INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

13 October 2015 (am)

Subject SA3 – General Insurance
Specialist Applications

Time allowed: Three hours

INSTRUCTIONS TO THE CANDIDATE

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

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 three questions, beginning your answer to each question on a new page.*

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

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.

1 (i) List six standard rating factors for each of motor and household policies. [6]

The regulator for a large developed insurance market allows motor and household policies to be priced using any rating factors that insurers choose.
Insurers in the country have started making extensive use of "big data" – i.e. large data sets drawn from sources in addition to that provided by the policyholder.

Such data can draw from sources such as social networking memberships, twitter feeds, policyholder shopping habits and information from telematics products which monitor driving behaviours and appliances within people's homes.

(ii) Suggest additional rating factors that may be available to an insurer making use of big data. [5]

The regulator has issued a consultation to the market asking whether rating factors have become too personalised. The key issue for consultation is whether the factors are working against the principle of pooling risk and are discriminating against policyholders for factors they cannot control.

The regulator is proposing to prohibit the use of rating factors that are outside of the direct control of the policyholder.

(iii) Comment on the extent of control that policyholders may have over the various rating factors from parts (i) and (ii). [8]

An actuary has been commissioned by the regulator to write a report on the proposed prohibition. The report should consider:

- the impact on different groups of policyholders of the proposal.
- the impact on insurers of the proposal.
- the practicalities of enforcing the proposal.
- the extent to which the social purpose and benefits of insurance are met before and after the prohibition.

(iv) Suggest the points that might be made in the report. [17]

Following the consultation the regulator decides to make no enforced changes to the acceptable rating factors but proposes that the industry develops self-regulated voluntary guidelines restricting the use of rating factors outside the direct control of the policyholder.

In advance of any publication of the code, the CEO of a large insurer decides to restrict the company to using only rating factors within the direct control of the policyholder.

(v) Discuss the potential impact the CEO's voluntary decision to act before the industry may have on the company. [8]

[Total 44]

2 (i) Explain the concept of Reinsurance to Close (RITC) in the context of a Lloyd's syndicate. [4]

A Lloyd's syndicate writes predominantly catastrophe exposed business. Due to the nature of the business that the syndicate writes, a number of underwriting years have been affected by fundamental uncertainty at the end of historical accountancy years, i.e. a level of uncertainty in the results too great to allow closure of the year of account in line with the normal three-year timetable.

This is shown in the table below.

Underwriting year	*Fundamental uncertainty?*
2006 and prior	No
2007	Yes – until start of 2012
2008	No
2009	Yes – until start of 2010
2010	No
2011	No
2012	No
2013	Still Open

The syndicate was not renewed at the end of the 2013 underwriting year.

(ii) Explain:

- how fundamental uncertainty may have arisen.
- what effect fundamental uncertainty has on the RITC process.

[5]

The syndicate wishes to perform additional analysis on the fundamental uncertainty on the 2013 underwriting year in order to inform its Statement of Actuarial Opinion (SAO) at the end of the year.

(iii) Discuss the methods that could be used for analysing the uncertainty in results and any key considerations in this analysis. [10]

At the end of 2014 one of the syndicate's members failed to come into line.

(iv) Explain what this means, defining any terms used and suggest the impact that this might have on the syndicate. [6]
[Total 25]

3 (i) Discuss why a regulator may prefer insurance companies to assess their regulatory capital requirements using an internal model, rather than a prescribed formula. [6]

(ii) Suggest why insurers may prefer to use a prescribed formula rather than an internal model. [6]

In a developed country a prescribed formula approach is currently used to assess the regulatory capital requirements of insurance companies. The regulator is proposing to remove this requirement and permit companies to use an internal model.

Under the current regulations, the minimum capital requirement is calculated by applying pre-specified factors to amounts from company accounts. The factors are intended to target a 1-in-200 probability of sufficiency. Insurers also prepare detailed quarterly financial returns for the regulator. The current arrangements have been in place for more than twenty years.

The new government of the country is keen to reduce the burden of regulation on business. The regulator has therefore proposed abolishing the current capital regulations, and replacing them with the following requirements:

- All insurers are required to have an internal capital model, using methodology of the insurer's choice.
- Insurers are required to use the capital model to estimate a 1 in 500 loss (99.8^{th} percentile) over a one year period.
- Each insurer is required to hold capital equal to at least the 99.8^{th} percentile loss.

Insurers will no longer be required to complete regulatory returns; however the regulator will review the models of 10% of insurers each year to determine whether their estimated 99.8^{th} percentile loss amount is reasonable. The insurers to be reviewed each year will be selected at random.

(iii) Discuss how the new capital regulations may impact policyholders. [11]

The regulator initially intended to review the models of one in ten randomly selected insurers each year. The regulator has commissioned advice on suitable alternative approaches to this one-in-ten selection process. Each alternative approach needs to fulfil the following objectives:

- to have an increased chance of identifying insurers with an elevated risk of insolvency
- to be achievable within the regulator's limited annual budget

(iv) Discuss potential alternative approaches to selecting insurers' models for review which could meet the regulator's objectives. [8]

[Total 31]

END OF PAPER