

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2021

SP1 – Health and Care Specialist Principles

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 2021

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, especially the more substantial elements of each question, 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 Examiners' 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(iii), 2(ii), 3(iii), 3(iv), 4(iii), 5(iii), 6(ii) and 6(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
262 presented themselves and 120 passed.

Solutions for Subject SP1 – September 2021

Q1

(i)

Advantages

Attractive to potential customers as it meets customer needs to finance medical bills	[1/2]
As evidenced by the increasing demand for this product	[1/2]
Which may lead to higher new business sales	[1/2]
The increase in new business volumes could be significant if the trend of increased PMI sales continues into the future	[1/2]
Increased sales mean that fixed costs could be spread over more policies	[1/2]
This might mean that the insurer can offer cheaper terms for PMI than some competitors due to synergies with IP	[1/2]
It might also make IP premiums cheaper going forwards	[1/2]
Attractive premium rates that offers value for money to the customers could help enhance the company's image in the market	[1/2]
The overall expenses may reduce due to economy of scales	[1/2]
The lapse risk may be less due to competitive premium rates	[1/2]
Easy to incorporate the new product on existing platform	[1/2]
Wider product range provides the sales force / agents more options to offer their customers	[1/2]
As well as opportunity to cross-sell individual PMI policies to existing individual IP policyholders to generate more sale	[1/2]
Which would be welcome by the distribution channels	[1/2]
Wider product range may introduce diversification benefits	[1/2]
As a new product could enable the insurer to reduce its capital requirements through diversification of risks	[1/2]
Wider product range may also help increase brand awareness	[1/2]
It will increase company profits if it can be sold on a profitable basis	[1/2]

Disadvantages

Complex product which may be too difficult to understand by sales force	[1/2]
As well as customers	[1/2]
Upfront development costs could be significant	[1/2]
Which could include: system developments, product design, product pricing, setting up underwriting processes, setting up claims management processes, employing new staff, consultant fees etc.	[1]
<i>[1/2 mark for two examples, 1 mark for at least four examples]</i>	
The company may not be able to recover product development costs if it fails to generate enough sales	[1/2]
Most likely if the trend in PMI sales does not continue	[1/2]
Development may also cause resource strain	[1/2]
and capital strain if the solvency capital requirements associated with this product is onerous	[1/2]
Resource strain could have adverse effects on customer services	[1/2]
Capital strain could lead to a reduction in solvency ratio/position	[1/2]
Both could lead to complaints / reputational damage	[1/2]
Pricing risk as data and expertise may not be available with the insurer for this new product,	[1/2]

In particular that different expertise/approach/model will be needed for long-term (IP) business and short-term (PMI) business	[1/2]
One of the main risks will relate to the lack of claims data for PMI	[1/2]
Underwriting expertise may not be available with the insurer for PMI product	[1/2]
Claims management expertise may not be available with the insurer for PMI product	[1/2]
For example, settling claims directly with hospitals / medical providers rather than directly with the customers	[1/2]
There could be increased administration costs due to the completely different product features of a PMI product in comparison with an IP product	[1/2]
It may be difficult to break into the PMI market if competition is high from established providers or if new entrants launch first and attract be the increasing sales	[1/2]
Future demand may drop, e.g. if state provision improves or the economy enters a recession	[1/2]
Writing more products could increase operational risk for the insurer	[1/2]
Company has no credibility in selling PMI business as it has not done so before	[1/2]
[Marks available 20½, maximum 6]	

(ii)

Setting pricing assumptions for PMI product:

General

The company would need to decide the extent to which there were any margins for prudence in its assumptions	[1/2]
Or that the assumptions needed to be best estimates.	[1/2]
As this is a new product, the company is likely to rely heavily on external data sources	[1/2]

Mortality

Death under a PMI will not trigger a claim event, it will just cause a termination to the policy	[1/2]
Company's recent experience under IP may be used for healthy lives (non-claiming) and lives in claims separately	[1/2]
Company's recent experience under existing IP products may be used for adjustments as the company sold this products for many years.	[1/2]
Mortality rates should be split by age and gender.	[1/2]
Standard table may be available	[1/2]
For PMI, it may be ignored as this may be deemed less significant than other factors that give rise to benefit payment	[1/2]

Morbidity

This is the most significant assumptions for PMI	[1/2]
This will involve setting the assumption for incidence rates	[1/2]
As well as the expected costs of medical treatments	[1/2]
As the product is new to the company, external sources/assistance may be needed	[1/2]
For example - reinsurers, external consultants, population data, medical journals	[1/2]
[½ mark for any two examples]	
Consider the appropriate period that the data should cover, e.g. the last 3-5 years	[1/2]
And consider the relevance/format/flexibility/cost of these external sources	[1/2]
Which will affect the level of credibility and adjustments necessary to these external data sources	[1/2]
Data should cover both exposure data and claims data.	[1/2]

Costs of treatments could be obtained directly from network of hospitals.	[½]
Past data should be adjusted to allow for any expected trends that could affect the propensity of claims and the cost of claims:	[½]
Economic factors	[½]
Medical inflation	[½]
Medical advancement	[½]
Pandemic	[½]
Differences in target market	[½]
Differences in underwriting and claims management	[½]
Differences in policy conditions, e.g. excesses / policy limits, NCDs, hospital deals	
preauthorisation requirements	[½]
Changes in state benefits	[½]
Morbidity data should be grouped into homogeneous segments/groups	[½]
For example – age, gender, smoker status, geographical location.	[1]
<i>[½ mark for at least two examples, 1 mark for at least four examples]</i>	
The level of granularity of data grouping should take into consideration relevance within vs credibility of the groups	[½]
 Expenses	
Company's recent years experience under existing IP product	[½]
And split into fixed, variable, direct, indirect, initial, acquisition, maintenance, claim investment expenses	[½]
<i>[½ mark for at least two examples, 1 mark for at least four examples]</i>	
Adjustments for expected volumes of business when considering spreading of overheads	[½]
Adjustments for additional expenses under PMI for claims processing	[½]
Product development costs might also be higher as more effort is needed to derive incidence rates, develop policy literature and train sales staff for this product	[½]
Hence, initial expenses are higher	[½]
Recouping the development costs may need to be spread over a number of years to keep premiums at a reasonable level	[½]
Claims expenses for PMI are also more onerous than for a life insurance product as more time and medical information will be required to determine the validity of a claim	[1]
Commission levels for PMI	[½]
 Expense inflation	
Company's recent expense inflation experience should be analysed to determine the basis for future projection	[½]
The following may be considered when setting the value of this parameter:	
Current rates of inflation, both for prices and earnings	[½]
Expected future rates of inflation implied by the investment market	[½]
The difference between the return on government fixed interest securities and on government index-linked securities, when such exists, and	[½]
Recent actual experience of the industry	[½]
 Lapse / Renewal	
As PMI products are generally annually renewable	[½]
Company's recent experience under existing IP business is unlikely to be relevant	[½]

