

EXAMINERS' REPORT

June 2024 examinations

Subject F103 — *General Insurance* Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principle Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners, and should not be taken as model solutions.

QUESTION 1

i. Possible reasons:

- It may need access to technical assistance if it is planning to launch a new type of product, with which it is unfamiliar, which is expected to have high claims volatility.
 - As it would not have any past experience to base pricing and reserving assumptions on, a reinsurer's technical assistance could be valuable.
- It may be planning an expansion/takeover, into areas with which it is familiar, which would result in unacceptably high levels of accumulations of risk.
 - This may, for example, result from taking on an unacceptably high exposure to a given peril, such as asbestosis.
- New accumulations of risk may have emerged on existing business at an unacceptably high level.
 - This may be due to something such as the increasingly rapid progress of climate change, impacting particularly heavily on the insurer due to its geographic concentration of business.
- It may want protection against single large losses if it is writing certain commercial or liability lines and accepting large risks.
 - In such situations, despite having relatively large free reserves, a very large claim could be detrimental.
- It may want protection against a catastrophic event (e.g. severe weather storm), or a large multi-class loss (e.g. through terrorism).
 - Such occurrences, despite it having relatively large free reserves, could be very damaging.
- There may have been a fundamental change in legislation, opening up the possibility for many more claims of certain types, such as changes to the current conditions for employers' liability claims.
 - The insurer may thus wish to seek reinsurance to protect it against this, including on business already written to an extent.
- It may wish to make use of reinsurance to smooth profits, despite it potentially being large enough to cope with the volatility in results.
 - More predictable results in turn should suit shareholders and allow better planning and better capital efficiency, or a riskier investment strategy in an attempt to increase profits.
- The presence of reinsurance may allow increased underwriting capacity for the insurer, by being able to accept more (and more volatile) risks.
 - This would allow more business to be written and hopefully greater profits.
- Certain reinsurance may be required by legislation.
 - E.g. for classes of business deemed to be very risky.

ii. 1. Cover: R100m XS R40m

Surplus recovery: $\frac{2}{3} \times R240m = R160m$

XL recovery: $\min(R240m - R160m - R40m, R100m) = R40m$

Reinstatement Prem.: $40/100 \times (150\% (R20m)) \times 8/12$
 $= R(0.4 \times 30 \times 2/3)m$

$$= R8m$$

2. Cover has been fully reinstated to R100m XS R40m for the remaining 8 months.

Surplus recovery: $1/2 \times R300m = R150m$

XL recovery: $\min(R300m - R150m - R40m; R100m) = R100m$

Reinstatement Prem.: $60/100 \times (150\% (R20m) \times 5/12$

$$= R(0.6 \times R30m \times 5/12)$$

$$= R7.5m$$

3. Cover: R60m XS R40m for the remaining 5 months.

Surplus recovery: $3/4 \times R600m = R450m$

XL recovery: $\min(R600m - R450m - R40m, R60m) = R60m$

i.e. the remainder in the layer

No reinstatement premium as no further reinstatement is available.

Part (i) was generally poorly answered. Many candidates simply dumped a list of the general reasons for reinsurance from the bookwork, without much attempt to “outline” as required. Such answers did not gain credit. Many did not give sufficient consideration of the scenario presented and when such an insurer may want reinsurance, and thus made inappropriate suggestions.

It was disappointing to see that some candidates tried to give more than the requested 6 reasons – only the first 6 reasons given were marked. It would help both the candidate and the marker if candidates numbered their points in such questions. This would help candidates to not waste time writing down things that won't be marked.

In part (ii) a number of candidates scored full marks. The weaker candidates, however, did not even know how to determine the surplus recoveries. Some candidates lost marks carelessly by not showing calculations (as per the general instructions on the paper) or by omitting currency or units.

QUESTION 2

- i. Indemnity versus expenses payment split:

- To identify where costs can be reduced in settlement procedures.
- In the allocation of expenses, indemnity payments which are not isolated could distort claims analysis, e.g. inclusion of indirect expenses allocated to classes.
- Direct expenses could sometimes be included provided they remain consistent.
- It is better to have flexibility to produce separate figures for management reporting.
- It can allow more accurately for inflation on expenses.
- It can allow for more accurate reserving.
- It will help with making better revisions of the assumptions for expenses and claims.
- It can improve analyses by class of business

ii. Reinsurance investigations:

