Institute and Faculty of Actuaries

EXAMINERS' REPORT

SP1 - Health and Care Specialist Principles

September 2022

Introduction

The Examiners' Report is written by the Chief Examiner with the aim of helping candidates, both those who are sitting the examination for the first time and using past papers as a revision aid and also those who have previously failed the subject.

The Examiners are charged by Council with examining the published syllabus. The Examiners have access to the Core Reading, which is designed to interpret the syllabus, and will generally base questions around it but are not required to examine the content of Core Reading specifically or exclusively.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report; other valid approaches are given appropriate credit. For essay-style questions, particularly the open-ended questions in the later subjects, the report may contain more points than the Examiners will expect from a solution that scores full marks.

The report is written based on the legislative and regulatory context pertaining to the date that the examination was set. Candidates should take into account the possibility that circumstances may have changed if using these reports for revision.

Sarah Hutchinson
Chair of the Board of Examiners
December 2022

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A. General comments on the *aims of this subject and how it is marked*

The aim of the Health and Care Specialist Principles subject is to instil in successful candidates the ability to apply, in simple situations, the principles of actuarial planning and control needed in health and care matters on sound financial lines.

Candidates who approach the questions in a methodical and detailed manner are far more likely to satisfy the examiners and receive a pass in the subject. Candidates will gain few marks if they do not address the question asked but merely write around the topic of the question.

The mark allocation for each question part gives an indication of the relative length of answer or number of points to be made to gain full marks. The Examiner's Report covers more points than would be expected to get full marks. This is so that alternative approaches to questions by different candidates can be accommodated.

It is often helpful to structure and use subheadings when answering long part questions.

B. Comments on *candidate performance in this diet of the examination.*

The paper was a relatively straightforward one and well-prepared candidates scored well across most of the questions.

Questions that focussed on knowledge of the Core Reading were well answered by those who had prepared thoroughly. However, the paper included several part questions requiring wider thinking or application of core reading to specific circumstances, such as questions 1(ii), 2(i), 2(iii), 4(i), 4(ii) and 4(iii). Candidates should recognise that these are generally the questions which differentiate those candidates with a good grasp and understanding of the subject.

It is pleasing to see many candidates providing their answers under subheadings, making them easier to follow and mark. This also helps show that they have applied their knowledge to the specific scenarios described.

C. Pass Mark

The Pass Mark for this exam was 60.
244 presented themselves and 125 passed.

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Solutions for Subject SP1 - September 2022

Q1

(i)

Advantages:

Reviewable premiums provide the insurer with the mechanism to remediate future risks should actual experience turns out to be worse than pricing assumptions [1]

For example, morbidity, mortality, expense, lapse experience

(*½ mark for any two examples)* [½]

Which could lead to:

Lower margin for prudence required in premiums [½]

And lower initial premium rates [½]

Which would help increase sales [½]

Lower level of guarantee, which could lead to: [½]

Lower reserving requirement, [½]

Lower capital requirement. [½]

Reviewable premiums also provide the insurer the mechanism to pass the benefits of favourable experience back to the policyholders should actual experience turns out to be better than pricing assumptions, which could lead to: [1]

Lower future premiums [½]

Better policyholder satisfaction [½]

And enhanced brand image/reputation [½]

Offering reviewable premiums may be more aligned to market / industry practice [½]

Reviewability also gives Company A the opportunity to align the premium to changes in its own practices, e.g. its claims control procedures [½]

It may allow Company A to offer cover for new risks at reasonable price even if it does not yet fully understand future claim experience for the risk [½]

The availability of reinsurance for guaranteed CI products may be limited [½]

The reinsurance terms offered by reinsurers on reviewable premium business could be better than those on guaranteed premium business [½]

Company A may not have sufficient credible data for pricing and offering guaranteed premiums could be too risky against its risk appetite [½]

Disadvantages:

A CI product with reviewable premiums would create additional administrative burdens in comparison with a CI product with guaranteed premiums [1]

Performing regular premium review is a complex process [½]

Which may involve more frequent experience investigations [½]

Any changes in premium rates will need to be updated in the IT systems [½]

There will also be more frequent communications with the policyholders [½]

This would add to the ongoing maintenance costs [½]

Risk of mis-selling if sales intermediaries are not trained to explain the reviewability features adequately [½]

Reputational loss / Damage to brand name [½]

Frequent change in premium rates may not be liked by the policyholders [½]

Increase in premium rates may not be well received by policyholders, which could lead to: [½]

Policyholder complaints [½]

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Higher lapses [½]
And if lapses are selective, it could worsen experience further [½]
Policyholders may be particularly unhappy if their premium increases are as a result of policyholders who have claimed / lapsed (as neither of these things is their own fault) [½]
Offering reviewable premiums may not be aligned to market / industry practice [½]
It may also make the sales process more complex and increase the risk of mis-selling [½]
Policyholder expectations restrict the extent to which the risks can be passed on [½]
And risks are still retained in the 5-year periods between reviews [½]
Costs of meeting additional regulations that may apply on reviewable business [½]
[Marks available 20, maximum 6]

(ii)
Arguments for the proposal:
Reduced premium rates on its existing CI policies are likely to be well received by existing policyholders, which could lead to: [½]
Higher policyholder satisfaction [½]
Enhanced brand image/reputation [½]
Better persistency experience [½]
If lower premium rates are also reflected in new business, it will make the CI product more competitive in the market, [½]
Which could increase sales [½]
And higher sales could ultimately lead to higher profitability [½]
The reduction may be of no cost to Company A if the reduction is closely aligned to the reduction in the reinsurance premium rates [½]
If Company A retains some of the reduction in reinsurance rates, it would lead to higher profitability [½]
The reinsurance rates may have been used in setting the original pricing assumptions, so it is fair to pass the benefit back to the policyholders [½]
There could be processing efficiency in updating the change in reinsurance premiums and policyholder premiums in one single exercise [½]
Which would make the change simpler to administer [½]
And more cost effective [½]
The reinsurer is likely to have wider and more credible data for its analysis and more reliable results [½]
Although this will be reliance on the reinsurer's wider experience being relevant to Company A's specific policyholder portfolio [½]
As reinsurance premiums may be based on the reinsurer's aggregate experience (from all ceding insurers, not just Company A, [½]
Where these other ceding insurers may offer CI product with different product features (e.g. different CIs / CI definitions) [½]
If Company A reinsures a significant proportion of its reviewable CI policies to Reinsurer B, the risk of misalignment of their respective underlying experience would be proportionately reduced [½]