Industry experience of similar products could be useful if this is available [½]
 PMI lapse rates are heavily correlated with claims experience [½]
 As generally the non-claiming/healthy members' lapse rates are significantly higher than those claiming members [½]
 This is because the unhealthy lives will find it more difficult to obtain similar insurance cover with another insurer and are more likely to value the benefits of the product [½]
 Lapse/Renewal data would be grouped by distribution channel/duration in force. [½]
 Adjustments for other factors such as: economic conditions, level of competition, distribution methods, after sales service etc. [1]
[½ mark for at least two examples, 1 mark for at least four examples]

Investment Returns

Company's experience under existing IP product may not be relevant for PMI product as the nature and term of liabilities would be different from IP products [½]
 The investment pattern for PMI product liabilities is likely to be of shorter term as compared to IP product liabilities [½]
 Investment returns assumptions for PMI benefit may be slightly lower as compared to IP benefits [½]
 For PMI, the investment return is expected to have minimal impact, and may be ignored in pricing [½]

Profit Margin

This should be based on the company's own internal target of expected return. [½]
 The company may need to make adjustments for additional risks associated with launching a new product [½]

Others

Cost of capital allowance should be in line with company's internal risk management policies [½]
 Need to make appropriate allowance for tax [½]
 Business mix such as case size, age, gender etc [½]
 Estimated / Expected volumes of new business [½]
 Medical / Claim inflation [½]

[Marks available 3½, maximum 8]

(iii)

Modifications to the IT system:

Pricing

Pricing process / approach for the pricing of the new product [½]
 The system will require the functionality of storing multiple premium tables as this is a yearly renewable product [½]
 The IT systems should be flexible enough to allow for inserting renewal premium tables each year while preserving the previous year premium table [½]
 The system will need to capture incident rates [½]
 As well as the expected costs of each of the key medical treatments [½]
 Substandard premium rates for extra loadings for poor health or risky occupation etc. will need to be captured [½]

Underwriting and Claims	
Underwriting process for PMI	[½]
e.g. full medical underwriting for IP vs moratorium underwriting for PM	[½]
Need to capture all the benefit information such as: Maximum limits on per day room expenses, Excess, Deductibles, fixed benefits or indemnity basis, pre-existing conditions, waiting period	[1]
<i>[½ mark for at least two examples, 1 mark for at least four examples]</i>	
Claims process, including:	[½]
Record of claims history of the paid claims	[½]
Record of outstanding claims	[½]
Eligibility conditions	[½]
Pre-authorisation of claims process, if any	[½]
And authorisation codes and treatment codes (which would not have been needed for IP)	[½]
IP has income benefits, whereas PMI has more 'one-off' benefits	[½]
Records of hospital agreement, including:	[½]
Limits on cost of medical treatments	[½]
Treatments agreed with the hospitals	[½]
Agreed costs of treatments	[½]
Timing of claims settlement	[½]
Procedures of claims settlement	[½]
A key difference for PMI is that claims are paid directly to the healthcare providers / hospitals	[½]
Reinsurance	
The reinsurance premium tables will need to be incorporated	[½]
Reinsurance process, including:	[½]
Alignment of the benefits conditions and premium tables with corresponding reinsurance treaties	[½]
Management and administration of reinsurance premiums and reinsurance recoveries	[½]
Reinsurance accounting and reports	[½]
Reserving / Financial Reporting	
Valuation process / approach for the calculations of policy reserves / liabilities	[½]
e.g. statistical methods vs case estimates	[½]
Claims data and premium income should be stored so that the valuation data can be extracted for valuation purposes	[½]
And in the required format	[½]
Different reserve calculation would include Unearned Premium Reserve (UPR), Unexpired Risk Reserve (URR), Additional Unexpired Risk Reserve (AURR), Incurred But Not Reported Reserve (IBNR), Incurred But Not Enough Reported (IBNER)	[1]
<i>[½ mark for at least two examples, 1 mark for at least four examples]</i>	
Amend systems to produce required figures for financial reporting	[½]
Admin / New Business / Distribution / Other	
New policy quotation system	[½]
Records of arrangements with sales agents / distribution channels, including:	[½]
Commissions and remuneration agreements	[½]

Management and administration of commission payments to sales agents / distribution channels	[½]
Management and administration of payments of premiums collected by sales agents / distribution channels to the insurer	[½]
Annual policy renewal processes e.g.	[½]
System generated quotes / renewal letters to the policyholder ahead of each renewal date	[½]
Calculation of the renewal premium corresponding to the current age	[½]
Any other relevant adjustments e.g. modification in policy terms, claims experience etc.	[½]
PMI is more likely to incorporate experience rating such as No Claims Discount	[½]
There are different types of lapses for PMI: non-renewals and mid-term lapses, so system needs to be able to deal with that	[½]
For mid-term lapses, the system would need to be able to cope with refunds of the unexpired part of the premiums paid	[½]
PMI is more likely to offer family covers	[½]
PMI is more likely to have variants such as comprehensive vs budget cover (as it is indemnity, rather than fixed cash benefits)	[½]

[Marks available 25, maximum 8]

[Total 22]

Part (i) is a straightforward question and most candidates scored highly on this question, with candidates being able to identify more advantages than disadvantages.

Part (ii) was also well answered by most candidates, where the better candidates were able to note further details around assumptions rather than just listing the required assumptions.

Part (iii) was only well answered by those candidates who read and interpreted the question carefully, and structured their answers using a logical approach for what processes require IT use, and what may need to change in the processes. This question differentiated the stronger candidates from the weaker candidates.

Q2

(i)

(a) Reinsurance premium:

Policy	Sum Insured (\$)	Sum Reinsured (\$)		Reinsurance premium (\$)		Total Reinsurance Premium (\$)
		Surplus Treaty	XoL Treaty	Surplus Treaty	XoL Treaty	
A	110,000	50,000	10,000	$1.50 \times 50 = 75$	$0.50 \times 10 = 5$	80
B	200,000	50,000	100,000	$1.50 \times 50 = 75$	$0.50 \times 100 = 50$	125

[A – ½ mark or correct Surplus reinsurance premium, ½ mark for correct XoL reinsurance premium]

[B – ½ mark or correct Surplus reinsurance premium, ½ mark for correct XoL reinsurance premium]

[2]

(b). Reinsurance recoveries:

Solution 1

Policy	Sum Insured (\$)	Claims payouts (\$)	Reinsurance recoveries (\$)		Total Reinsurance Recoveries (\$)
			Surplus Treaty	XoL Treaty	
A	110,000	70,000 (only the second claim is valid because the first claim falls within the waiting period)	Min (50,000, 70,000 - 25,000) = 45,000	0	45,000
B	200,000	200,000	Min (50,000, 200,000 - 25,000) = 50,000	Min (100,000, 200,000 - 100,000) = 100,000 [This assumes that the treaties operate in parallel to each other] Or Min (50,000, 200,000 - 100,000) = 50,000 [This assumes that the second (XoL) treaty will only come into operation after the reinsurance cover under the first (Surplus) treaty has been exhausted]	150,000 Or 100,000