- Retentions – whether the current levels are still applicable given its growth.
- Extent of cover – to ensure upper limits are sufficient.
- Accumulations – to determine whether the risk may have increased due to its growth.
- Catastrophe cover requirements – assess the natural disaster risk on the growing book across the various regions.
- Reinstatements – whether the current position is still sufficient, or whether more may be required.
- Value for money and business objectives – to see if it reduces enough volatility and whether the overall structure design is still efficient. A net claims analysis can assist with this.
- Profitability and effect on capital – to assess overall cost and the effect on capital to ensure an appropriate balance of risk versus return.
- Strength of reinsurers – need to continue to assess reinsurers' strength and diversification, including any delays in reinsurance recoveries.
- Risk appetite – confirming company's appetite with respect to risk and reinsurance.
- Cost of reinsurance and terms (commissions) – to ensure these remain competitive, renegotiating where necessary.
- Reinsurance expertise needed – and the extent to which it is available.

iii. Consequences of not doing appropriate investigations:

- It could underestimate cover required with respect to:
 - Retention levels;
 - Number of reinstatements;
 - Upper limits;
 - Aggregation limits;
 - CAT limits; etc.
 - Exclusions/ type of cover
- This could lead to:
 - Losses (due to both frequency and severity of claims);
 - Higher capital requirements.
- Inefficient structures with imbalance between risk and return.
- It could underestimate default risk – higher capital requirement
- Breaching risk appetite or not complying with risk mitigation policies.

Candidates generally performed well on this largely bookwork question, with a wide range of points being acceptable.

QUESTION 3

- i. A captive insurance company is an insurer that is wholly owned by an industrial or commercial enterprise.

It is set up with the primary purpose of insuring the parent company or associated group companies.

- ii. Possible reasons:

- There may not exist adequate reinsurance available in the market (the captive fills a roll for cover needed by the insurer).
- By consolidating the risk across multiple companies. The risk pool may benefit from diversification across geographic areas.
- It may benefit from economies of scale and centralising this risk management task and the captive can be tailored to the specific and aggregated risks faced by the group.
- The captive can be set up in a tax efficient regime saving on group tax costs from insurance payments.
- The captive may be set up in a regime with reduced regulatory requirements for captives resulting in capital gains for the group.
- No additional margin going towards a reinsurer's profit needs to be spent – it allows managing insurance spending at the group level.
- Given all of the above, it may be cheaper than traditional insurance or what is currently available in the market..
- Enhanced risk management as data and risk assessment functions for this risk are now centralised and thus allow for an aggregated view of risks

- iii. Potential alternatives:

- Reinsurance – given that WIG is looking to set up a captive, it's unlikely that reinsurance is available in the market at affordable rates. However, if it is available at a competitive price then it may be viable.
- Lloyd's syndicate – they may be able to find a syndicate through which they could insure these risks but this would come with additional costs and complexity..
- Securitisation (catastrophe bonds) – while it can be useful to manage the severe downside, it may not be as effective at holistic risk management of the underlying insurance risks.
- Sidecars – similar to the catastrophe bonds. However, additional work would be required in sourcing investors that would partake.
- Weather derivatives – similar to above. Additional complexity in structuring the deals needs to be considered.
- Committed or contingent capital – Again, not as effective at holistic risk management of the insurance book as pre-specified events/triggers will have to be identified.

- Risk pools – WIG may be able to create a risk pool amongst other insurers where they can share in climate related risks. This may be useful to diversify but has substantial additional administrative complexity.

Candidates generally performed okay in this question. Listing questions and point generation around risk management was done well. However, many candidates struggle to put coherent reasons down as to why things are/ are not effective.

In part (i) many candidates failed to answer the question, which asked for “the main reason...”, and gave more than one reason. Some candidates listed all the reasons they could think of for setting up a captive. This is a clear indication to the marker that they did not know what the main reason was. Candidates that provided long rambling answers to this straightforward bookwork question generally did not score well.

In part (ii) many answers were too generic, brief or vague to gain credit. Candidates needed to outline reasons why a captive might be used rather than other methods to manage the climate-related risks.

Part (iii) required candidates to comment on other ways of transferring the climate-related risks, and was not well answered on the whole. Instead of commenting on the alternatives, many candidates simply provided explanations of how the alternatives work – which is not what was asked for. It is important to pay heed to the command verb in a question in order to answer the question appropriately.