Arguments against the proposal:
If Company A does not review its premiums (i.e. not passing the benefits of reduced reinsurance premiums to its policyholders), it will increase its profit margin [½]
The key risk is the degree of the misalignment of underlying experience between Company A and Reinsurer B [½]

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It is unclear which aspects of Reinsurer B's experience are reflected in the reduction of the reinsurance rates, which could be in respect of: [½]
Morbidity [½]
Expenses [½]
Lapse [½]
Changes in regulatory/tax requirements [½]
Company A should seek to understand which aspects of the above experience before making an appropriate decision [½]

Morbidity:
Given that the reinsurance arrangement is on an individual excess of loss basis, the experience between the insurer and the reinsurer could be very different if: [½]
The excess point is high [½]
And the portfolio of Company A's business is predominantly of lower sum assured [½]
The higher sum assured cases may be subject to more stringent underwriting process [½]
And claims experience may be much better for reinsurer under such policies [½]
Aggregations of many small claims which are below the excess point (even though the excess point is set at a reasonable level) will hit Company A but not necessarily the reinsurer [½]
The experience for higher sum assured may therefore be significantly different from lower sum assured policies [½]
The upper limit / ceiling of the reinsurance cover means that for some very large claims, the top slice of which revert to Company A, which will have a more proportionate impact on Company A [½]

Expenses:
The expense loading may be significantly higher for the insurance premium compared to reinsurance rates due to: [½]
Commission to intermediaries [½]
Medical underwriting expense [½]
Maintenance / overhead expense etc [½]
Reduction in insurance premium in similar proportion to reinsurance rates would assume that Company A and Reinsurer B have similar expense experience [½]
Given that Company A and Reinsurer B are different organisations, they may have very different expense bases [½]
Communications to individual policyholders could incur higher administrative expense to the insurer (Company A) as opposed to the reinsurer's (Reinsurer B) communication to its cedants / ceding insurers as the volume of policyholders is likely to be much larger than the volume of cedants [½]

Lapse:
The considerations are similar to those under morbidity [½]
In particular that the reinsured cases exhibit different lapse experience from the overall CI portfolio within Company A [½]
Changes in regulatory/tax requirements [½]
These changes may be specific to reinsurers. [½]
If that is the case, the benefits should not be allowed for the non-reinsured portion of the business [½]

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Other considerations:
There is a misalignment between the review period - a 5-year cycle for Company A and a 2-year cycle for Reinsurer B [½]
The change in reinsurance premium rates may therefore be more frequent than Company A's own review exercise [½]
Following the reinsurer's rate change means that Company A is placing more reliance on Reinsurer B's analysis within its own review cycle [½]
Which may not be acceptable from Company A's own risk management framework/ policy [½]
Frequent changes in premium rates may have negative effects on policyholders [½]
In particular that any premium reductions are followed by subsequent premium Increases [½]
This could lead to policyholder dissatisfaction / complaints [½]
Which could adversely affect lapse experience [½]
The practice could also attract press attention [½]
And even intervention/investigation by the regulator [½]
If the reduction is not material, it may not have the desired level positive impact on policyholder satisfaction [½]
Which could be outweighed by the implementation costs [½]
There will also be the extra costs of this additional review to factor into premiums [½]

[Marks available 29½, maximum 12]

[Total 18]

Part (i) This question was mainly well answered, with many candidates scoring highly. The better prepared candidates were able to give more of a balance between advantages and disadvantages.

Part (ii) - A substantial number of candidates were unable to articulate a good response to this question. The stronger candidates were able to consider why the reinsurer might have reduced its rates, and the nature of the reinsurance provided to assess whether it would be appropriate for the insurer to follow suit. Candidates should be aware that they did not need to offer an alternative solution to the Marketing Director's suggestion, but they needed to discuss the advantages and disadvantages of the given proposal. To make the best use of their time in the exam it is vital that candidates answer the question actually asked by examiners.

Part (ii) of this question differentiated the stronger candidates from the less prepared candidates.

Q2

(i)

The main reason is that the IP product has a guaranteed premium throughout the policy term whilst the PMI product's premium is only guaranteed for one year, [½]
Which may be impacted differently due to the impact of different calculation methods [½]
And/or requirements over the assumptions that are used for the two product lines [½]

Insurance risk capital requirement

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The longer period of guarantee means higher reserve [½]
For which margins for uncertainty in cashflows would be higher the further into the future the cashflows are (impacting long-term business more than PMI) [½]
Higher reserve could lead to higher capital requirement [½]
If capital requirement calculation is linked to level of reserve [½]
Or there might be an explicit capital requirement for guarantees [½]
The factors used for calculating the capital requirement could be higher for products with higher guarantees [½]
The volume of IP business could be significantly higher than the volume of PMI business [½]
The IP business could have much lower level of reinsurance [½]
Or limited mitigating effects can be allowed for in the capital requirement calculation [½]
Catastrophe risk capital requirement could be high on IP product [½]
Lapse capital requirement could be higher as longer term product are exposed to higher lapse risk [½]
In particular that initial / upfront costs /expenses are recouped over the entire policy Term [½]
Maintenance expenses are likely to be higher on IP products [½]
And are exposed to higher risk of future inflation [½]