[A – ½ mark for correct Surplus reinsurance recovery, ½ mark for correct XoL reinsurance recovery]

[B – ½ mark for correct Surplus reinsurance recovery, ½ mark for either one of the correct XoL reinsurance recoveries depending on the interpretation of how the two reinsurance treaties operate]

[2]

Alternative solution (where the surplus proportion is used, i.e. proportion reinsured = Sum Reinsured / Sum Assured)

[illegible]

[A – ½ mark or correct Surplus reinsurance recovery, ½ mark for correct XoL reinsurance recovery]

[B – ½ mark or correct Surplus reinsurance recovery, ½ mark for correct XoL reinsurance recovery]

[2]

Additional considerations

Claims of \$40,000 under policy A is not payable as it falls within waiting period [½]
 Alternatively, it is also acceptable to assume that any further claims (i.e. the \$70,000)
 is not payable under policy A as the policyholder has breached the policy's terms and
 conditions [½]

[Marks available 7, maximum 4]

(ii)

Suitability of reinsurance arrangements

The proposed reinsurance arrangements would provide a number of general benefits
 such as:

Enable the insurer to limit its exposure for policies concerned [½]

Avoidance of large single losses [½]

Enables the insurer to smooth its financial results [½]

Availability of expertise from reinsurers, such as experience data, pricing, underwriting,
 claims management [½]

[½ mark for any two examples]

Both covers enable insurer to write larger risks, which might otherwise be beyond its
 writing capacity [½]

The XoL treaty limits company X's exposure to large individual claims [½]

The combination of both reinsurance treaties will allow company X to use its available
 capital more efficiently [½]

The reinsurance premium rates appear to be relatively lower than the insurer's
 premium rates [½]

Which could be a result of the reinsurers passing the benefits of regulatory/tax
 arbitrage (if any) to the insurer. E.g. reinsurers may be subject to lower regulatory
 capital requirements and/or lower tax rates than insurers in the country under
 question [½]

In Risk XoL, reinsurer agrees to indemnify the cedent for the amount of loss
 above \$100,000 subject to an upper limit of \$200,000 [½]

Risk XoL treaty is suitable for policies with Sum Insured above \$100,000 [½]

Maximum Sum Insured of \$300,000 is covered under these layers of reinsurance
 treaties [½]

The insurer is at risk for writing policies beyond Sum Insured \$300,000 [½]

The level of risk to which the insurer is exposed would depend on how many
 policies have a sum insured beyond \$300,000 [½]

The insurer's retention limit is \$25,000 for policies with Sum Insured below \$75,000 [½]

The insurer is exposed to an additional risk maximum up to \$25,000 under policies
 with Sum Insured beyond \$75,000 [½]

i.e. there is a gap between the reinsurance layers. [½]

The flat reinsurance rates for surplus treaty may be expensive if average age of the
 portfolio is lower than the average age expected in reinsurance rate calculation [1]

The two layer of treaty are likely to be beneficial to the insurer [½]

As the Risk XoL reinsurance rates is cheaper than surplus treaty rates [½]

Two layers of reinsurance treaty is complex to administrate [½]

Which could add to the company's maintenance costs [½]

Both reinsurance arrangements are written under treaties, which provide certainty
 of coverage for the insurer [½]

There are no details of indexation of limits (i.e. a stability clause), which might
 reduce the suitability of the reinsurance arrangements over time [½]

Suitability could further be assessed by comparing reinsurance claims with reinsurance premium paid over a period of time as a measure of value of reinsurance [½]
 If the policyholder makes a series of claims under their tier policy that are below the retention level (i.e. \$25,000), then the insurer will not recover anything from the reinsurer [½]

[Marks available 13½, maximum 6]

[Total 10]

Part (i) was reasonably well answered by candidates with a good grasp of reinsurance definitions and calculations.

Part (ii) was poorly answered by most candidates. Only the best candidates managed to flesh out key points through inspecting and understanding the existing reinsurance structure set out in the question. Many marks are also available for the general reasoning for reinsurance, which was missed by most candidates. This question differentiated those candidates with a good grasp and understanding of the subject.

Q3

(i)

There is no requirement for individuals and corporates to have insurance in place [½]

Employers are not required to have group insurance schemes for employees [½]

As a result of the Government requiring employers to provide other forms of insurance like death benefits and pension for employees, the employers are reluctant to incur further costs to provide other insurance benefits [1]

The state may already provide for all health and care needs of the nation through following possible mechanisms: [½]

Citizens have access to free health care (hospitals, pharmacies etc) [½]

State health facilities are of high quality hence no need for individuals to seek to avoid waiting lists [½]

Or seek to have access to private rooms etc [½]

There might be a lack of need for private insurance products [½]

IP – if there is a lack of paid employment (with many individuals being housepersons, in informal work or unemployed), there is less likely to be a financial loss (or possibility of being able to prove the loss of income) if these individuals are unable to carry out paid employment [½]

CI – lower life expectancies in developing countries mean that life cover is more important than health cover [½]

And/or lower life expectancies make many CIs less prevalent (e.g. fewer age-related cancers, dementia etc.) [½]

LTCI – fewer people likely to reach old ages if life expectancy is low in developing countries [½]

Family members more likely to provide care for those who do reach old age [½]

And a likely lack of private care homes in the country (see PMI below) means that there is no reason to buy LTCI [½]

PMI – there is likely to be a lack of private hospitals (even if private hospitals exist in big cities, there is likely to be a large rural population without access), so no reason to buy PMI [½]

There may be lack of consumer trust in the health and care insurance sector due to previous mis-selling [½]
 Intermediaries / Distributors may be reluctant to sell health and care products as other forms of insurance are easier to sell [½]
 Or they do not feel that the efforts involved in selling health and care products are supported by the financial incentives / commission levels [½]
 There may be cultural barriers with greater consumer focus on non-traditional forms of medicine which are not covered under the typical health and care products [½]

Income and Affordability

Citizens have low incomes and hence cannot afford to pay for health and care insurance [½]
 Health and care insurance products are considered as a luxury and are therefore not a priority for citizens when compared to other types of insurance such as motor property or life cover [½]
 Health and care insurance products are relatively expensive compared to other insurance products [½]
 High level of fraudulent claims, or other factors resulting in disproportionately high premiums making health and care products unaffordable to most in the population [½]
 Lack of strategic initiatives from health and care insurers to provide micro insurance products and facilitate financial inclusion [½]

Awareness and Perceptions

Lack of awareness of the importance of health and care products by the general population (generally believed to be a state role) [½]
 Social perceptions place value on aspects like preparing for death and providing supports for dependents [½]
 Insufficient government awareness initiatives to highlight the importance of health and care insurance [½]

