

Institute of Actuaries of India

Subject SP1 – Health and Care Principles

September 2021 Examination

EXAMINERS' REPORT

Introduction

The Examiners' Report is written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

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.

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

Students are expected to have a practical understanding of application of the curriculum in real world scenarios requiring a solution, and articulate it well in a comprehensive manner

B. Comments on candidates' performance in this session of the examination

Questions that focused on knowledge of the Core Reading were well answered by those who had prepared thoroughly. 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. Candidates mostly, lost marks by not producing relevant points in this diet.

The paper included several questions requiring wider thinking or application of core reading to specific circumstances, such as question 1(b), 1(c), 2(a), 2 (b), 5(a) and 7(a). Candidates could not provide specific and practical pointers that demonstrated lack of application in the real world context.

Candidates should recognize that these are generally the questions which differentiate those candidates with a good grasp and understanding of the subject.

C. Pass Mark

The Pass Mark for this exam was 50.

88 candidates appeared and 36 passed.

Solution 1:

i) Following data would need to be collected through the website in order to produce a premium quotation:

Individual product information including:

- Date of birth
- Sum Insured
- Gender
- Location
- Family size
- Number of dependents
- Policy tenure

[Max 1]

Quoting websites are typically aimed at individuals rather than groups, however should they cater for group products, additional information will be required regarding the employer and then information for each employee and their dependents to be covered under the policy. [1]

Need to consider the trade-off between collecting less information for ease of sales process & seamless customer versus more data to determine accurate pricing. [1]

[3]

ii) Additional risks to the insurance company that arise from the use of the price comparison website are as follows:

- 1) This could encourage buying based on price and not on benefit leading to higher lapses or reputational risks if mis-sold. This could lead to lower future new business. [1/4]
- 2) This could introduce price pressures in the market to offer the lowest price to generate sales which might reduce profit margins and could even make products loss making. [1/4]
- 3) If the company aims to offer the best service to customers or better terms and conditions, it may lose out as the website may not fully reflect the terms and conditions of the product or make clear all of the additional features provided. [1]
- 4) Not all product features can easily be reduced to website based comparisons as benefits may be non-standardised. This means that consumers may make choices with incomplete information, and that competition is reduced to only those aspects which are directly comparable (including price). [1]
- 5) This may lead to misleading comparisons and the customer may not have purchased the best available product. Hence there are risks of accusations of mis-selling which can lead to ombudsman claims / lawsuits / regulatory fines. [1]
- 6) There will be additional operational risks; for example, internal systems and external website systems need to be compatible, and be able to "talk to" each other, for example updating of premium rates. [1/4]
- 7) There may be additional risks relating to data security. [1/4]
- 8) There is a risk that the data captured by the comparison site is not sufficiently detailed or accurate. [1/4]
- 9) There is a risk that premiums change upon asking additional questions, etc, for example if there is further underwriting when the customer reaches the insurer's website/sales process which the customer may not be aware of when choosing the insurer's quote. [1/2]
- 10) There is a risk of selling higher than expected additional new business through the comparison site channel (compared with what would have been sold through financial advisors anyway) with consequent implications for admin capacity and/or new business strain. [1/2]

- 11) There is also a risk of selling lower than expected additional new business through the comparison site channel (compared with what would have sold through financial advisors) so the initial costs/investments of setting up the arrangement may not be recouped e.g. costs to set up system links, etc. [1/2]
- 12) There is an expense risk arising of greater than expected increases in the charges levied by the price comparison website. [1/4]
- 13) There is additional counterparty risk arising from reliance on the third party comparison site e.g. counterparty IT issues leading to a loss of sales and related reputational risk from association with the comparison websites if they gain bad publicity (e.g. from sales of other types of insurance). [1/2]
- 14) The insurance risks may differ if the target market differs between those using comparison websites and those who would go direct to an insurer, or via a financial advisor. [1/2]
- 15) There may be an increased risk of non-disclosure if customers perceive the comparison sites to be relatively detached from the insurance company. [1/2]

[Max 6]

iii) Points that should be made in the report

- The report should set out the details of the experience investigation, including the data used, methodology and assumptions made, the results and considerations, leading to recommendations.
- The experience investigation should use relevant data for sales, lapses, policyholder, claims and expense data from business sold via the online channel versus the financial advisor channel.
- Data:
 - Data should cover the period of interest, i.e. the past year
 - use data from prior periods to provide a basis of comparison, for the example the previous year or two depending on the size and development of the book of business.
- The report should show a comparison of the overall portfolio of policies and how it has grown over time and how the introduction of the online channel has impacted this growth.