QUESTION 4

- i. Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events.
- ii. Potential risks arising:
 - There may be an anti-selection effect. The person that is most likely to take up insurance is not necessarily the best from a risk standpoint leading to unexpected insurance losses in time.
 - The fraud detection model may be performing very well due to the employees providing it with training data. The risk is that there is over-reliance on the outputs of the model without understanding what the model is doing and an overfitting towards historical data. Thus over time, there may be a larger amount of fraudulent claims being conceded than expected as the model becomes worse at picking up new fraudulent claims as they evolve over time.
 - Reputational risk caused by incorrect model outputs (customers being incorrectly flagged for fraud or being over-contacted by the sales model_ that have an adverse negative social impact on the public’s view of the insurers. This can result in financial loss and related indirect financial impacts of a decreased social perception.

- Technological risk: Dependence risk on these models working correctly and not having backups. The sales model or fraud detection model being unavailable due to operational issues, or potential data breaches will result in lost business or claims delays.

iii. Potential methods:

- Independent intermediaries (brokers): Intermediaries that act between the buyer and seller of insurance but are tied to neither. They are paid via commission by the insurer.
- Tied agents: The sale of insurance by an organisation or 'agent' that is 'tied' to the insurer in the sense that they can only sell the insurers products.
- Direct sales: The insurer may hire salaried employees who earn money via commission on sales of insurance policies.

iv. Expenses:

- Technology costs – there may be decreased server and software costs as the models are decommissioned.
- Change in staffing expenses – there may be a changing and offsetting affect in staff expenses as IT and data support staff that are no longer needed to maintain the model are instead replace with sales and claims management staff.
- New business strain – given model A and its improvement to new business, there may be reduced new business if the model is replaced with sales staff.

This question was generally well answered.

In part (i) those who scored poorly usually missed out a key piece of the definition.

In part (iii) candidates that scored well were specific about the risks that these models in particular presented. Generic comments about neural network models or regulatory risk resulting from data concerns were only given marks if context to the specific models (as asked in the question) was provided.

Part (iii) was well answered by most candidates. Candidates who did not score well often tried to give more than one method in a bullet point, e.g. tied agents and brokers, thereby confusing their answer.

Part (iv) was also generally well answered. Candidates who tried to lump various expense items together in one point tended not to score well, particularly where the expenses were of different types, as this showed a lack of understanding.

QUESTION 5

i. Group risk is the risk an insurer experiences from being part of a group as opposed to being a standalone entity.

ii. Potential risks:

- Reputational risk: Given that a subsidiary insurer now has reduced control of the capital model, should there be a solvency issue (with either the parent or any of the other subsidiary companies) then there may be reputational damage to the insurer. Particularly as concerns of the insurer having its capital calculated using the same model as another, insolvent, company.
- Centralized risk (operational risks): The centralising of the model and its separation from the business being modelled can increase the risk of errors in the process resulting in adverse financial consequences.
 - Included in these risks is strategic risk which arise from the inability of a subsidiary in implementing the best business plans and strategies as they have to go with the strategies laid out at group level.
- Regulatory risk: A single insurer may be in a very different regulatory regime given its location. As such, a centralised capital model may not adequately capture the nuances of capital requirements in the specific country. This may result in increased penalties from local regulators.
- Political risk: Given that the model is now centralised, and capital is calculated at an aggregated level, there is an increased risk that the potential of a change to political arrangements in other countries can adversely affect an insurer in a separate company.
- Group reinsurance risk: Given that the subsidiary insurers had more autonomy in the past, it is likely that this also reflects in their reinsurance arrangements. With a centralised model, there is the potential for group reinsurance arrangements or for the reinsurance strategy to be influenced by group capital modelling. Group reinsurance arrangements may be to the detriment of individual subsidiaries.

iii. Shapley method: An extension to the marginal capital allocation method (where the marginal capital of each line of business is assessed). This extension assigns capital to the subsidiary equal to the average of the marginal capital requirements as the subsidiary is assessed first, second, third, and so on, in the model order.

Proportions method: The proportion of the final group capital figured allocated to a subsidiary (allowing for diversification) is based on the proportion that the subsidiary contributes to a risk metric on a standalone basis.

iv. The proportions method is likely the best method for the exercise (at the moment).