Insurers' marketing strategy

Poor and ineffective advertising by health and care insurers leading to a lack of interest in the products [½]
 The health and care insurance industry has previously had scandals and reputational issues that have eroded trust in the industry and pushed customers away. For example: [1]
 High claim declinature rate has led to loss of trust by customers [½]
 Limited choice of medical providers for customers [½]
 Relatively low commission rates or remunerations on health and care products does not provide intermediaries / distribution channels the incentives to target these products to their customers actively [½]

[Marks available 17, maximum 4]

(ii)

Insurers / Healthcare Providers

Low private health financing may compromise growth of the private health service provision standards [½]
 Low demand may mean high cost to insurers due to a lack of economies of scale [½]
 And this may also discourage innovation [½]
 There will be no incentives to build private hospitals because of low demand for private medical treatments [½]

Doctors and other practitioners are unlikely to be remunerated adequately for providing modern health and care services [1/2]
 Which could have a knock-on effect on the service standards [1/2]
 The lack of healthcare providers could lead to monopolies and increase the overall costs of access to healthcare [1/2]
 If there are only limited sales possible then there is no point putting much investment into product innovation or its operations [1/2]

State / Government

Without private financing, the state has to meet a significant portion of the national health and care budget [1/2]
 Which could put pressures on the government's overall budget and may lead to the following consequences: [1/2]
 Government may have to borrow significantly or print money to meet the health and care budget which could result in high inflation for the country [1/2]
 Or adverse effects on the strength of its currency [1/2]
 If the government fails to meet the budget, this could lead to poor health standards in the country [1/2]
 And high mortality rates in the population. [1/2]
 For countries with a voting system, this could lead to the current government being voted out of power [1/2]
 Morbidity rates in general are likely to become higher than acceptable [1/2]
 Which could lead to increase in waiting lists for national health services [1/2]
 And increased pressure on national health services [1/2]
 Lower life expectancy will reduce the working and productive life of individuals [1/2]
 This will result in lower productivity for the economy [1/2]
 As a healthy nation generally drives economic growth for the nation [1/2]
 This could also affect investment opportunity for the country as it is less likely to be a preferred investment destination for foreign investors [1/2]
 LTCI – an increase in the burden on the state if it provides a basic level of care [1/2]
 LTCI – an increase in the burden on families, reducing their ability to work, so reducing economic output [1/2]
 PMI – large numbers of individuals with untreated injuries / ailments (e.g. cataracts) with a subsequent impact on their ability to work (and hence economic output) [1/2]

Citizens / Policyholders

Low demand could lead to lack of choice / competition [1/2]
 So citizens could end up paying more for private health and care insurance than they should [1/2]
 As citizens need to meet health costs out of their own pocket, this would reduce their disposable income in general. [1/2]
 Serious illnesses and incapacity without health and care insurance could force citizens into financial hardship [1/2]
 This could result in many families being trapped in a poverty cycle and not able to accumulate wealth and pass to the next generation [1/2]
 IP – issues for individuals if they are injured, so unable to work and support their families [1/2]
 IP – issues for companies if they provide sick pay to employees, but with no insurance provision to cover it (reduced profits, resource issues) [1/2]

CI – higher mortality rates due to adequate CI treatments not being affordable [½]
 CI – increase in financial hardship and poverty if individuals unable to finance the lifestyle changes needed caused by a critical illness [½]

[Marks available 17, maximum 4]

(iii)

The state may be able to exclude certain segments of the population from certain aspects of the national welfare scheme [½]

Or reduce the scope of provisions under the national welfare scheme [½]

The government could require employed individuals to take out private health and care insurance cover on a mandatory basis [½]

The government may introduce a Means Test [½]

Where individuals with income above a given threshold may not have free access to state health facilities [½]

And may be required to have health and care insurance cover on their own [½]

The state can also offer a limited package of health services for free and require the citizens to make private provisions on additional health services [½]

The state can reduce the cost of private purchase of health care services by directly subsidising providers of insurance [½]

The government can top-up the premiums for each individual so that citizens are able to afford augmented and adequate levels of cover [½]

The government can meet part of the claims cost per claim and ensure better payouts are given to citizens to provide value for money over premiums paid [½]

The government may also provide special grants to insurers for them to meet e.g. expenses and other costs of providing insurance services [½]

However, subsidies increase expenditure for the government which can add to the budgetary pressures [½]

Depending on the type of subsidy, some subsidies may have poor structural design which could result in not meeting their intended objectives [½]

The state can offer a general reduction in tax for health and care insurance policyholders [½]

The state can carry out national awareness campaigns on the importance of health and care insurance and how citizens will benefit from it [½]

The campaigns can include testimonials from individuals who benefited from having health and care insurance cover [½]

The government could conduct survey and gather feedback from citizens on the key reasons why they opted not to take out health and care insurance [½]

Which could help the government to decide what initiatives to put in place to encourage its citizens to seek cover [½]

For example, if it is due to a general mistrust towards insurers, the government may then proceed to put in place stricter regulations to provide better policyholder protection [½]

Mandatory requirement for employers to provide PMI cover for their employees could be extended to other products (IP, CI) [½]

The government could extend the tax-reliefs / subsidies to LTCI and PMI [½]

e.g. no tax on investment returns could be very beneficial for LTCI [½]

The tax-reliefs / subsidies could also be extended to life and general insurers that sell health and care insurance as riders to their existing policies [½]

Tax incentives could be provided through taking premiums from gross of tax income [½]

Or benefits payments are exempt from income tax [½]

The government could itself 'sell' health and care insurance products (underwritten by private insurers if necessary) to increase confidence in them	[1/2]
The government could buy up the unused services of private health and care providers in order to ensure their operations are profitable and to help keep their costs down	[1/2]
In return for the subsidies the insurers are getting, the benefits could be passed to policyholders through price caps which could encourage sales	[1/2]
Government could enforce minimum standards e.g. consistent wording in policyholder literature to increase consumer confidence	[1/2]

[Marks available 14½, maximum 5]

(iv)

Statutory requirement on employers to provide basic PMI cover	
The insurer should act quickly to be one of the first companies to launch a product to target this newly created opportunity	[1/2]
The design of the product should at a minimum meet the basic level of benefits under the statutory requirements	[1/2]
The company should carry out a market research / survey to determine what the employers expect as part of an acceptable group PMI offering	[1/2]
The results of the market research / survey may help provide the company with further information on product design, such as	[1/2]
Whether employers want to have different levels of cover according to roles and seniority, e.g. executives have more comprehensive cover such as access to foreign treatment and private hospitals	[1/2]
The premium frequency that is expected by employers. E.g. annual, quarterly, monthly	[1/2]
How sensitive are employers to the level of premiums	[1/2]
And any indications on the maximum amounts they are willing to pay per employee	[1/2]
The additional benefits that the employers expect on top of the minimum benefits	[1/2]
The company should carry out a marketing and awareness campaign to employers promoting the benefits of the group PMI that the insurer is selling, which could include:	[1/2]
The potential of improvement on productivity of employees because of better and faster medical treatments for their employees	[1/2]
The benefits may help retain existing employees	[1/2]
The benefits may help attract potential employees	[1/2]
Enhancing the image of the company	[1/2]
The insurer may try to differentiate itself from competition by designing bespoke PMI product for employers in different industries	[1/2]
For example, mining companies may require different PMI version compared to financial services companies	[1/2]
The company should set up a special business development team to concentrate on developing this line of business	[1/2]
The company should also appoint account relationship managers who then handle key employers / accounts and help drive new business and retain existing business	[1/2]
The company could attempt to cross-sell the new PMI product to existing CI customers	[1/2]
The company could leverage its existing CI expertise by (for example) trying to sell bundled products, e.g. a combined CI / PMI product	[1/2]
And PMI benefits might be used to subsidise CI cover to make it more attractive	[1/2]

