INSTITUTE AND FACULTY OF ACTUARIES

EXAMINATION

22 April 2024 (am)

Subject SP7 – General Insurance Reserving and Capital Modelling Specialist Principles

Time allowed: Three hours and twenty minutes

In addition to this paper you should have available the 2002 edition of the Formulae and Tables and your own electronic calculator.

If you encounter any issues during the examination please contact the Assessment Team on T. 0044 (0) 1865 268 873.

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1 A general insurance company writes trade credit and mortgage indemnity insurance.

(i) Outline the claim characteristics of the two lines of business. [3]

(ii) Outline the considerations when setting the Incurred But Not Reported (IBNR) for the two lines of business. [3]

[Total 6]

2 A large general insurance company, Company D, writes business globally and all its business is underwritten through brokers. It underwrites a large proportion of its business through two global brokers, Broker A and Broker B. The company also purchases its outwards reinsurance through these brokers.

Recently Broker A has announced its intention to acquire Broker B.

(i) Discuss the advantages and disadvantages for Company D of Broker A buying Broker B. [5]

Company D has decided to sell all new business directly to policyholders.

(ii) Outline the possible impacts of the new distribution channel on the capital requirement of Company D. [2]

[Total 7]

3 Company C is a general insurance company writing property, motor and personal accident lines of business in many countries.

Company C is currently considering the indices it will use to measure claims inflation trends for the different lines of business that it writes.

(i) Discuss the factors Company C should consider when deciding on suitable indices for each of Company C's lines of business. [6]

Company C mainly operates in Country P, which has recently observed a sharp increase in the Consumer Price Index (CPI). Currently Company C does not make an explicit allowance for inflation when calculating the claims reserves.

(ii) Explain how Company C's reserving procedure could be adjusted to allow for inflation. [4]

A large proportion of Company C's investment portfolio consists of bonds issued by Country P's government.

(iii) Suggest possible reasons why Company C holds a large proportion of its investments in government bonds. [2]

Due to an increase in the CPI of Country P, the interest rate on Country P's government bonds has increased.

(iv) Explain the impact on Company C's financial results due to the increase in interest rate on Country P's government bonds. [3]

[Total 15]

4 A general insurance company, Company G, sells all its household insurance policies online through aggregators. The household insurance portfolio of Company G has been experiencing higher combined ratios compared to the industry average.

The underwriting team is considering partnering with a large bank to distribute its household insurance policies, replacing aggregators as its distribution channel.

(i) Suggest possible reasons why the business written through the bank may be more profitable for Company G than the business written through aggregators. [4]

As per the terms of this partnership, the bank will require all its home mortgage customers to buy household insurance from Company G at the time of taking the mortgage. The premiums for the entire loan term will be pre-decided by Company G at the time of sale. The insurance premiums for the first 2 years will be paid by the bank, while the customer will be responsible for paying the premiums for the remaining years until the mortgage has been repaid in full.

The customer can choose to change the insurance provider from the third year after repaying the premium paid by the bank in the first 2 years as a penalty.

(ii) Describe the operational risks for Company G arising from this new partnership with the bank. [3]

(iii) Discuss the possible impact of this partnership on Company G's claims reserving process. [4]

(iv) Discuss why the regulator may have concerns around the terms of this partnership. [4]

[Total 15]

5 (i) Explain why a general insurance company may need to hold Additional Unexpired Risk Reserve (AURR). [3]

A general insurance company, Company U, writes employers' liability insurance. A recent court ruling means that all future claims involving permanent disability need to be settled through monthly payments to the claimant until their retirement age, or death if that happens earlier. Such claims were previously settled as lump sums.

In view of the new court ruling, Company U's actuarial team believes that an AURR may need to be set up.

(ii) Discuss the considerations for the actuarial team to estimate the AURR. [6]

(iii) Outline the possible impacts of the court ruling on Company U's technical provisions when reporting under the Solvency II framework. [3]

[Total 12]

6 (i) List rating factors to use when underwriting a cyber insurance policy. [3]

A Lloyd's syndicate, Syndicate Z, writes only cyber insurance policies and has been in operation for 2 years. Syndicate Z performs Realistic Disaster Scenario (RDS) analysis to check if the available capital is sufficient for its portfolio.

(ii) Suggest possible reasons why Syndicate Z uses RDS analysis for assessing the sufficiency of its capital. [4]

(iii) List three realistic disaster scenarios that Syndicate Z could use in the capital setting process. [3]

A new cyber catastrophe model has been released by a catastrophe modelling firm. The Syndicate's Chief Actuary is suggesting purchasing and using the new model, rather than RDS analysis, for assessing the sufficiency of capital requirements.

(iv) Discuss the advantages and disadvantages for Syndicate Z of the Chief Actuary's suggestion. [5]

[Total 15]

7 Company F writes construction and engineering insurance business. Company F currently uses only a surplus reinsurance arrangement as a risk transfer mechanism.

(i) Discuss the advantages and disadvantages for Company F purchasing only surplus reinsurance. [3]

The maximum retention for this surplus programme is $1 million and it comes with seven lines of cover. The surplus is written on an Estimated Maximum Loss (EML) basis.

The following information has been provided for claims affecting the surplus reinsurance cover:

	Gross claim amount ($)	*EML ($)*	*Surplus cession decision*
Claim 1	2,000,000	5,000,000	Retain the maximum
Claim 2	6,900,000	10,000,000	Retain the maximum
Claim 3	510,000	2,000,000	Use maximum lines of cover

(ii) Calculate, showing all workings and stating any assumptions made, the retained and surplus claim amounts for each claim. [7]

[Total 10]

8 A general insurance company plans to fully automate its claims reserving process. The claims reserving process is defined from the time when the premium and claims data is made available to the actuarial team to the time when the actuarial team provides the estimates of IBNR claim liabilities to the finance team.

(i) Suggest possible reasons why the company is planning to automate its claims reserving process. [3]

(ii) Discuss the key areas of actuarial judgement that may not be adequately addressed in the new automated claims reserving process. [10]

(iii) Describe the possible impacts of automating the claims reserving process on the financial results of the company. [4]

(iv) Suggest possible solutions to minimise the impacts identified in your answer to part (iii). [3]

[Total 20]

END OF PAPER