Arguments against using the Shapley method include:

- Depending on the exact number of subsidiaries, the total combinations required for the Shapley method may make it unfeasible due to complexity and time

- Given that the subsidiaries are in unrelated and specialised liability lines from one another, the diversification may not be significant. As such there may not be justifiable benefit in using a more complex model.
- If the Shapley method did result in there being changes, it is more difficult to explain to subsidiaries why their capital amounts have changed and why they increased.
- The proportions method may be able to be based off current subsidiary calculations. The standalone subsidiary model outputs can be used for the standalone determination of proportions. A central model can then allow for diversification. This final diversified capital amount can then be apportioned based off the capital amounts.
 - This should only have the effect of decreasing capital requirements for subsidiaries after allowing for diversification at the group level.

Part (i) was generally well answered. A number of candidates, however, provided unnecessarily long answers.

In part (ii) many candidates did not pay sufficient attention to the context provided, in particular that there should be no significant increases to the capital requirements of any subsidiary. Candidates that scored poorly often had vague or generic answers.

Part (iii) could have been answered better by many candidates, with several demonstrating a lack of understanding of the methods.

Many candidates struggled with part (iv). Poor scoring candidates often did not generate a sufficient number of points and/or gave vague answers. Candidates who did not understand the methods in (iii) generally performed poorly in (iv). The candidates that understood the working of capital allocation methodologies performed reasonably well.

QUESTION 6

i. Product liability insurance benefits:

- Indemnifies the insured against legal liability for the death of or bodily injury to a third party, or for the damage to property belonging to a third party, that results from a product fault.
- The policy will usually also cover legal costs.
- Some policies will include the costs of recalling faulty products that have not actually caused damage.

Perils insured against:

- Faulty design.
- Faulty manufacture.
- Faulty packaging.
- Incorrect or misleading instructions.

ii. Suitable assets:

- All-Re's liabilities will be similar to those of direct writers in many respects:
 - Most claims are likely to be long tailed due to potentially long reporting delays (due to the losses-occurring basis used) and long settlement delays due to litigation.
 - Pharmaceutical product liability may also include latent claims that could take many years to emerge.
 - All-Re's claims may be even longer tailed than direct writers due to the absence of smaller claims that may be settled more quickly.
 - Claim size increases over time due to medical and nursing costs, earnings (for loss of earnings claims) and punitive court award inflation, all exceeding CPI.
 - Litigation costs are likely to exceed CPI.
 - Reinsurer own costs linked to staff and IT costs and probably exceed CPI.
 - Claim currency will depend on where claims need to be paid, but is likely to be varied.
 - Accumulations from faulty drugs can result in considerable claim uncertainty.
- Suitable matching assets are likely to include:
 - Shares, property and index-linked bonds should be suitable in providing real returns and should be sufficiently liquid (if indirect property investment is made rather than direct) given claim uncertainty.
 - Cash deposits and money market instruments provide the best liquidity for very short-term liabilities, and a loose match to inflation.
 - The currency of the assets should reflect estimated claim profile.
- Additional factors include:
 - All-Re's solvency level: the larger the solvency the greater the investment freedom to pursue higher returns.
 - Investment regulations may affect asset choice.

iii. Impact of claims-made basis:

- This basis significantly reduces reporting delays as All-Re is at risk of claims reported by direct writers within a defined period.
- Settlement delays may not be affected as much, but overall the claim tail will be much shorter for All-Re with the following implications:
 - Greater need for liquidity as payments will be made sooner.
 - Money market instruments become more suitable due to their liquidity and loose inflation link.
 - Less appetite for volatile returns so perhaps less listed shares and more index-linked bonds may be suitable.
 - Some fixed-interest bonds might be suitable if the impact of inflation exceeding expectations isn't likely to be material over the shorter time horizon.

iv. Adjustments for converting Underwriting Year (UY) to Accident Year (AY):

- UY claims outstanding includes both amounts from incidents already reported and amounts in respect of claims on events that will occur in future accounting periods.
 - Hence to convert UY to AY one needs to reduce the estimated claims outstanding so that they only cover events occurring up until the end of the accounting period.
- Under AY one needs to set up an Unearned Premium Reserve (UPR) in respect of claims that are yet to occur on policies that have been written, but not yet fully earned.
 - This is usually done assuming the premium is earned evenly over the policy year, but might have to be adjusted if this is not the case.
 - An AURR may also need to be established for future claims experience expected to exceed allowances in the UPR.
- AY claims outstanding must also include an allowance for claims arising from incidents occurring in the year in question but in respect of policies written in earlier years (i.e. earlier UYs).
- Deferred Acquisition Cost (DAC) asset needs to be set up under AY in respect of acquisition costs paid for premiums received, but not yet fully earned.

v. Comment:

For a specific accounting period:

