

Actuarial Society of South Africa

EXAMINATION

21 May 2021

Subject F201 – Health and Care

Fellowship Applications

Time allowed: Three hours and fifteen minutes, plus an additional five minutes to allow for scrolling in the ASSA Exam Platform

Total marks: 100

INSTRUCTIONS TO THE CANDIDATE

1. Ensure that you are logged in and authenticated through Examity before you attempt the examination.
2. Questions are only available in the ASSA Exam Platform and may not be printed.
3. Submit all of your answers in the ASSA Exam Platform only. No uploads of answers (handwritten or otherwise) to the ASSA Exam Platform will be accepted.
4. You may not use any other computer program (e.g. Email, MS Word or Excel) or files, nor open any other browser during the examination.
5. You may not make use of a Formulae and Tables book during the examination. Any such information that may be required will be provided to you within the examination.
6. You are strongly encouraged to use the first 15 minutes as reading time only, however, you may commence answering the paper whenever you are ready.
7. Mark allocations are shown in brackets.
8. Attempt all questions.
9. Show calculations where this is appropriate. You may use blank paper to carry out rough work calculations. You may use a calculator from the approved list only.
10. You may return to your answers to review and amend during the allotted examination time. Once you are happy with your answers you need to **Finish all and Submit** your work. Once you have submitted you will not be able to make any more changes to your answers.
11. You must submit all work **BEFORE** the end of the allotted examination time. Take this into account when planning your review and submission. There will be no time announcements.

Note: Answers will be saved automatically during the examination if you are connected to the ASSA Exam Platform. However, the Actuarial Society of South Africa will not be held responsible for loss of data where candidates have not followed instructions as set out above.

END OF INSTRUCTIONS

QUESTION 1

- i. Explain the difference between an epidemic and a pandemic. [2]
- ii. Briefly outline the assumptions that need to be considered by an actuary to project the progression of a pandemic on a sub-population by means of a multi-state model to estimate the financial impact on various health insurance products. [5]

The World Health Organisation (WHO) declared a pandemic resulting from a global outbreak of a new virus.

This new virus is an influenza-like disease but spreads faster than influenza with those infected experiencing higher levels of morbidity and mortality. Those most at risk of suffering complications from the virus have been identified as the elderly, those with heart and lung conditions and those with co-morbidities.

A few months since the first worldwide confirmed case, South Africa experienced its first confirmed infection with the new virus. Shortly thereafter, the disease spread at a rapid pace such that the President declared a national disaster in South Africa.

You are the appointed actuary for a medical scheme in South Africa with a strong solvency position. The Board of Trustees has requested you to inform them how this virus would affect the scheme's financial performance.

- iii. Describe the investigations you would perform to address the request of the Board of Trustees, considering the following aspects:
- a. The expected incidence and prevalence of the new virus [6]
 - b. Claims expenditure [15]
 - c. Solvency, including investment performance [4]

The virus continued to spread at a rapid pace, which triggered the President to announce a nationwide lockdown for an undetermined period of time to curb the spread of the virus in the country. During the lockdown, everyone was required to stay at home and only leave their homes under strictly controlled circumstances.

Many medical scheme members were negatively affected by the nationwide lockdown either by salary cuts, unpaid leave, retrenchments, business interruption or business closures.

The Board of Trustees has requested you to compile a relief solution for the medical scheme members who are unable to pay their medical scheme contributions during the lockdown period(s) – however long it may last.

- iv. Identify and evaluate various relief solutions available to the medical scheme during the lockdown period. [18]

[Total 50]

PLEASE TURN OVER

QUESTION 2

Alastria is a large and established multi-line insurance company headquartered in the developed country of Melas. Melas has an established medical schemes and medical insurance regulatory environment similar to that of South Africa.

Risa Communication (RisaCom) is a large multi-national mobile network operator. Alastria has been approached by RisaCom to create a joint venture micro-insurance health solution in several developing countries where RisaCom has a well-established mobile network presence. Currently Alastria has a health insurance solutions presence in many (but not all) of the countries where the joint venture would operate.

There are 2 new health micro-insurance insurance products that would be sold via RisaCom's existing offerings.

The first product, Setlik Health (SH), would automatically be available to the network user on enrolment. It would provide for a percentage of the airtime loaded to be accrued and converted to a voucher. This voucher becomes a benefit that will accumulate over time as long as the user remains active on the network (this will require a recharge of credits every 30 days). The vouchers are useable as payment at recognised primary medical providers, who then redeem these from RisaCom.

- i. Describe how you as the consulting actuary to the joint venture would establish the viability of this micro-insurance solution.

Your answer should address the financial value of benefits, costs of implementation and overall financial viability of the solution.

[15]

The second product, Tiburon Health (TH), would require the user to select a Sum Insured (SI) at the time of enrolment (or enrolment anniversaries). The SI would be in increments of local equivalent units of USD \$10 with a maximum of USD \$10,000. The accumulation to the SI would be a percentage of the airtime loaded, and defined at initiation. The benefit is a per day amount (accumulating to the overall SI) when in a hospital setting. The main contract holder can include family unit dependents. The benefit remains in place as long as the contract with RisaCom remains active.

- ii. Describe in detail the process you would undertake to develop the product to launch into the market. Consideration should be given to the following aspects:

- | | | |
|----|--------------------------------------|------|
| a. | the legal or regulatory environments | [5] |
| b. | benefits and underwriting | [4] |
| c. | systems and claims processes | [8] |
| d. | claims costing and rates to charge | [10] |
| e. | other cost implications. | [2] |

[Total: 29]

During the market research phase for the Tiburon Health product, the product development team is made aware that customers are complaining about a 3 month waiting period between the initiation of the contract and the benefit being made available.

PLEASE TURN OVER

iii. Consider alternative ways of protecting against anti-selection.

[6]

[Total 50]

[Grand Total 100]

END OF EXAMINATION