Investment risk capital requirement
Higher reserve on IP products means higher level of assets is need to back liabilities [½]
Due to the long term nature of liabilities, the assets are likely to be long-term assets [½]
In contrast to the assets backing PMI, which are likely to be predominantly in cash / short-term deposits [½]
Lower liquidity relating to the IP asset portfolio could mean higher liquidity capital requirement [½]
IP asset portfolio may consist of equity or property asset types, which could be considered as assets with high level of volatility [½]
Higher level of volatility relating to market value and future return would lead to higher capital requirement [½]
Fixed interest assets may be used to back the IP claims in payment reserves [½]
Which is likely to have a higher capital charge than cash assets [½]

Counterparty/Default capital requirement
If the IP portfolio is heavily reinsured, then the exposure to reinsurance default would be higher than PMI [½]
If the administration services are outsourced to third party, the exposure to third party default would be higher than PMI [½]
The level of premiums collected and held by intermediaries could also be higher for IP products [½]
Both in terms of amount and/or holding period [½]

Other
Different operational aspects of the IP and PMI business could lead to different operational risk capital requirement [½]
Regulator may have imposed a capital add-on on Company A's IP business [½]

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Solvency capital requirements for Company A's PMI business may have been calculated using an internal model, while the standard formula may have been used for the IP business [½]

[Marks available 16, maximum 8]

(ii)
Reinsurance of IP business
Advantages:
The solution could be put in place quickly [½]
The effect would be immediate as soon as the reinsurance arrangement is in place [½]
Reinsurance is effective at passing on insurance risk [½]
Depending on the reinsurance terms, it could have all the usual advantages under reinsurance, which could include: [½]
Improved solvency position, lower new business strain, financial assistance, technical expertise, increasing capacity to accept risk (volume), ability to write larger risks (individual size)
(½ mark for any two examples) [½]
Depending on the local tax / solvency capital requirements, the reinsurer may be able to pass the tax / solvency capital requirement arbitrage benefits to Company A [½]
Company A retains the relationship with its customers (e.g. for future cross-selling opportunities) [½]
Company A can carry on writing new business [½]
Reinsurance benefits may also lead to more competitive premium rates [½]
Which could lead to more new business / market share [½]

Disadvantages:
Increased dependency on reinsurer [½]
And hence reinsurer default exposure [½]
Although this could be managed / diversified through using multiple reinsurers [½]
Reinsurance may cost more (high cost of reinsurance cover) [½]
Or become more expensive [½]
If the new regime also affects reinsurance business [½]
May not be sufficiently effective if reinsurance level is already high [½]
It would increase reinsurance default capital requirement [½]
Suitable reinsurance may not be readily available in the market [½]
Or not available at an acceptable price [½]
Additional administrative / maintenance expenses relating to the reinsurance arrangements [½]

Stop writing New Business
Advantages:
Solvency capital would not increase further [½]
Provided that other risk profile of the business does not change [½]
Overall business volume shall reduce over time [½]
IP business could be loss making [½]
Company A could just focus on its PMI business [½]
This could enhance the company's brand name / reputation in the PMI market [½]
This action should be quick and easy, as stop writing new business does not require much effort in the very short term [½]

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Disadvantages:
Higher solvency capital requirements do not necessarily mean that the IP business is now loss making / unprofitable [½]
Loss of potentially profitable future business could have negative impact on financial position of company over longer term [½]
Reduced market share [½]
Stop selling new business may not be taken positively by the market [½]
If IP business is profitable, Company A will lose potential profits of future new business [½]
Overhead expenses per policy may be increased for the remaining business [½]
Potential issues relating to re-allocation of staff engaged in IP business [½]
Although initially it will just be those who are involved in pricing / underwriting / new business sales [½]
Expenses may rise in the short term as a result of staff redundancies (e.g. of new business processing, underwriting departments etc) [½]
The effect will not be instantaneous [½]
The benefit will therefore be limited if Company A's solvency position requires immediate remedial actions [½]
Distribution channels / Intermediaries may not consider it positively due to reduced product categories [½]
There is a risk of an increase in lapses once this is communicated [½]
And potentially affecting the valuation, particularly as these are likely to be selective [½]
Additional expense reserve requirements may be required for a closed block of business [½]
Any risk diversification benefits between the two products would be reducing over time as the IP business is running off [½]

Sell entire IP portfolio
Advantages:
Effect will be instantaneous as soon as the business is sold [½]
Better focus on PMI business [½]
Which could lead to improved services to short term business [½]
All the reserves and capital requirements will be released [½]
Immediate realisation of profits from IP business [½]
Which could be used for expanding PMI business [½]
All the ongoing costs relating to maintaining the IP business would eventually be eliminated [½]

Disadvantages:
Selling existing business may not be taken positively by the market [½]
Overhead expenses per policy may not be eliminated in the short term [½]
Economies of scale could be lost [½]
There will be more staff to be re-allocated than the other two options [½]
Which could cause concerns / insecurity amongst staff within the company [½]
There may not be a suitable buyer in the market [½]
Or the purchase price offered is not financially attractive [½]
In particular if it is much lower than the embedded value of the IP business [½]
Cost of removing/ re-allocating the excess staff could be high [½]
Distribution channels / Intermediaries may not consider it positively due to reduced product categories [½]

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The cost of a mergers and acquisitions activity could be substantial [½]
Tax treatment of such deal should be considered [½]
Customer might prefer buying both contracts from the same insurer [½]
This could lead to lower renewal rates on PMI business [½]
Rebalancing cost of matching assets due to change of nature of liabilities [½]
Any risk diversification benefits between the two products would be lost [½]
Company could become overly exposed to risks from PMI business [½]
[Marks available 34, maximum 9]

(iii)
General / Commercial considerations:
Quality and granularity of information disclosed in the tendering documents [½]
Implications on marketability of Company B's brand image / reputation [½]
Company A's reputation in the market [½]
Any known regulatory issues relating to Company A's IP business [½]
Expectation of other competitor's offers [½]
Other opportunities in the market [½]
Size of Company A's block of business relative to Company B's overall portfolio [½]
Any potential conflicts of interest [½]
Compatibility of Company A's IP products [½]
Risk of attracting regulator's attention relating to monopoly issues [½]
Company B may also consider any diversification benefits in taking on the business, e.g. by occupation or geographical location etc [½]
Or any potential accumulations of risk, e.g. by occupation or geographical location etc [½]
Company B's negotiating strength may affect the price it is willing to offer [½]
As will its keenness to win the business [½]
Potential benefits of leveraging Company A's distribution channels / network [½]
And cross-selling to Company A's existing customer base [½]

