

INSTITUTE AND FACULTY OF ACTUARIES



EXAMINATION

28 April 2017 (am)

Subject ST7 – General Insurance: Reserving and Capital Modelling Specialist Technical

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 must not start writing your answers in the booklet until instructed to do so by the supervisor.*
3. *You have 15 minutes of planning and reading time before the start of this examination. You may make separate notes or write on the exam paper but not in your answer booklet. Calculators are not to be used during the reading time. You will then have three hours to complete the paper.*
4. *Mark allocations are shown in brackets.*
5. *Attempt all eight 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 Define Subrogation in insurance. [1]

2 EComProp is a large European insurer which specialises in Commercial Property insurance within the EU. EComProp is interested in geographically diversifying its portfolio following a series of large losses. It has decided to expand into Asia by setting up a Lloyd's Syndicate.

Suggest advantages and disadvantages of this approach. [5]

3 MegaBall is a popular sport played internationally with teams of 10.

MegaBall clubs have complained to the MegaBall International Association (MIA) about the financial loss of losing players to injury whilst on international duty. Currently, all costs associated with an injury are borne by the player's club with no compensation payable by the International Association. The clubs are threatening to stop their players participating in international games.

SportInsure has designed a new insurance policy to be purchased by the International Association on a match by match basis to indemnify each club in the event of injury to any of their players whilst on international duty.

Suggest, with reasons, the key exclusions and restrictions which SportInsure should include when providing this insurance policy. [6]

4 (i) Outline possible accumulations of risk that could influence the amount and type of reinsurance an insurance company purchases. [3]

(ii) Outline market conditions that might also influence reinsurance purchasing decisions. [3]

A global reinsurer has established a new insurance company that will specialise in writing household and small commercial property insurance in its own country and in the USA.

(iii) Suggest with reasons an appropriate reinsurance structure for this new company. [5]

[Total 11]

- 5** (i) Describe the underwriting cycle. [6]
- (ii) Explain what is meant by the reserving cycle, giving potential reasons for the effect. [3]

Monoline Insurance has been writing liability business for a number of years. For the past few years the claims development has been consistently below expectations.

The progression of selected ultimate loss ratios for each year of account (YoA) has been as follows:

YoA	<i>As at year end</i>		
	2014	2015	2016
2008	55%	55%	56%
2009	61%	60%	61%
2010	79%	75%	73%
2011	97%	96%	95%
2012	106%	104%	101%
2013	100%	98%	96%
2014	92%	89%	84%
2015		84%	80%
2016			78%

A newly employed reserving actuary is about to embark upon her first reserving exercise.

- (iii) Outline the key factors she should consider with respect to:
- (a) trends in observed ultimate loss ratios.
 - (b) discussions required with stakeholders.
 - (c) any allowance for the underwriting / reserving cycles. [6]
- [Total 15]

- 6** (i) Outline the main risk types modelled in a typical capital model. [5]
- (ii) Outline how a general insurance company might typically allow for operational risk in its capital model. [3]

A large UK personal lines insurer (PersonalCo) writing motor and home business across Europe has recently:

- established a largely new management team.
- acquired a specialist travel insurer.
- started to write commercial fleet and taxi business.

- (iii) Suggest with reasons the four key operational risks for PersonalCo. [8]
- [Total 16]

- 7
- (i) State the four principal aims of the regulation of financial and insurance markets. [2]
 - (ii) List examples of restrictions and requirements that a regulator might put in place to achieve its regulatory aims in the insurance markets. [8]

The regulator of a small country, with a small but rapidly growing insurance market, is developing a solvency regime for general insurance companies which are based in that country.

The regulator has seen the costs and complexity of Solvency II and worries that a similar regime would be too expensive to implement and maintain.

The regulator has proposed that the solvency of each insurance company will be assessed using information contained in its audited published accounts. A company will be deemed insolvent if its accounts show that the company's liabilities are greater than its assets.

- (iii) Assess the strengths and weaknesses of this proposed regime. [6]

The regulator is also considering implementing one of the following measures to provide some additional protection for policyholders:

Measure 1: Each company will pay an annual levy at the start of the year based on a set percentage of the greater of their premium income in the previous year and the corresponding reserves.

This levy will be used to cover any shortfall owed to policyholders on the insolvency of any insurance company covered under this regime in the year.

Measure 2: The same levy as in Measure 1 will be required, but it will be used to purchase reinsurance cover.

This cover will provide the amount of any residual policyholder liabilities arising on insolvency of any insurance company covered under this regime in the year.

- (iv) Discuss the advantages and disadvantages of each of the proposed measures. [6]
- [Total 22]

- 8** (i) Compare the features of large individual losses in commercial property with those of commercial motor business. [5]
- (ii) Outline four methods of allowing for individual large losses in a reserving exercise, stating an advantage and a disadvantage of each. [8]

An actuarial department has collected the following data about large losses that have occurred in its Commercial Motor business. All figures are shown from the ground up.

Incurred amounts relating to large motor losses only (£000's)

<i>Accident year</i>	<i>Development year</i>					
	1	2	3	4	5	6
2011	1,000	1,556	2,045	2,095	2,100	2,100
2012	1,210	2,125	2,698	2,756	2,756	
2013	1,817	3,138	4,121	4,201		
2014	2,121	3,321	4,250			
2015	2,075	3,350				
2016	1,100					

Number of claims relating to large motor losses only

<i>Accident year</i>	<i>Number of losses</i>
2011	4
2012	3
2013	5
2014	4
2015	2
2016	1

The following methods have been used to estimate the ultimate claims cost for each accident year:

<i>Accident year</i>	<i>Method</i>
2011–2012	Incurred claims
2013–2014	Incurred chain ladder
2015–2016	Average cost per claim

- (iii) Suggest reasons why the specified method might have been chosen for each period of time. [3]
- (iv) Calculate a gross ultimate claims cost for large individual losses as at 31 December 2016, using the above methods and stating any assumptions made. [8]

[Total 24]

END OF PAPER