Tax Exemptions

The reduction in corporation tax for insurers will make the health and care insurance products more profitable and the insurer can pass the tax benefits to policyholders	[1/2]
Some or all of the tax benefits could be factored in product pricing	[1/2]
Which is a balance between profitability and lower premiums	[1/2]
Part of the tax benefits may be utilised to strengthen the company's solvency ratio	[1/2]
Savings on corporate tax may be further invested in advertising and growing sales	[1/2]
The company should carry out a campaign on how individual customers can take advantage of the tax exemption on premiums to increase levels of cover	[1/2]
And the company could ask the government to endorse its campaigns to add credibility	[1/2]
Provide training to sales agents / distribution channels so that they are able to explain the tax exemptions and how customers should take advantage of them	[1/2]
The company could try to upsell to maximise the tax benefits: For example:	[1/2]
Maximise sales volumes (through good marketing, promotions, etc.)	[1/2]
Increase profit margins	[1/2]
Push to sell bigger / more comprehensive policies	[1/2]
Write health and care products with additional (life / general insurance) rider benefits	[1/2]

Government subsidies to Service Providers

Negotiate with service providers to agree arrangement to take advantages of the government subsidy	[1/2]
The exact proportion on how to split the government subsidy between the company and its service providers will depend on the relative negotiating powers between the two parties	[1/2]
Part of the subsidy could be passed to customers through reduced premiums, which could help drive new business and retain existing business	[1/2]

[Marks available 18½, maximum 7]

[Total 20]

Part (i) was well answered by most candidates.

Part (ii) was reasonably well answered by most candidates, where the stronger candidates were able to distinguish the different priorities and objectives between insurers, government and policyholders which opened up the scope to more available marks.

Part (iii) was not generally well answered by most candidates, where the weaker candidates tended to express some high level views, but more detailed response would have opened up the opportunity for more marks.

Part (iv) is a challenging question which was poorly answered by most candidates. Most candidates failed to generate a wide variety of points and followed with sufficient detail, e.g. a large number of marks could have been gained by adding further detail on the impact of the tax exemption. Only the best candidates scored well on this question.

Q4

(i)

Policy Wordings vs Customers' Reasonable Expectations

There is need to look at the existing policy wordings to see if they explicitly and clearly exclude illnesses and treatments related to the influenza pandemic	[1]
If influenza pandemic is not explicitly excluded in the policy terms and conditions, then the insurer has to honour the claims as usual	[1/2]
Even if the wordings exclude the costs, customers may not be made aware of its exclusion at the point of sales	[1/2]
So some policyholders may still consider that it is reasonable to expect the insurer to pay for treatment costs relating to the influenza	[1/2]
Declining the claims may lead to customer complaints	[1/2]
And potential court cases and additional legal costs	[1/2]
And bad press	[1/2]
Which could escalate to significant reputational damage for the insurer which can go beyond the period of the pandemic	[1/2]
If the court cases turn out to be in favour of the complainants, this could set the precedent of further claims	[1/2]
This may also lead to a significant fine / financial penalty by the regulator	[1/2]
Significant rise in litigation and scrutiny from the regulator might occur and the insurer will incur additional costs to meet regulator's requests	[1/2]
Reputational damage may affect new business volumes and reduce sales compared against the budget and targets	[1/2]
This could lead to lower profitability through inability to spread fixed overheads and potential increase in non-renewals	[1/2]
The company may want to carry out a market survey to assess the customers' expectations around the pandemic-induced claims before deciding on the way forward	[1/2]

Competitors in the market

If the company's competitors are not prepared to provide this benefit, the insurer can differentiate themselves by providing the benefit	[1/2]
If competitors are already covering the benefit, the insurer may need to match its competitors to remain competitive	[1/2]
Some market intelligence may need to be obtained to help determine market practice	[1/2]
And how those that have covered the benefit are performing in terms of claims experience	[1/2]
Market intelligence could be sought from reinsurers and actuarial consultants	[1/2]
Distributors might like this and use it to promote the company's products which should help to increase sales	[1/2]

Marketability

Covering the benefit is likely to make the product more marketable especially to potential new business which should help to increase sales	[1/2]
Claims experience for new business may not be significantly higher since new female clients will have a 9 month waiting period to cover pregnancy related costs	[1/2]
Claims experience for new business might also not be significantly higher because the 'flu pandemic might be short-lived, so by the time women go into labour (in 9 months+), a significant proportion of the population may have been vaccinated	[1/2]

Existing clients may have to wait until renewal to obtain the offer, so would be unhappy and dissatisfied [1/2]
 Which could lead to lapse and re-entry [1/2]
 Existing clients are however more likely to renew their policies [1/2]
 And may also refer the insurer to their friends and family [1/2]
 This will lead to increased business volumes and boost revenue for the insurer [1/2]
 When the pandemic eventually ends, the insurer is likely to gain a positive brand image which can further improve its ability to generate premiums [1/2]
 The proposal should apply for both individual and group business, which will make it fair and consistent to the company's customers [1/2]

Cost of Benefit

The cost of providing the benefit needs to be considered before extending the benefit [1/2]
 There are very few medical laboratories which may lead to excessive prices due to lack of supply amid high demand [1/2]
 This would make the costs for providing free benefit significantly high and affect the profitability of the product [1/2]
 In order to manage the costs, the insurer could approach one of the medical laboratories and put in place a preferred servicer provider agreement [1/2]
 This can help lower the cost of benefit as the laboratory will be guaranteed of higher volumes of business and can provide discounts to the insurer [1/2]
 As the benefit is provided to a very specific segment of the policyholders, the overall total costs may not be significantly high which could can be sustained by the insurer [1/2]
 This is because expectant mothers at any particular time, if the lives in the book are well diversified, may constitute a relatively small proportion of the book [1/2]
 The cost might not be too high as the government might scrap the requirement for the test once 'flu cases come down [1/2]
 On the other hand, the costs could be very high if multiple tests are required, e.g. if the baby is overdue [1/2]
 Costs are likely to be hard to estimate as the insurer lacks past experience for this specific cost [1/2]