Data considerations:
Need to consider how reliable the available data is for determining the offer price [½]
Individual policy data may not be provided by Company A [½]
Which may be the case at the initial stage / round of the bidding process [½]
Certain data fields needed may not available [½]
Or data may not be available in the desired format [½]
Company B may need to consider what adjustments would be needed [½]
And factor any uncertainties in the offer prices [½]
Or legal terms and conditions in the offer documents [½]

Methodology considerations:
The starting point for determining the value of a block of long-term business for an acquisition is likely to be the embedded value (EV) / present value of future profits (PVFP) [½]
However an important additional element is likely to be the goodwill [½]
The value of the goodwill corresponds to the potential of future business sales from this purchase [½]
The offer price is therefore likely to be to be the sum of the embedded value and goodwill [½]

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Given that Company B is a large IP specialist, the goodwill from a block of in-force IP business from Company A is likely to be limited [½]
Needs to consider the active/non-claims policies and claims in payment policies separately [½]
For active policies, may consider using the inception / disabled life annuity approach [½]
For claims in payment, consider the disabled life annuity only [½]
For both types of policies, a projected cashflow approach could be used [½]
It would involve projecting forwards futures cashflows and discounted back at the required risk discounted rate [½]
The cashflow items for the non-claims policies would include premiums, claims costs, maintenance expense, capital costs and tax [½]
Claims cost would be calculated as: inception rates x disabled life annuity. [½]
The cashflow items for the claims in payment policies would include benefit payments, claims expenses, capital costs and tax [½]
Allow appropriately for any existing reinsurance arrangements [½]

Assumptions consideration:
Morbidity (Inception rates):
The starting point would be based on Company A's experience [½]
This may not be provided in sufficient level of detail given that this is a mergers and acquisitions situation [½]
Company B may make use of its own experience to supplement the limitation in Company A's data [½]
Needs to carefully consider any similarities and differences between the products in terms of: [½]
Policy features / conditions [½]
Underwriting procedures / standards [½]
Claims management procedures / standards [½]
Policyholder profile [½]
Which may be different due to the use of different distribution channels [½]

Termination rates:
Need to consider mortality and recovery rates separately [½]
Consider experience data provided by Company A as a starting point [½]
And supplement it using own data if necessary [½]
Recovery rate [½]

Lapses:
Needed for non-claims / active policies only [½]
Consider any potential implications of the sales on future persistency [½]

Expenses:
Expenses should be based on Company B's own expense assumptions [½]
As the business will be transferred and managed by Company B post acquisition [½]
Consider any potential expense efficiency that can be factored into the assumptions [½]
Given that taking on a block of existing business may mean overhead expenses being spread over a larger volume of business [½]
Take into consideration any existing third part arrangements that Company A had with its services providers [½]

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Allow appropriately for expense inflation [½]
Again should be based on Company B's best estimate view [½]
Allow for the acquisition costs [½]
And subsequent costs of integration, e.g. systems changes, staff training, etc [½]
There may be additional investment costs to factor in, e.g. disinvesting / reinvesting of assets [½]

Capital costs:
Allow appropriately for cost of capital requirements [½]
Which could be based on Company B's own internal risk appetite / policy [½]
This will include the level of capital requirement [½]
And the costs to be charged for holding this capital requirement [½]
Allow appropriately for any potential diversification benefits from a larger and more diversified policy portfolio [½]

Tax
Allow appropriately for tax based on Company B's own tax position [½]
And the potential tax implications of the acquisition [½]

Risk Discount Rate:
This should be in line with the required return that Company B seeks to achieve from buying this block of business [½]
Taking into consideration its own risk strategy [½]
And riskiness / uncertainties underlying Company A's IP business [½]

[Marks available 36½, maximum 10]

[Total 27]

Part (i) This question was not answered well by most candidates. Most candidates were unable to cover enough detail on the differences between the IP and PMI product types. There were many marks available if candidates were able to consider the differences in the nature and characteristics of the two products and relate them to the different components of the capital requirement.

Part (ii) This was generally well answered by most candidates, with the structure to breakdown given by the question.

Part (iii) This question was not answered very well answered by most candidates. Those candidates who scored well were able to demonstrate a good understanding of what was being asked and the specifics of this being an IP product for sale. The stronger candidates tended to structure their answers well and covering both the pricing considerations (i.e. methodology and assumptions) as well as the commercial considerations.

Part (i) and Part (iii) of this question differentiated the stronger candidates from the less prepared candidates.

Q3

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(i)
Risks associated with the proposed features
General risks applicable to all 3 proposed features:
Reinsurance risk as re-negotiation with reinsurer for the revised features would be required [½]
There is a risk that reinsurance cover may no longer be available [½]
Or available at a high cost [½]
Additional product features could lead to an increase in reserves and solvency capital requirements [½]
There is a risk of lapse and re-entry as these changes are for new business only [½]
Expense risk as there are development costs involved [½]
And updating policy documents [½]
And additional training may be needed for the claims management staff [½]
And upgrading IT system to accommodate new features [½]
Regulatory risk as the new feature may require approval [½]
Sales risk as the additional features may not attract sufficient new business [½]
Which could lead to expense costs if additional new business is not sufficient to offset development costs [½]
Anti-selection risk [½]
Especially if the competitors are not offering these features [½]
Marketing risk - if the additional features do not actually meet customer needs [½]

