

# EXAMINATION

19 May 2020

## Subject F203 — General Insurance Specialist Applications

*Time allowed: Three hours and fifteen minutes*

### ***INSTRUCTIONS TO THE CANDIDATE***

1. *Ensure that you have your candidate number handy to input as part of the exam.*
2. *Questions are only available in Moodle and may not be printed.*
3. *You are required to submit your answers in this Moodle learning platform only. You MAY NOT use any other computer program (e.g. MS Word or Excel) during the examination.*
4. *You have 15 minutes at the start of the exam in which to read the questions. You are strongly encouraged to use this time for reading only, but notes may be made. You then have three hours to complete the paper.*
5. *Mark allocations are shown in brackets.*
6. *Attempt all questions. Your work is saved automatically during the exam.*
7. *You are required to submit your answers in this Moodle learning platform only.*
8. *At the end of the exam, if you have time left, you may return to your attempt to review and make any changes to your answers. Once you are happy with your answers you need to **Finish all and Submit** your work after which you will NOT be able to make further changes. Take this into account when finishing early - once you have submitted you will not be able to make any more changes to your answers.*
9. *It is the student's responsibility to ensure that all work is submitted BEFORE the end of the exam time. Take this into account when planning your review and submission.*
10. *You should use your scrap paper to work on any calculations where this is appropriate.*

**Note: 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

The government of a developing nation, La La Land, recently met to discuss the rising cost of motor insurance and the outcome was that they felt that the cost of motor insurance is fast becoming unsustainable for many consumers. This, combined with the high volume of uninsured vehicles on the roads, has made it increasingly crucial that compulsory third-party motor insurance is implemented.

A committee has been established to deal with these problems and provide feedback to government. You are the actuary in charge of the motor insurance portfolio for a large insurer operating in La La Land.

The above problem is further exacerbated by La La Land's compensation fund that pays for bodily injury claims, the Motor Liability Fund ("MLF"), suffering from poor administration and not providing timely and relevant benefits in all cases.

At this stage there is still debate on whether to scrap the MLF and replace it with compulsory third-party motor insurance that includes cover for property and potentially liability claims.

The insurance environment can be considered to be exactly the same as that in South Africa.

- i. Explain the economic benefits and benefits to motor insurance policyholders of compulsory third-party motor insurance.

[5]

The government's actuary has published three possible methods of collection and administration of the product for public comment:

- a. A general increase in the tax rate for all taxpayers that have vehicles registered to their name and an income tax number;
  - b. Outsourcing the administration of the product to the 5 largest motor insurers in La La Land. For this proposal, all vehicles renewing their licenses will be required to prove that they have comprehensive Motor insurance including property and liability cover. Should they not be able to provide proof of insurance, they will need to purchase an annual upfront policy for the year providing cover for third party property and liability accidents. This will automatically be allocated to each insurer on a proportional basis;
  - c. Outsourcing all of the administration of the product to the current registered general insurers of La La Land (meeting minimum standards in terms of licensing requirements). This will be enforced by imposing fines on motorists who cannot provide proof of insurance and who will then be forced to purchase the cover immediately.
- ii. Comment on the above, discussing the advantages and disadvantages of each proposal.

[12]

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The committee has settled on implementing the second proposal above. Furthermore, the MLF will no longer operate and this new product will fill the gap in the market by providing both property and liability cover.

The following is specified:

- Maximum benefits will be prescribed for each category of liability claims
- The only rating factors allowed are geographical location and use of vehicle.
- The allocation to insurers will not be proportional. Each insurer will need to be authorised to sell the product and could then add their own features and additional benefits.
- Consumers will be presented with alternative quotes. However, the minimum premium (i.e. premium covering minimum benefits) will be the same across all providers.

Your CEO has been part of the discussion to date and asked you to consider the issues with developing a product to meet the Government's requirements.

iii. Draft a reply to the CEO regarding this product development with reference to the following issues:

- Authorisation
- Product Features
- Administration
- Pricing
- Claims
- Other Considerations

[25]

A number of insurers raised the issue of holding adequate technical provisions for the product. The government actuary has stated that the investment of technical provisions for this product will be prescribed as follows:

- 50% Allocation to Cash in a new government bank (earning 2% annual return)
- 50% Allocation to Government Index linked Bonds and Securities (earning inflation + 1.5%)

La La Land follows a solvency regime exactly like South Africa's Solvency Assessment and Management and therefore capital is calculated based on a standard formula calculation.

iv. Discuss the impact of this proposal on your insurer's current management of investments by considering;

- investment strategy;
- the suggested allocation and asset classes; and
- the impact on the solvency capital requirement.

[8]

[Total 50]

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## QUESTION 2

You are the chief actuary of a long-established, multi-national short-term insurer that has its headquarters in South Africa. The insurer writes significant volumes of most lines of business in all the countries that it operates in. The business is mainly distributed via intermediated channels.

There has been a recent outbreak of a flu-like virus that is spreading across the territories in which you operate. Your company offers travel insurance that will refund the cost of a trip in the event that the policyholder is too ill to travel.

The virus has an estimated infection rate of between 1.5 and 2. This means that if a person is infected by the virus they will in all likelihood infect between 1.5 and 2 other people. At any given time you estimate that 0.005% of the population have travel insurance with your company for trips that they have booked. The population in the territories in which you operate amounts to approximately 100 million people. Once a person has contracted the virus they will not fall ill again.

Your Board is very concerned about the potential financial impact that travel claims arising from this virus could have. The Board have requested that you attempt to model the expected future claims.

- i. a. Discuss what your approach would be to building this model as well as the assumptions that you would be required to make.
- b. What external factors could potentially invalidate your model?

[15]

After receiving the results of your analysis the Board is concerned and have requested your Chief Financial Officer (CFO) to make provision for these potential claims. The CFO has approached you for clarification on how to make allowance for this provision.

- ii. What advice would you give your CFO and how best would you allow for these potential claims under IFRS?

[5]

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The Board have suggested that the sale of travel insurance be suspended until the risks associated with this pandemic are better understood or have decreased to a level that falls within your risk appetite.

- iii. a. Explain what is meant by risk appetite.
- b. Discuss the advantages and disadvantages of suspending the sale of travel insurance.

[9]

Your Chief Underwriting Officer is considering taking out stop loss reinsurance to protect the travel portfolio. He has approached you to advise him whether the reinsurance would be effective use of capital.

- iv. Outline factors you would take into account to determine whether the purchase of the stop loss reinsurance makes commercial sense.

[7]

The governments in the territories in which you operate are considering imposing a travel ban to limit the spread of the virus. The imposition of such a travel ban will probably result in the low growth economies in which you operate going into recession. A number of airlines in these territories that are already under pressure could quite possibly go insolvent leading to further travel related claims.

- v. Which other lines of commercial and personal business would probably be affected by the recession and why?

[6]

- vi. What will the likely impact of the recession be on your company's profit and capitalisation?

[8]

[Total 50]

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**END OF EXAMINATION**