Sources of financing the costs of providing this benefit

Increasing the benefits offered will increase the financing requirements for the product, [1/2]
 As well as increasing the riskiness of the cover, so increasing margins within the reserves. [1/2]

If the insurer has already set aside an equalisation or catastrophe reserve, this could be used to fund the cost without significantly altering profitability [1/2]

If the overall cost is not materiality high, it could even be funded as part of the company's corporate social responsibility or marketing budget [1/2]

Other reserves such as Additional Unexpired Risk Reserve could also be used to fund the cost. [1/2]

Alternatively, free assets could be utilised if the level of free assets / solvency ratio is high [1/2]

Reinsurance

The insurer may already have in place relevant reinsurance covers for pandemic / catastrophic events [1/2]

If the cover is not explicit in the reinsurance treaty terms, the company should consult the reinsurers to negotiate what supports they are able to provide [1/2]

Regulations

Providing the benefit may be considered by the regulator as what a socially responsible insurer should do, [1/2]

Even though it is not yet a statutory requirement for the insurers to provide such benefit [1/2]

The regulator may have already make similar recommended in the past through consultation papers [1/2]

In which case the proposal would comply with the regulator's recommendations [1/2]

The proposal could lead to concerns from the regulator in relation to its potential implications on the insurer's future solvency / capital position due to the uncertainty of its potential costs [1/2]

Operational considerations

The company needs to ensure that the system could cope with this new benefit, [1/2]

e.g. the insurer would need to set up new treatment codes. [1/2]

Consider the additional expenses that will be incurred, such as: [1/2]

Additional training for staff [1/2]

The need to communicate the new benefit [1/2]

Costs of liaising with the medical laboratories (which may be independent of existing providers used). [1/2]

It will need to be confirmed what 'the next 12 months' means – e.g. what date does it actually start and finish [1/2]

Consideration will need to be made to what happens to pipeline cases [1/2]

Intermediaries / Distributors will need to be informed [1/2]

The operational changes could be significant and costly [1/2]

Practical considerations

The lack of accessibility of the 'small number of medical laboratories', which could lead to negative publicity if the insurer publicises this as a benefit [1/2]

The possibility that this test will become more widely accessible in the future [1/2]

And/or cheaper in the future [1/2]

And/or provided by the state in the future (in which case individuals will not need to claim privately) [1/2]

As the flu test is only available to a small number of medical laboratories, the increase in demand could push the price of flu test up, adding further costs to the insurer [1/2]

[Marks available 34½, maximum 8]

(ii)

URR is primarily set when it is expected the future claims and expenses till the end of the policy term will be more than the premium or unexpired premium circumstances like those might be: [1]

Occurrence of a pandemic [1/2]

Occurrence of a catastrophic event (e.g. an explosion that leads to an accumulation of injuries needing treatment) [1/2]

Occurrence of sudden societal changes, e.g. a sudden increase in sports participation, possibly due to an event like the Olympics inspiring everyone! (leading to a sudden increase in sports related injuries) [1/2]

Occurrence of sudden behavioural changes, e.g. a new brand of footwear that everyone buys, that subsequently leads to an accumulation of injuries	[1/2]
Outbreak of a particular disease in the country (endemic) e.g. some developing countries frequently have disease outbreak like cholera, typhoid, malaria etc.	[1/2]
Expense overrun.	[1/2]
The particular contract was deliberately under-priced to achieve a particular business goal e.g. to retain corporate clients who would otherwise move to another insurer or to penetrate a particular market	[1/2]
The business mix in a particular period might significantly change and indicate that claims experience will be higher than expected	[1/2]
This could occur where more high risk lives were onboarded than expected	[1/2]
Interim experience monitoring may indicate that the product was significantly under-priced hence need to set the reserve till the next premium review	[1/2]
This may have been due random fluctuations which may not necessarily indicate incorrect pricing	[1/2]
Inspection by the regulator or auditors might result in the regulator requesting an URR to be set aside	[1/2]
Premiums (and hence the UPR) should already include margins, so a URR will only be needed if these margins are insufficient to cover the financial losses caused by the circumstances mentioned above	[1/2]
A decline in the quality of healthcare services provided by the state could lead to higher number of policyholders seeking healthcare services privately.	[1/2]
[Marks available 8, maximum 3]	

(iii)

Determine URR

Adopt a prospective approach to determine how much is needed now to cover the expected claims and expenses from the unexpired risk period	[1/2]
The future expected loss ratio / projected claims of the business will be estimated and applied to the proportion of the unexpired premium	[1/2]
This will involve the analysis of past loss experience without the influenza pandemic and projecting it forward allowing for:	[1/2]
The expected increase in claims because of the influenza pandemic	[1/2]
Other trends that aren't induced by the influenza pandemic	[1/2]
Changes in the mix of business	[1/2]
Additional data and information that will influence the probability of having the flu will also be needed, in particular for pregnant women	[1/2]
For the expected increase in claims due to the influenza pandemic, there will be need to estimate:	[1/2]
Probability of an expecting mother returning a positive influenza test	[1/2]
The average claim cost per expectant mother (who had a positive influenza test) from admission into hospital till discharge after delivery	[1/2]
In order to estimate the total additional claims cost, information on the exposure will also be needed, which would include:	[1/2]
The number of mothers who are expecting	[1/2]
Along with due dates (if available)	[1/2]
And the locations of these women as hospital costs might depend on geographical area	[1/2]
Aggregate total claims expected over the estimated period of cover (till the next premium review)	[1/2]

[Note, if the candidates interpret URR as the additional reserve on top of the Unearned Premium Reserve (UPR), marks relating to the following points should be awarded]

Calculate the UPR

Calculate the unearned premium reserve for all running policies, [½]

For each policy, calculate the percentage (m%) of time that is still outstanding till the end of the policy term [½]

UPR per policy is determined as (m% x Premiums paid) [½]

Total UPR for the portfolio is the sum of the UPR for each policy [½]

Calculate the additional reserve

If the expected future aggregate claims are higher than the UPR, then the difference will be set aside as URR [½]

If the expected future aggregate claims are less than the UPR, no URR will be needed [½]

All the calculations can be done on a per policy basis or using model points [½]

[Marks available 11, maximum 4]

[Total 15]

Part (i) was generally well answered by most candidates. Candidates who structured the answer well and generated a broad range of ideas and made use of the specifics of the question such as pandemic, PMI, influenza test etc scored highly on this question.

Part (ii) was generally well answered by most candidates. The better candidates managed to note the URR definition which is clearly defined in the Core Reading, provide some examples of when a URR was applicable and relate this to the question by giving specifics about the maternity aspect of the pandemic.

Part (iii) was poorly answered by most candidates, with the weaker candidates struggled to apply the question specifics well here. Only the better candidates scored well on this question.