Extending the list of CIs specific risks
Increased claims cost if no additional premium is not being charged [½]
If the insurer is intending to charge future policyholders for the additional illnesses, there could be pricing risks, [½]
As the current morbidity assumptions may no longer be valid [½]
And may not be available data to set the assumptions [½]
Pricing risk as experience data will not include the additional illnesses [½]
Reserving risk due to the higher level of uncertainty relating to a longer list of illnesses [½]
The potentially higher number of claims may also increase claims handling expenses [½]
If the CIs that are added are not well-known / feared by the public, then they might not be valued [½]
Mis-selling risk if intermediaries were not properly trained to explain precisely what the additional illnesses are [½]
Definitions of new illnesses covered may not be standardised [½]
May lead to more claim disputes [½]
And damage to brand name / reputational risk [½]
And regulatory intervention [½]

Offering Continuation Option specific risks
Sub-standard lives are more likely to opt for this option [½]
Especially if the premium rates have not been priced adequately [½]
If the circumstances that lead to the termination of the original policy is anything other than reaching the end of the policy term (e.g. "after a claim has been made" or "following the non-payment of premiums"), then the selection risk may be even higher [½]
Pricing risk due to the difficulties involved in option pricing [½]
And lack of credible experience data [½]
Pricing assumptions may no longer be valid e.g. [½]

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Mix of business may change as a result [½]
Average age of policyholders under this portfolio may increase [½]
Which could worsen morbidity experience [½]
Reserving risk due to the uncertain nature of options [½]
Intermediaries may not like this feature if further commission is not payable when the policyholders exercising the option [½]

Offering Tiered Benefits specific risks
Pricing risk as experience data may not be available [½]
The new feature is likely to accelerate the timing of some of the claims [½]
In some cases, it will increase claims cost as previously the claim may not be made unless the disease is of a certain severity [½]
Mis-selling risk if the policyholders still expect full sum assured to be paid on the diagnosis of certain illnesses [½]
And this could lead to complaints [½]
And unwanted attention from the press/media [½]
And the regulator [½]
Sales risk as tiered benefits may not be popular with potential policyholders [½]
As they may perceive this as a way for the insurer to pay out lower amounts [½]
Rather than paying out the appropriate claim amounts which correspond to the severity of the conditions [½]
And hence the corresponding medical and lifestyle supporting costs [½]
Reserving risk due to the added complexity of timing of claims payment [½]
Operational risk due to admin staff strain as a result of the multiple payments [½]
If the severity of the early stages of illness has not been appropriately defined (e.g. if the claims definitions / conditions are misaligned with the actual stage of severity of the illness), a tiered benefits could increase the risk of windfall payments. [½]
[Marks available 27, maximum 9]

(ii)
General risks mitigation
Appropriate training to sales staff to minimize mis-selling risk [½]
Check the availability of reinsurance cover before making a decision on adding the new features [½]
Obtain reinsurance assistance on: [½]
Pricing [½]
Underwriting [½]
Product design [½]
Claims management [½]
Financial assistance / financial reinsurance to help finance the reserving / solvency capital requirements [½]
Align reinsurance treaty terms with the revised features [½]
Include different layers of reinsurance with different reinsurers to minimize the credit risk [½]
Perform sufficient investigations in setting the appropriate pricing assumptions [½]
Through seeking external help [½]
Making appropriate use of additional data sources, e.g. industry / population data, [½]
And incorporate adequate margins for uncertainty [½]
Allow appropriately for any potential changes in: [½]

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Expense assumptions	[½]
Morbidity experience	[½]
Lapse assumptions	[½]
Mix / profile of business	[½]
Reserving and solvency capital requirements	[½]
Consult regulator in terms of product design approval	[½]
Manage sales risk through market research / survey	[½]
Offer reviewable premium rates to minimise guarantee risk.	[½]
Strict underwriting at proposal / claims stage	[½]
Introduce / increase any waiting periods	[½]
Manage marketability risk through appropriate marketing campaign	[½]
Ensure clear and unambiguous policy wordings to minimise mis-selling risk	[½]
To reduce lapse and re-entry risk, the features could also be offered to existing business	[½]
The ultimate risk mitigation would perhaps be not adding the new features if they are considered to be too risky	[½]

Extending the list of CIs specific risks mitigation

Ensure that the additional illnesses are consistent with market standard	[½]
Changes could be introduced in stages (a few illnesses at a time) to assess the impact	[½]

Offering Continuation Option specific risks mitigation

Set maximum level of sum assured for the continuation option	[½]
Or set a maximum age	[½]
Or set a maximum term	[½]

Offering Tiered Benefits specific risks mitigation

To reduce the complexity for tiered benefits, could restrict the number of tiers	[½]
Or introduce the changes in stages	[½]
And/or the number of illnesses that use tiers	[½]

[Marks available 18½, Maximum 6]

[Total 15]

Part (i) This question part was well answered by most candidates. The better prepared candidates were able to articulate different risks across the three features to get more breath across their solutions. The less prepared candidates tended to structure their answers poorly by ignoring the structure of three parts given in the question.

Part (ii) This question part was generally well answered, with many candidates giving clear mitigation techniques to the previous part.

Those candidates who scored well in Part (i) often found it easier to generate more ideas in this part. The less prepared candidates tended to combine Part (i) and Part (ii) together, making it more confusing and difficult for themselves to generate enough relevant ideas to score well.

Q4

(i)

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Direct Provision
Advantages:
The government is in direct control of the quality standards of the state healthcare facilities hence can ensure that population needs are met [½]
The government will be able to control and manage expenditure and reduce wastage since the facilities will be run by government functions [½]
The approach is in line with the paternalistic goal of the government [½]

Disadvantages:
The government will be providing a guaranteed service which may turn out to be expensive / unaffordable for the government [½]
And at the cost of spending less on other non-healthcare support services. e.g. public transport, social housing, social security / unemployment benefits etc [½]
The government may struggle to maintain the standards if it fails to sustain the cost of running the expenses [½]
Which may cause dissatisfaction in the society [½]
And potentially losing support from its citizens [½]
Due to government bureaucracy, there may be wastage and abuse of resources under the state healthcare facilities [½]
The government may not have the necessary expertise to provide all the services required by its citizens [½]