- Insurance profit = Premiums earned – Claims paid + OCR bf – OCR cf – expenses + investment income on insurance funds.
- So prudent outstanding claims reserves (OCR) cf will lead to insurance profits being lower than if less-prudent reserves were used.
- Unless the level of prudence has changed in reserving methodology, prudence will also be present in OCR bf, so it is the net effect of OCR bf – OCR cf that will impact insurance profit, in particular,
 - An insurer with increasing OCR (e.g. due to growth) will under-estimate insurance profit.
 - An insurer with decreasing OCR (e.g. due to loss of business) will over-estimate insurance profit.
 - Investment income on insurance funds will be higher if reserving is prudent, but this impact is unlikely to be significant (compared to a best-estimate reserving approach), and will be offset by lower income on the smaller free reserves reported in the P&L.
- Changes in the level of prudence will distort insurance profit, and an increase in level of prudence will similarly under-estimate reported profits relative to realistic profitability.
 - A decrease in level of prudence during an accounting period (but still retaining some prudence) leads to insurance profit being over-estimated.
- So the students claim may be correct, but it may also be incorrect.

Over the long term:

- While the reserving basis may affect profit reported over a particular period, over the longer term profits are determined by how actual experience differs from that allowed for in determining premiums – reserving only impacts on the emergence of profit over time (all else being equal).

Overall reasonably well answered but with a wide dispersion of marks.

Part (i) was bookwork and answered well by most.

Part (ii) was answered reasonably well by many candidates.

Part (iii) was also mostly answered well.

Part (iv) was very poorly answered, with many candidates explaining the key line items needed in Accident Year accounts, but not explaining how to adjust Underwriting Accounts to derive Accident Year accounts.

Part (v) was generally poorly answered – most candidates showed an appreciation for the fact that prudent reserves might distort reported accounts, but could not elaborate on this in a sensible way.

QUESTION 7

- i. The burning cost approach is an experience rating approach, ie it is based on the past claims experience of the insurer. We define the burning cost as the actual cost of claims during a past period of years expressed as an annual rate per unit of exposure.

$$\text{Burning Cost Premium} = (\sum \text{Claims}) / \text{Total Exposed to Risk}$$

The claims should be increased to allow for past inflation, and also for IBNR, although often this is not done in practice. The burning cost using unadjusted data is known as the effective burning cost and with adjusted data or indexed data it is known as the indexed burning cost.

- ii. Burning Cost Premium (2015–2023): $2779.7 / 451253.4 \times 1000 = R6.2$ per R1000 sum insured.
- iii. Firstly, based on the data, there appears to be a change in exposure or pricing after 2017. The written premium decreased from R300m to R200m and therefore should be excluded from the analysis.

The current unit rate being charged (per R1000 SI) on the overall book for 2023 is $254.4 / 55843.9 \times 1000 = 4.6$. The burning cost premium for 2015 – 2023 (6.2), 2021 –

2023(8.8) and 2019 – 2023(7.1) are all higher than the current unit rate being charge of 4.6. This suggest that the book is loss making.

However, based on 2018 – 2023, 4 of the 6 years are running at a loss ratio below 100% and are profitable. 2021 and 2022 appear to be driven by large losses. Further investigations into these losses will need to be carried out to determine if they are once off or expected to re-occur. If losses are due to catastrophes or large claims, a separate more detailed analysis would need to be considered to determine whether the loadings for large claims and catastrophes are correct.

There was an increasing trend in the loss ratio from 2018. After removing large claims and catastrophes, further investigations should be done to see if this is expected to continue. Otherwise, profit and expense margins might be eroded away.

The losses in 2021 could be due to Covid-19 on business interruption. However, given that the data is not split between commercial property insurance and business interruption, it is difficult to identify whether one product could be the cause of the losses or both. Additional work should be done on each product separately. One could also look at splitting the book into different rating factors e.g. province or type of business / property to better understand the cross-subsidies or factors influencing the profitability of the book.

Questions around the assumptions used to determine the ultimate claims would need to be asked as the reserving team may be conservative especially as recent underwriting years are unlikely to be fully developed.

A separate analysis can be carried out to compare actual to expected claims for each product. This will give a better idea of whether the risk premium rates are out.

From 2018 – 2022, the sum assured was increasing at a stable rate and then exposure dropped off in 2023. Further details into what caused the change in exposure would be required and whether exclusions were added to the policies for business interruption, or whether there was a shift in exposure between regions.