Q5

(i)

The overriding reason why the regulator will want to understand the products is because it wants to protect consumers [½]

Showing an active interest in the practices of insurers / regulated entities would help build customer confidence and trust in the regulatory framework and insurance market [½]

The regulator will want assurance that the needs and interests of customers are considered in the design and pricing of the product [½]

This means treating customers fairly [½]

Disadvantages to customers should be minimised or eradicated where possible [½]

The regulator will want to ensure that the pricing approach is in line with what customers would reasonably expect given the marketing material of the product [½]

In essence, the regulator therefore ensures that customers are not misled [½]

The regulator would also want to know that the product provides reasonable value for money in terms of premiums in relation to benefit and when compared against competition [½]

On the other hand, it will not want the product to be so cheap that it will ultimately threaten the providers' solvency levels [1/2]

The regulator will also want to ensure that the design would not cause adverse effect to solvency levels (e.g. by offering excessive guarantees) [1/2]

And that meets genuine needs of customers [1/2]

The regulator will want a design that minimises the risk of mis-selling [1/2]

[Marks available 6, maximum 3]

(ii)

Customer needs

The customers would want a product that meets their needs [1/2]

Which is clear in purpose [1/2]

And the premium charged should be affordable [1/2]

With respect to the proposed IP product, employers would want to cover their employees by providing replacement income when the employee is incapacitated to do work [1/2]

Designing a group product may be more ideal given the strong appetite from employers [1/2]

The customers would also want peace of mind and policy wordings that are clear and unambiguous [1/2]

The product design should be sustainable over time. E.g. future changes such as moving to online sales should not cause the product design to become obsolete [1/2]

Competition

The market competitiveness is also an important consideration [1/2]

The market for IP is currently underserved, and hence less need for product differentiation [1/2]

Or competitive pricing [1/2]

However if company A's launch is successful this could lead to other domestic insurers in country Y starting to sell IP business i.e. increased competition [1/2]

Consider the need for cross-subsidies for marketability reasons, e.g. large policies subsidising small ones, and whether the level of new business mix risk is acceptable [1/2]

Distribution

Availability and needs of distributors would affect the insurer's commission structure [1/2]

It will also affect the insurer's decision on which type of distribution channel to be used for the product [1/2]

Company Objectives

The return on capital or profitability required by the insurer is a key consideration [1/2]

As it would impact the pricing [1/2]

And whether to add onerous benefit features such as guarantees [1/2]

The company culture in terms of designing of products and pricing would also be important considerations [1/2]

The insurer would not want the product to be too different from the ones it already sells as it could affect consistency in brand positioning [1/2]

It also would not want a product design that is not in line with the company's risk appetite and policy [1/2]

Operational / Practical Issues

The system and admin requirements are also key considerations	[½]
Consider whether the system used in Country X is usable in Country Y	[½]
Consider whether the system providers are able to provide technical support in Country Y	[½]
If the product is very different to the company's existing product, it may need a new system which would increase IT costs	[½]
If languages are different between the country, it would be important to consider how the system and marketing materials can be adjusted to be in the local language	[½]
Country Y may not have the available expertise (e.g. underwriters, actuaries) locally	[½]
Which could add to upfront recruitment and ongoing costs	[½]
Consider whether reinsurance is adequately available in Country Y	[½]
The product should be consistent with practices in Country Y, such as:	[½]
The reviewability of premiums / benefits	[½]
Underwriting approach / stringency	[½]
Claims management	[½]
Social attitudes, (e.g. the intrusiveness of data collection / underwriting / claims management)	[½]
Ethical ideals	[½]
The product should tie in with state benefits provided in Country Y	[½]
The product should be designed to be tax efficient for the company and the policyholders	[½]

Regulation and Professionalism

Consider whether there are any regulatory restrictions, e.g.:	[½]
On reinsuring business to reinsurers outside Country Y	[½]
Product design / pricing	[½]
Underwriting / claims management	[½]
The reserving and capital requirements for operating in Country Y will need to be considered	[½]
Which could in turn affect the company's ability to provide a suitable product at affordable terms	[½]
Professional guidelines applicable to pricing need to be factored in	[½]
And these may be based on the profession body in Country Y, rather than that in Country X	[½]

[Marks available 22, maximum 6]

(iii)

It would save time and resources to use Company A's own existing morbidity experience	[½]
The information is also readily available and thus reducing cost of getting data	[½]
Given the two countries are neighbouring, morbidity experience may not be markedly different	[½]
Country X's morbidity experience could be a good approximation, and with suitable adjustments could be a reasonable fit for Country Y	[½]
Which could be a result of the similarities in climate, exposure to nearby regions, resources (which might dictate the industries / occupations within the countries)	[½]

However, in order to derive the appropriate adjustment factors, Company A will still need to investigate any differences in risk factors and their potential implications on the relative morbidity experiences between the two countries [1]

These risk factors are likely to include: [1]

Group IP vs Individual IP experience

State of economy

Political situation

Standard of living

Costs of living

Demographic profile

Standard of health provision

Underwriting practices

Policy terms and conditions

Sales methods and distribution channels

Other socio and economic factors

Claims management practices

Industries / Occupations

Attitudes to claiming

Education systems

Tax regime

[½ mark for at least two examples, 1 mark for at least four examples]

Given that the income protection market in Country Y is underserved, there may not be credible morbidity rates for the market [½]

However, there are other sources of data that are available and may be considered [½]

For example, the insurer may get morbidity rates from their reinsurer(s) who might have experience in Country Y [½]

Company A may also seek help from external actuarial consultants in Country Y [½]

The insurer may also be able to use population statistics for Country Y and adjust them for insured lives [½]

Consideration will need to be taken regarding the profile of the population segments that are likely to take out an IP policy [½]

At least they will be for the Country Y's market instead of taking rates from another country [½]

The regulator in Country Y may also not be satisfied that an insurer operating in Country Y is pricing its products based on the morbidity experience of another market [½]

The current morbidity experience in Country X is likely to be based on a large stable book of business, so the margin on top of best estimate assumptions is likely to be small [½]

On the other hand, the expected experience on a new block of business is likely to be volatile, in particular in the initial years [½]

Which means that a higher level of pricing margin on top of best estimate assumptions may be needed [½]

Alternatively, the additional risks could be factored into the Risk Discount Rate (RDR) [½]

Or a higher level of required "Return on Capital" (RoC) to compensate for the additional morbidity risks [½]

In summary, it is necessary to investigate all the potential sources of differences in morbidity rates and ascertain their impacts before making a final decision [½]

[Marks available 11½, maximum 6]

(iv)	
The source of data is a key consideration, as discussed in detail in part (iii) above	[½]
It is important to use data that is relevant, credible and stable	[½]
The data should be sufficient to be credible	[½]
But not too old to be relevant	[½]
An investigation period covering the past 3 to 5 years is generally acceptable	[½]
Types of data required include policy data, claims data, withdrawals 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]
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, deferred period	[1]
<i>[½ mark for at least two examples, 1 mark for at least four examples]</i>	
The subsets should be homogenous but still be credible	[½]
Morbidity rates would be split into:	
Sickness inception rates	[½]
Claims inception rates	[½]
Recovery rates whilst in claim rates	[½]
Claims by illness	[½]
Incident year (so trends can be identified / investigated)	[½]
The morbidity rates can be determined using an exposed to risk approach	[½]
Policies data is used to calculate the time for which each life was exposed to the risk of sickness, transition to claim or recovery	[½]
The principle of correspondence is important to apply	[½]
Lives are only included in a particular age cohort if had they fallen sick on that particular date, they would have been included as a claim or recovery	[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 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	[½]
<i>[½ mark for any two examples]</i>	

[Marks available 13½, maximum 5]

[Total 20]

Part (i) is a bookwork style question and was generally well answered by most candidates.