Lump Sum Cash Payment
Advantages:
The approach empowers the citizens to use the money at their own discretion [½]
It provides the citizens with flexibilities and options [½]
It may therefore better serve each citizen's unique healthcare needs [½]
It may provide the citizens in need more confidence that they are being well looked after by the government [½]
If the lump sum is a fixed amount for specific healthcare provisions (i.e. not on an indemnity basis), then there is certainty over the ultimate cost [½]

Disadvantages:
Citizens may abuse the payment and use it for non-healthcare expenses leading to wastage and the approach not meeting its intended goal [½]
Citizens may not to be sophisticated enough to make the best use of the availed money, Or make appropriate financial planning [½]
Especially for a long time period [½]
There is a risk that the lump sum exceeds the healthcare costs, so the individuals having extra to do what they want with at the expense of the government [½]
On the other hand, the lump sum payment may be significantly lower than the healthcare costs, then this may be unpopular with the general population / electorate [½]
A decision needs to be made about the amount of the lump sum to pay in each case, which will be a big burden administratively. [½]
The burden of paying out lump sums in a year where the population experience exceptionally adverse health issues could affect the government's fiscal position significantly [½]
This may include increase in money supply in the economy which can lead to increase in inflation in the economy [½]

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Private healthcare providers may increase prices to take advantage of the lump sum cash payment [½]
Maybe be viewed by the healthier lives as a windfall payment to those who make a claim [½]

Regular Income
Advantages:
The burden of paying out regular income (where the overall costs are spread over future years) in a year where the population experience exceptionally adverse health issues would have less significant impact on the government's fiscal position [½]
And hence will be a better way of cashflow management for the government [½]
There will not be a sudden shock to the monetary and fiscal positions [½]
And hence unintended consequences like adverse impact on inflation is unlikely to happen [½]
There is reduced chance of citizens abusing the money and being left without provisions for the future [½]
The regular income can be reviewed consistently to match trends in the market and ensure adequacy [½]

Disadvantages:
Additional burden on the government to manage regular payments, [½]
And ongoing assessment of the appropriate level of regular income [½]
And validity of claiming ongoing payments [½]
The regular payments may not be aligned to the actual pattern of medical costs [½]
Receiving regular payments may encourage citizens to continue claiming even if their conditions have improved [½]

[Marks available 18, maximum 6]

(ii)
Direct Funding
Advantages:
Citizens are guaranteed of services for free and not exposed to higher pricing from private health care providers [½]
It does provide them with a safety net [½]
And peace of mind [½]
The citizens do not need to worry about being financially literate to make the correct decisions about how to spend government payments [½]
General facilities may be well distributed geographically across the country, providing easy access to citizens and hence no need to travel long distances to get access to the facilities [½]

Disadvantages:
The government may not be able to meet all citizens healthcare requirements [½]
Quality of service may be poor which could include: [½]
Long waiting lists [½]
Lack of adequate drugs / medication [½]
Dilapidated infrastructure and amenities [½]
The potentially low quality standard could add to the stress of an already ill citizen [½]
Which could worsen existing conditions [½]

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And increase chances of medical complications [½]
Some highly specialist procedures / surgery may not be readily available domestically [½]
The domestically available specialist facilities may not be well distributed geographically across the country and some citizens may have to travel long distances to get access to the facilities [½]
Citizens may have a lack of choice over where, when and who provides the treatment [½]

Lump Sum Cash Payment
Advantages:
Citizens are likely to welcome the financial security that a lump sum payment would bring [½]
And the flexibility on how to make use of the money [½]
In the best way that meets their medical needs [½]
Individuals have the possibility of a windfall with a lump sum [½]

Disadvantages:
There is the risk that some citizens may make fraudulent claims [½]
There is the risk that the citizens may make incorrect financial decisions [½]
And squander the money on non-medical expenditure [½]
Some may find it a burden, in particular those who are elderly or suffering from serious illness [½]
The lump sum payment may not be sufficient for some citizens to cover all their medical costs [½]
The lump sum cash payment may not be adequate to cater for the citizen's lifetime long-term care needs [½]
The citizens are exposed to investment risks when they try to save the money for funding future long-term care use [½]
There is still a possibility that the quality of service / length of waiting lists / access to drugs provided by private healthcare providers is poor [½]

Regular Income
Advantages:
Easier for the citizens to budget and plan since the money is availed regularly [½]
And of much smaller amount [½]
There is reduced risk of making wrong financial decisions [½]
Since there is reduced scope of misspending [½]
Reduced investment risks since the regular income can be reviewed accordingly and change in line with medical conditions [½]
Cashflow management at household level is easier compared to receiving a once off lump sum [½]
The incentive for citizens to make fraudulent claims is lower than that under lump sum cash payment [½]

Disadvantages:
There is still the risk that some citizens may make fraudulent claims (although the incentive to do so is lower than that under the lump sum option) [½]
The regular income may not align to the medical costs of all the different medical conditions [½]
For example a large lump sum payment may be needed to cater for major medical

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procedures [½]
Some citizens may find it difficult to give up receiving the regular payments [½]
And may risk making fraudulent claims [½]
There is still a possibility that the quality of service / length of waiting lists / access to drugs provided by private healthcare providers is poor [½]
There is a risk that individual citizens may need to meet some of the costs themselves due to timing issues relating to the regular income payments [½]
A regular income also leaves individual citizens liable to make incorrect financial decisions with the money [½]

[Marks available 21½, maximum 6]

(iii)
Affordability / Financial Requirements
The government will need to consider whether it has adequate revenues to make the transition from "pay-as-you-go" to "forward funding" [½]
There will be a huge financial requirement initially (as currently younger members of the population will be paying the benefits of older members) [½]
The government will need to estimate the cost of this, including: [½]
Where the finances come from [½]
And over what period. [½]
It will also need to consider the practicalities of how the funding is collected, e.g. directly through taxation [½]
The government can consider whether a special tax should be introduced and its proceeds segregated for the forward funding model [½]
Alternatively, the government can consider raising funding from partners such as multilateral financial institutions and United Nations organisations like the World Health Organisation [½]
The government could consider issuing debts / government bonds to fund up front cost [½]
Which would depend on how easy it is to raise money and the cost of borrowing [½]
The government may need to consider implications of the proposed "forward funding" on the affordability of the level of state healthcare provision that it aims to provide [½]