Part (i) was generally well answered although candidates left out detail on a describe and explain question and therefore lost out on easy book work marks.

Part (ii) was fairly well answered by the majority of candidates. However, many candidates lost easy marks by not using the totals given in the question and tried to add the sub-totals resulting in double counting of 2021-2023 numbers. A few candidates calculated the burning cost for each of the 9 years separately (for 1 mark) wasting a significant amount of time.

Part (iii) was poorly answered. The majority of candidates answered the question “briefly discuss the factors you would consider before re-pricing the book” and did not address concerns of the reserving team or use the data in the question to address the concerns. Very few candidates attempted to analyse the numbers given in the question or discuss concerns evident from the numbers.

QUESTION 8

i. Sources of uncertainty:

- Insufficient own past data on this class, especially as claims are unlikely to be fully run off on even the earliest business.
- The mix between the types of industry underwritten, as each will have different expected claims outcomes (e.g. hospital versus manufacturing plant).
- The mix of claims between bodily injury, death and damage to property belonging to the third party. Different types would have different expected claims costs.
- The litigiousness of society (and insured population in particular), which depends on culture and awareness which may change over time.
- Legislation changes which may impact claims experience directly or indirectly.
- Changes in claims handling, due to either external or internal events (e.g. changes to approach used for case estimates).
- Levels of claims inflation applicable to public liability claims, which depend on factors such as general price inflation, wage inflation, medical inflation and judicial inflation.
- An accumulation of risk due to failure to understand the true underwriting exposure will increase the uncertainty of claims. For example, exposure to clients that have poor risk management may increase the number of public liability claims.

ii. Reasons:

- Inappropriate past data:
 - The data used to calibrate the model may be inappropriate due to significant once off events e.g. changes in claims handling, catastrophes etc.
- The past may not be a good indicator of the future:
 - The volatility seen in the historical claims data may not be a good indicator of the underlying process uncertainty.
 - This is particularly an issue for insurers with limited data.
- Other reasons:
 - Inappropriate distribution or model is used. For example, bootstrapping an ODP model on claims triangles with negative increments.
 - Insufficient model runs are used resulting in the model not converging to a single number.

iii. Advantages:

- It is simple to perform on deterministic or stochastic models.
- It considers the actuary's knowledge and experience. Thus, judgement can be used to select appropriate parameters to reflect atypical volatility.
- It doesn't require large volumes of data.
It is not impacted by distorted or unusual data.

- It is easy to communicate the results when the selected scenario or assumption(s) are based on a tangible event.

Disadvantages:

- No explicit probability is assigned to each set of parameters. So it is not possible to estimate the distribution of future outcomes.
- It ignores model uncertainty, and doesn't allow for process uncertainty if we use alternative assumptions for a deterministic model.
- The selected assumption(s) or scenario are subjective.

iv. Calculate the new cumulative claim development pattern:

Assume uniform claim payments by development year.

Then the revised cumulative proportions of claims paid in year t will be determined as:

Original cumulative proportion $_{t-1} \times \frac{1}{4} + \text{Original cumulative proportion } _t \times \frac{3}{4}$

Cumulative proportion claims paid (years)				
1	2	3	4	after 4
11.3%	37.5%	63.8%	85%	100.0%

Calculate the claims reserves based on alternative assumptions (amounts in R millions):

Ultimate Claims (BCL) = Cumulative claims paid / Cum ppn paid after 2Y (AY 2022) or 3Y (AY 2021)

Ultimate Claims (LR) = Initial expected loss ratio $\times$ earned premium

Claims Reserve = Ultimate claims – Cumulative claims paid

Accident year	Earned Premium	Cumulative claims paid	Selected Approach	Ultimate Claims	Claims Reserve
2021	400	150	BCL paid	235	85
2022	500	100	BCL paid	267	167
2023	600	200	Loss Ratio	330	130
				Total	382

Part (i), an application question, required students to apply their bookwork knowledge of the characteristics of public liability claims to identify possible sources of claims uncertainty. Some students outlined risks that were not applicable to the question, for example model and parameter risks.

Part (ii) was book work, yet was surprisingly poorly answered.

Part (iii), bookwork, was generally well answered.

Part (iv) was very poorly answered. Several candidates did not attempt it, and for those that did, only a small portion correctly updated the payment pattern. A reasonably well prepared candidate, with a sound understanding of the mechanics of each methodology, should have been capable of making simple adjustments to the basic methodologies as specified.

END OF EXAMINERS' REPORT