Part (ii) was reasonably well answered by most candidates, where well prepared candidates were able to consider multiple angles and give sufficient detail on each to allow opportunity for more marks.

Part (iii) was poorly answered by most candidates. The stronger candidates were able to demonstrate an understanding on the advantages and limitations of using the data source

in question, pointing out that it was a good place to start for various reasons but would then need to adapt to make suitable. The weaker candidates concluded that this was a bad idea and therefore lost many marks by not suggesting reasons for why this may be a good idea, or the only option.

Part (iv) was well answered by most candidates. The candidates who went through the specifics of an experience study step by step by considering all areas and going into detail of data, assumptions, trends etc scored highly on this question.

Q6

(i)

Policy information

Policy number [½]

Policy types (standalone or accelerated) [½]

Sum Assured amount(s) [½]

Benefit structure (i.e. fixed lump sum or tiered benefits) [½]

Premium frequency [½]

Premium amounts [½]

Premium types (i.e. guaranteed or reviewable) [½]

If premiums are reviewable, information on review dates [½]

Policy term [½]

Information on extra premiums / policy loading, if any [½]

Information on any rider benefits / terminal illness / TPD covers [½]

And additional premiums for riders, if any [½]

Policy start date / Risk commencement date [½]

Distribution channels [½]

Benefit cover information, e.g. which CIs are covered [½]

Information on options and guarantees [½]

Unit-linked / Conventional [½]

If unit-linked, information on charges, e.g. Annual Management Charges (AMC) [½]

Policyholder(s) information

Date of birth / Age [½]

Gender [½]

Smoker status [½]

Occupational class [½]

Location [½]

Joint / Single Life policy [½]

Valuation assumptions

Discount rates / Valuation rates of interest [½]

Morbidity [½]

Mortality [½]

Lapse / Persistency [½]

Investment returns [½]

Tax. [½]

Expenses [½]

Expense inflation	[1/2]
Commission / Commission Clawbacks	[1/2]
Claims delay information for estimating Incurred But Not Reported (IBNR) reserves	[1/2]
Option take-up rate and demographic assumptions for estimating Options reserves	[1/2]
For claims that have been reported but not yet settled, the declinature rates	[1/2]
[Marks available 18, maximum 5]	

(ii)

Policy information	
Scheme identifier	[1/2]
Free Cover Limit, if an	[1/2]
Unit costs	[1/2]
Experience rating, if any	[1/2]
Benefit definition, e.g. 4x salary	[1/2]
Whether the cover extends to dependents	[1/2]

Scheme information

Size of scheme	[1/2]
Industry in which the company is operating	[1/2]
Proportion of manual / office staff	[1/2]
Split of employees by seniority levels	[1/2]
Geographical location	[1/2]
Whether membership is compulsory or voluntary	[1/2]
And if voluntary, what the take-up rates are	[1/2]
Eligibility / joining restrictions	[1/2]
Specific costs for group schemes	[1/2]

[Marks available 7½, maximum 2]

(iii)

Basic documentation

The purpose of the computer application should be documented	[1/2]
The filename used should be logical and relevant to the purpose of the computer application	[1/2]
The file path and location in which the computer application stored should be documented	[1/2]

Input Validation

There should be controls in place to validate data input	[1/2]
There should be documentation in place to describe the operation of the control	[1/2]
There should be separate responsibilities for doers and checkers	[1/2]
And there should be evidence of checks and sign-offs	[1/2]
Where applicable, there should be materiality thresholds to trigger further investigation on exceptions	[1/2]
Separate controls are needed for manual data entry and automated data entry	[1/2]
Where applicable, build in controls to check input totals	[1/2]
And reconcile data entry back to source system	[1/2]
Either through built in function or manual checks back to source	[1/2]
There should also be evidence of actioning reconciliation differences / review of reconciliation	[1/2]

Output Validation

There should be controls in place to validate output results	[½]
There should be documentation in place to explain what output data is produced	[½]
What the controls are to ensure the output data is complete and accurate	[½]
There should be separate responsibilities for doers and checkers	[½]
And there should be evidence of checks and sign-offs	[½]
Where applicable, there should be materiality thresholds to trigger further investigation on exceptions	[½]
If applicable, there should be evidence of investigation of variances from calculated outputs versus prior period results	[½]
For complex and material calculations, it may also require independent review of results (e.g. using simplified version of model to validate)	[½]
An analysis of change (AoC) from one month to the next	[½]

Process & Technical Specifications documentation

Computer application documentation should include operational instructions / process documentation	[½]
Explaining how to operate the computer application, what the computer application does and how it does it	[½]
For computer application with complex calculations and functionalities, technical specifications documentation should be in place	[½]
The documentation should be reviewed and signed by an independent Subject Matter Expert (SME)	[½]

Access Controls / Security

The computer application should be stored in a secure location	[½]
Which should be a central location	[½]
That could only be accessed by the designated users	[½]
If password is used, it should meet the company's minimum risk management / security requirements	[½]
There should be back-ups of the computer application	[½]

Data Integrity

Input data, calculations and output data should ideally be clearly separated (on separate tabs in the computer application)	[½]
Formulae used in calculation steps should be locked and protected	[½]
The company may use colour coding or other equivalent methods to visibly separate inputs, outputs, calculations, checks	[½]

Change Controls

Any changes made to the computer application should be documented in a change log	[½]
The change log should describe what the changes are	[½]
The rationale for the changes	[½]
And evidence of checks and sign-off by an independent reviewer / checker	[½]
There should be version control	[½]
And retaining a history of previous versions	[½]

[Marks available 20, maximum 6]

[Total 13]

Part (i) is a straightforward reserving question and most candidates scored highly on this question.

Part (ii) was generally poorly answered by most candidates. Only a handful of candidates managed to grasp the specific nature and characteristics of a group scheme, and information on what would be required in addition to an individual product covered in part (i).

Part (iii) was also generally poorly answered by most candidates. The stronger candidates were able to note the various parts of a computer application, such as inputs, outputs, documentation, review etc. Those who structured well were then able to gain high marks relatively easily. Candidates who appeared not to be as well prepared focussed on data and input checks in detail without understanding that the question required to comment on governance and controls.

Parts (ii) and (iii) of this question differentiated the stronger candidates from those who were not as well prepared candidates.

[Paper Total 100]

END OF EXAMINERS' REPORT