Investment of funds
The government will need to set up investment function to invest the funds until they are needed [½]
Which will incur asset / investment management costs [½]
The government will need to formulate a suitable investment strategy [½]
This will introduce investment risk [½]
Positive investment returns on assets built up could reduce overall cost of healthcare funding [½]
But poor investment performance will add further burden to the government's funding commitments [½]

Period of Funding
The government will need to consider the period they expect the forward funding model to be effective [½]
This may be over a period of 5 years, 20 years or into perpetuity [½]
The chosen period will be the target period over which their budget should balance [½]
Significantly long periods may mean that projections require a margin for uncertainty [½]

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Population and Workforce trends
The population size and its growth rate will impact on the overall cost [½]
The government needs to consider how the workforce and population are expected to change in the future [½]
Including age demographics [½]
As a pay-as-you-go system will struggle with an ageing population [½]
Due to the fact that the working population will not be able to keep up with the needs of those receiving benefits [½]
Whereas a forward funding method will not have this issue [½]

Expertise and admin systems
The government needs to consider the expertise that it will need to recruit in order to manage the fund efficiently. [½]
Such expertise will include specialists such as: investment advisors, actuaries, accountants, legal experts, administrators, medical experts, demographics experts etc.
(½ mark for any two examples, 1 mark for any four examples) [1]
Admin systems will need to be updated so that they can support a forward funding model [½]
Citizen's data may need to be checked / validated / cleansed before they are transferred to the new system [½]
Development expenses would need to be considered; these could include: [½]
Expenses of updating systems [½]
Setting up new procedures [½]
Recruitment costs [½]

Political and other considerations
The government needs to consider whether this proposal is in line with its political objectives [½]
Which could be a promise it made in the last election [½]
The government should also consider the models adopted by its neighbouring countries [½]
In particular those that have similar cultural and social infrastructure [½]
And the performance of the "forward funding" funding methods in those countries [½]
The government needs to consider the underlying reasons for this proposal [½]
And consider carefully what the other options are [½]
Given the immediate need for immediate funding, the government would need to Consider the implications on its other government expenditure / welfare benefits [½]
The government will need to consider how the change in funding method will be communicated to the public [½]
And how it will be received [½]

[Marks available 23, maximum 8]

(iv)
The government will need the current information relating to its population as a starting point, which should include: [½]
Size of population [½]
Distribution of population by: [1]
Age
Gender

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Working / unemployed
Occupation
Health condition
Geographical location
Industry
(½ mark for any two examples, 1 mark for any four examples)

The income levels of population	[½]
To project forward the country's population in future periods, the government will need:	[½]
Time horizon of the funding / projection period	[½]
Mortality rates at population level	[½]
Cause of death data	[½]
Morbidity rates at population level	[½]
Distribution of morbidity by various diseases / treatment / care types	[½]
Birth rates, and	[½]
Migration data may be needed to estimate population changes	[½]
To estimate the future costs of providing the support, the government will need:	[½]
Method of state healthcare support	[½]
e.g. whether it is direct provision, lump sum cash payment or regular income	[½]
Costs of healthcare by treatment types	[½]
Costs of healthcare expertise	[½]
Other cost outgo (e.g. admin expenses)	[½]
Other income (e.g. investment income)	[½]
Medical inflation	[½]
Administrative / maintenance / investment expenses	[½]
General / consumer / price inflation	[½]
Economic trends	[½]
Investment returns / asset yields	[½]
Forecast taxation revenues	[½]
Calculate a specific healthcare fund such that ear-marked taxation will, over the period, meet the intended State healthcare provision	[½]

[Marks available 13½, maximum 4]

[Total 24]

Part (i) and Part (ii) – Both parts were reasonably answered by the stronger candidates.

For Part (i), the less prepared candidates found it difficult to distinguish between the advantages for the government versus a citizen. For Part (ii), the less prepared candidates suffered from not reading the first part of the question carefully which resulted in their answers including a lot of repetitions from the previous part. We would encourage candidates to read the whole question before answering the part questions. The better candidates were able to tailor their solution to the specifics given in the question which enabled them to score well across both parts.

Part (iii) This question was generally not very well answered. The stronger candidates were able to demonstrate a clear understanding of the differences and their corresponding advantages and disadvantages of the two funding methods to articulate a good response to this question.

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Part (iv) This question was generally well answered by most candidates.

Those who scored highly on this question tended to be the best performing candidates across the whole paper.

Q5

(i)

Pricing / Claims Experience

The products were wrongly priced hence premiums are proving inadequate to meet claims [½]

The company has weak underwriting procedures hence is susceptible to anti-selection [½]

Claims management and assessment procedures are weak hence the company has been suffering from fraud [½]

Claim Amounts

The actual claims costs / amounts were higher than assumed in pricing [½]

Which could be due to changes in healthcare providers [½]

Or medical inflation was higher than expected [½]

Margins allowed for in pricing assumptions may not be adequate [½]

Excesses may not have been adequately indexed [½]

So that there were far more smaller claims than expected [½]

And /or claims amounts were higher than expected [½]

This may have been due to medical advances which have meant that cost of new procedures and treatments is more than priced [½]

Claim Frequency

The actual claims incidences were higher than assumed in pricing [½]

Which could be due to misestimation of medical procedures [½]

Additional procedure caused by pandemic related causes [½]

And the policy terms and conditions did not explicitly exclude pandemic related claim. [½]

The pandemic may have also resulted in more hospitalizations hence frequency of Claims has increased significantly [½]

Additional claims may have arisen due to the pandemic, even though they ultimately were not pandemic-related [½]

e.g. individuals who thought they were suffering from long-term effects of the pandemic (e.g. long covid) may have sought a diagnosis, but were then diagnosed of a different fatigue-related cause that was treated through their PMI policy [½]

