept whereby the policyholder expects that an insurance company's affairs are conducted in a fair, transparent, responsible manner with a reasonable degree of continuity in the practice of discretion by the company.

A health and care insurer writes Private Medical Insurance (PMI) and unit-linked Critical Illness (CI) business.

(i) State four sources of information provided by the insurer that would contribute to forming Policyholder Reasonable Expectation. [2]

(ii) State the risks faced by a PMI policyholder that might result in their reasonable expectations not being met. [3]

(iii) Set out the risks which, in addition to those in part (ii), would be faced by a unit-linked CI policyholder that might result in their reasonable expectations not being met. [3]

[Total 8]

6 In a developed country the government provides a State health service for all its residents. The State health service is funded on a pay-as-you-go basis from general taxation. Over the last 20 years government funding of the State health service as a proportion of the total tax revenue has steadily increased by a significant amount.

(i) Explain why this may have occurred in terms of:

(a) Demographic factors. [3]

(b) Other factors. [4]

(ii) Suggest how the government might respond to these increasing costs. [4]

[Total 11]

7 (i) Define the term Excess/Deductible in relation to reinsurance. [2]

A health and care insurer has an excess of loss treaty with its reinsurer under which the following terms apply:

- every Critical Illness (CI) policy written must be reinsured
- the excess point is £10,000 and the upper limit is £40,000
- there is a stability clause which allows for the limits to be increased by the lesser of annual price inflation and 5% on 1 January each year, where the annual price inflation is defined as the increase in prices over the previous 12 months.

(ii) Suggest reasons why the treaty includes a stability clause. [2]

A CI policy was sold on 1 January 2016 with a sum assured of £50,000.

On 1 March 2018 a valid claim is paid out in respect of the policy.

- On 1 January 2017 the annual price inflation was 2.9%.
- On 1 January 2018 the annual price inflation was 1.5%.

(iii) Determine the total claim amount paid to the policyholder, showing the split between the insurer and the reinsurer. [3]

(iv) Determine how your answer to part (ii) would change if the reinsurer became insolvent on 1 January 2018. [2]

[Total 9]

8 A health and care insurer writes both long-term and short-term health and care insurance business. The insurer is proposing to expand its operations and is considering how data analytics and predictive modelling could help to grow and manage its business.

The insurer is a subsidiary of a major bank. The jurisdiction in which the insurer and bank operate allows the insurer to have full access to the bank's customer data, including personal details, accounts details, transaction history, as well as market data from third party data providers including purchasing history, spending habits and internet usage.

Describe how data analytics and predictive modelling could be used to support the insurer's proposition in the following areas:

(a) product/customer identification
(b) customer experience
(c) underwriting/pricing
(d) claims management
(e) reserving/experience analysis.

[Note: You are not required to consider any potential issues relating to data protection.]

[10]

END OF PAPER