EXAMINATION

28 May 2018 (am)

Subject F103 — *General Insurance* Fellowship Principles

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

1. *Enter all the candidate and examination details as requested on the front of EACH OF your answer booklets.*
2. *You have 15 minutes at the start of the examination 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.
3. *You must not start writing your answers in the booklet until instructed to do so by the supervisor.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all seven (7) questions, beginning your answer to each question IN A SEPARATE BOOKLET.*
6. *Show calculations where this is appropriate.*

AT THE END OF THE EXAMINATION

Hand in your answer booklets, with any additional sheets firmly attached to the correct booklet, 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.

QUESTION 1

i. Define what is meant by a “stability clause”.

[1]

ii. State, with justification, whether the addition of a stability clause to an excess of loss contract with no upper limit would result in an increase, a decrease, or no change in the premium in a country anticipating inflation.

[1]

iii. An excess of loss contract provides cover of 80% of claims in excess of R1m.

Determine the possible initial values of a stability index which would result in the following recoveries in respect of a claim of R2m at a time when the stability index is 250:

a. R0.6m; and
b. Zero.

[3]

iv. An insurer has an excess of loss treaty which stipulates:

- Cover is R6m XS R2m for a period of one year.
- The original premium is R1m.
- One reinstatement will be allowed at a premium rate of 200% of the original premium.
- The reinstatement premium will be pro-rata as to amount and pro-rata as to time.

The following losses may be eligible for coverage under the treaty.

Loss	Loss Amount	Duration into treaty
1	R6m	3 months
2	R5m	9 months
3	R7m	11 months

For each of the losses determine:

a. The reinsurance recovery; and
b. The reinstatement premium to be paid at that time.

[5]

[Total 10]

PLEASE TURN OVER

QUESTION 2

A reinsurance-pricing actuary is reviewing the reinsurer's current non-proportional reinsurance pricing basis for commercial motor insurance.

i. Explain the differences in using experience rating compared to using exposure rating for calculating the risk premium, and identify the main circumstance when exposure rating would have an advantage over experience rating.

[4]

ii. Discuss the factors that need to be considered with the subdivision of data when calculating the risk premium.

[5]

iii. Outline briefly the main loadings that should be added to the risk premium when deriving the office premium.

[4]

[Total 13]

QUESTION 3

A general insurer, which specialises in fidelity guarantee insurance, is not writing any new business.

i. Outline briefly the main uncertainties faced by the insurer relating to claims.

[5]

ii. Define what is meant by "lapse rate" and explain the risk faced by the insurer in respect of lapses.

[2]

iii. Explain why the insurer would want to monitor the loss on individual policies.

[3]

[Total 10]

QUESTION 4

A small but rapidly growing insurer specializing in trade credit insurance is reviewing its investment strategy.

i. Outline the cover provided by a trade credit insurance policy.

[2]

ii. By outlining the characteristics of the insurer's liabilities, suggest suitable assets to match the liabilities.

[5]

PLEASE TURN OVER

iii. Outline briefly the factors that the insurer should consider in adopting a mismatched investment strategy.

[4]

iv. Explain why an asset-liability model would be particularly useful to this insurer in setting its investment strategy.

[5]

[Total 16]

QUESTION 5

i. Discuss four key considerations when interpreting diagnostics used to assess the reasonableness of the results of a claims reserving exercise.

[4]

You have been asked to review the claims reserves as at 31 December 2017 for a general insurer. The company writes a diverse range of insurance classes. The reserving actuary has provided you with the following information for the commercial liability class of business:

Accident year	Earned premium (R'000)	Cumulative paid claims as at 31/12/2017 (R'000)	Case reserve as at 31/12/2017 (R'000)	Selected ultimate claims (R'000)
2013	19 621	9 610	1 188	10 792
2014	24 546	9 943	2 423	12 682
2015	25 068	9 700	4 490	13 277
2016	35 070	8 153	7 203	24 549
2017	36 283	4 723	10 823	29 083
Total	140 588	42 128	26 125	90 383

ii. Calculate, using the information provided above, the ultimate loss ratios per accident year and outline how this information could be used when reviewing the claims reserves.

[4]

iii. List 4 other diagnostics that could be used to assess the claims reserves.

[1]

The insurer has always used undiscounted claims reserves in its published accounts. Future legislation may require insurers to use discounted claims reserves.

iv. Calculate the discounted claims reserve for the commercial liability business using a discount rate of 8% p.a. assuming the following calendar year payment pattern for the commercial liability claims:

2018	2019	2020	2021	2022
30%	25%	20%	15%	10%

[4]

v. Comment on the effect of discounting on the company's total claims reserves.

[3]

[Total 16]

PLEASE TURN OVER

QUESTION 6

A well-established general insurance company offers commercial lines motor, property and liability insurance. The insurer has recently accepted 50% of a contractors' all-risks policy insuring the construction phase of the world's largest shopping mall.

i. Suggest, with reasons, a suitable exposure measure for this project.

[3]

ii. Describe the timing of the risk exposure on the policy.

[2]

iii. Outline the factors influencing the claim characteristics of this class of insurance, with particular reference to the project in question.

[7]

[Total 12]

QUESTION 7

An established motor-only insurance company is introducing a motor insurance product for the drivers of an app-based taxi service. The insurance premium will be based on driving metrics captured by the drivers' mobile phones in addition to user reviews on the driving habits of the drivers.

Background: The driver may be the owner of the vehicle, or may be working for the vehicle owner in return for a wage and/or commission. The company that owns the taxi app administers the taxi-service in return for a commission on each trip.

i. Suggest and discuss a suitable marketing and distribution strategy for this insurance product.

[3]

ii. Define what is meant by "insurable interest".

[2]

iii. Outline whether the drivers of these vehicles have an insurable interest in the risk insured.

[2]

iv. Define what is meant by an "exclusion".

[1]

v. List 5 reasons why insurers may choose to introduce exclusions. For each reason indicate, by means of an example where relevant, whether the reason applies in the case of the above product.

[5]

vi. Describe the process that the company's actuary may follow in updating the internal capital model to include new business from the new insurance product.

[10]

[Total 23]

END OF PAPER