Deteriorating health facilities have meant that only a few medical providers can meet client expectations and the suppliers have increased prices due to high demand [½]

Poor health facilities may have also led to a generally worsening morbidity experience in the company [½]

The healthcare providers / hospital may be experiencing higher operational costs (e.g. upgrading the medical facilities), and the operational costs are being passed on in the form of higher treatment costs [½]

Expenses

Expenses have been more than expected [½]

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This might have been due to underestimation of expense assumption in pricing [½]
Other causes of higher expenses may have been due to the need to recruit specialist medical staff which could be expensive [½]
Both in terms of remuneration [½]
And recruitment costs [½]
There could have been other one-off expenses. E.g. legal fees to deal with complaints fines / penalties imposed by the regulators [½]
Higher expenses may be due to poor expense controls [½]
This might be due to changes in working practices as a result of the pandemic [½]
Expense inflation may have also led to higher than expected expenses [½]
The healthcare providers / hospital may be being refurbished and the refurbishment costs being passed on in the form of higher treatment costs [½]
Commission paid may have been higher than expected [½]

Renewal rates / New business volume
Higher rate of non-renewals has meant that the company has fewer policies to meet fixed overheads hence higher expense per policy [½]
Customers may be unhappy with the deteriorating conditions hence the higher non-renewals [½]
There may be more non-renewals if the PMI policyholders did not realise that their policy terms do not actually cover treatments directly relating to the pandemic [½]
Which could lead to individuals (and companies) questioning the worth of their PMI policies [½]
And such non-renewals are likely to be selective (leaving those in worse health), which would lead to worse claims experience [½]
Volume of new business may have been lower than expected, which could be due to: [½]
Losing clients to competitors, [½]
Large corporate clients went out of business [½]
General economic downturn and less people can afford PMI [½]
Damage to brand image / reputation because of policyholder's complaints [½]
Bad press [½]
Regulatory intervention [½]
This may have been due to non-affordability due to difficult economic conditions
Reducing business volume coupled with rising expenses would serve to exacerbate the financial loss [½]

Mix of business
More smaller sized policies were sold, which make lower contributions to overheads
More policyholders may have been switching into products with a lower profit margin, e.g. individuals may only be able to afford the budget (rather than comprehensive) PMI products in the current climate [½]
Lower premiums from the group PMI products may be a result of companies having fewer employees due to e.g. pandemic-related redundancies / furloughed employees [½]
Any change in the mix of business could lead to losses if there were cross-subsidies in the pricing basis [½]

Reserving / Capital Requirements
There has been a significant increase in reserving and capital requirements [½]
This may be due to change in regulatory requirements [½]

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Investment
The assets held by the company may have performed badly over that period [½]
This could be due to a downturn in economic conditions [½]
Or bad investment decision / policy taken by Company A [½]
Company A may have had to realise assets in unfavourable conditions [½]
e.g. due to a large number of pandemic-related claims [½]

Other reasons
The company may be lacking an appropriate reinsurance arrangement to ensure a sustainable claims experience [½]
There may have been a default by: [½]
Its reinsurers [½]
Other third party service providers (e.g. policy administration / claims management) [½]
Intermediaries who are holding a significant amount of premiums [½]
The products may have un-clear and ambiguous definitions / product features such that the company has ended up paying more claims than initially intended. [½]
The regulator may have imposed a significant fine on the company [½]
[Marks available 31, maximum 10]

(ii)
Stage 1 – Collect / validate / cleanse data
The data should be sufficient to be credible [½]
But not too old to be irrelevant [½]
An investigation period covering the past 3 to 5 years is generally acceptable [½]
Types of data required include policy data, claims data, renewal data etc [½]
Data checks should be carried out for validation and reasonability [½]
And remove any incorrect or irrelevant data. [½]
Validate data against external sources, e.g. reinsurer / market / population data [½]

Stage 2 – Split data into reasonably homogeneous groups
Next stage is to subdivide data into subsets that are relevant [½]
For example: type of contract, age, gender, duration in force, smoker/ non-smoker status, industry (especially for group rates), occupation, location, amount of excess, NCD level, hospital band / group
(½ mark for at least two examples, 1 mark for at least four examples) [½]
The subsets should be homogenous but still be credible [½]
Morbidity rates would be split into: [½]
Claim frequency / incidence rates [½]
Claims by medical procedures / illnesses [½]
Incident year (so trends can be identified / investigated) [½]

Stage 3 – Perform Actual vs Expected calculations and analyses
The morbidity rates can be determined using an exposed to risk approach [½]
Policies data is used to calculate the time for which each live was exposed to the risk of sickness [½]
The principle of correspondence is important to apply [½]
Lives are only included in a particular age cohort if they had fallen sick on that particular date [½]

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They would have been included as a claim if they had received the medical treatments [½]
This is based on the age definition. E.g. age last birthday or age next birthday [½]
For data relating to recent periods, the company would need to make appropriate allowance for incurred but not reported claims in its claims data [½]
Compare actual morbidity rates and claims costs to those that were expected. i.e. an A vs E analysis [½]
Adjustments may need to be made if there have been changes over the period of the investigation [½]
e.g. in respect of target market, underwriting and claims management, policy terms and conditions, the economic environment, state benefits, attitudes to claiming, costs of medical procedures, changes to healthcare providers, medical advances
(½ mark for any two examples, 1 mark for any four examples) [1]

[Marks available 12½, maximum 6]

[Total 16]

Part (i) This question was generally well answered by the well prepared candidates. The candidates that scored well tended to be those who were able to articulate a good breadth of answers making use of all the information in the question to generate points. E.g. pandemic, deteriorating facilities, type of business sold etc. The less prepared candidates tended to have a narrower focus on the pandemic without thinking through where financial losses could have arisen from.

Part (ii) This question was reasonably answered by most. In general, it appears that those who answered less well did not have sufficient time to articulate a well thought through response. Candidates should be aware of good time management as this is a knowledge-based question which should be well answered by most candidates had sufficient time been left for the final question.

[Paper Total 100]

END OF EXAMINERS' REPORT

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