[Max 2]

i. New business

For financial advisor sales and online sales, calculate the experience over the year (and relative to prior years) of the following:

- Volume of sales by number of policyholders for each channel measured by number of policyholders.
- Total premium income for the year (and by month) for each of the channels.
- Characteristics of policyholders to understand whether the new business is within a similar target market or whether the online business has attracted a different market.
- The pricing point of premiums sold via each channel to establish if the online sales are taking place at lower premium compared to policies sold via the financial advisor.
- Further detail on the sales experience could be analysed for example which month during the year experienced the highest sales, the sales experience following various marketing or broker engagement initiatives and other factors that may influence sales experience during the year under review.
- Expenses incurred in selling the products through each channel, including commissions and operational expenses.

- For the online channel, it may be helpful to understand the number of customers following through the entire sales process and how many stop in each stage of the sales process to understand why sales are not being concluded.

[Max 2]

ii. **Lapses**

- The conversion rates from leads to sales for independent brokers should be compared to the conversion rate from site visits to sales for the website channel.
- Lapse experience of business sold via each channel by duration of contract.
- For the online channel, it will be important to establish if contracts are lapsed shortly after being taken out which may be a proxy for mis-sold business.
- Lapses by premium amount to establish if policyholders with more expensive cover sold through financial advisors are cancelling their cover and purchasing it online, if it is equivalently cheaper online.
- Characteristics of policyholders lapsing their products for example by age, gender, employment group or individual.
- Reasons given for lapses during the cancellation process, for example affordability issues, poor service received by the insurer, etc.

[Max 2]

iii. **Policyholder/ Insured members**

- The analysis should include the number of policyholders/ Insured members enrolled and lapsing as well as their demographic profile for example by age, gender, group or individual, distribution channel, and any other demographic information available.
- Assuming that the online underrating assessment requires details of each insured members, health declarations and disclosure of Pre-existing conditions, analysis could also be done by type of policy, sum insured, age band and other relevant parameters at a member level.

[Max 1]

iv. **Claims experience**

- The claims experience of each portfolio by distribution channel, policy type, policyholder segmentation (e.g. age, gender, etc), duration, group or individual, benefit option level, etc.

[1/2]

v. **Expenses**

- Commissions paid to financial advisors for business brought in via this channel, where applicable (expectation for online quotes and sales to be direct).
- Expenses paid to the price comparison website, including commissions and any other expenses that may have been incurred in the process of making the online sale.
- Marketing expenses - existing and new given the changes in distribution channels.
- Once off expenses incurred in establishing the infrastructure to support sales coming through the price comparison website, for example systems developments, call centre changes and training, additional staff, changes to sales process. The extent to which these expenses are expected to recur will need to be assessed based on improvements to the initial set up, volumes expected and experience.
- The payback period on any investments made will need to be taken into account.

[Max 2]

vi. **Profitability of financial advisor versus online business**

The above analysis should culminate in the analysis of the profitability of the business by distribution channel for the year under review and compare the profitability to prior years.

Comparison of profitability considering following:

- Expected future profitability of the business
- Pricing point of business sold online and the extent to which this may be putting price pressure on the financial advisor business
- Lapse experience so far and how this is expected to develop into the second year of operation
- The costs of operation for the online business and how this may need to increase or decrease to accommodate future sales volumes
- Underwriting processes, requirements and decisions may be different for online business and intermediated business
- Financial advisors' perceptions of the online channel and how it may impact their relationships with policyholders with whom they may have other lines of business from the same insurer
- Reputational risks (e.g. online complaints)
- Competitive pressures (for example are other gap cover providers also selling online or via online aggregators)
- Reinsurance impacts, if any, for example if there is a reinsurer involved, the reinsurance fees may differ based on the source of business due to the quality of the business, or for different underwriting processes.

[Max 3]

vii. **Other points to consider**

- The report should also include commercial and market considerations that could impact on the future business to be sold via the online channel, for example are other gap cover insurers selling through this online platform (or another).
- Relationships with brokers – both for corporate and individual business and how these can be strengthened to improve sales and retention
- Performance of group business versus individual business and whether it makes sense to continue to sell both lines of business online...
- An online distribution channel tends to be retail focused so it may be more appropriate to sell only individual gap cover through the price comparison website and continue using independent brokers for group business...
- However, the analysis of experience of group and individual business would assist to inform this decision.

[Max 2]

[Max 10]

[19 Marks]

Part (i) Most of the students provided information related to age, gender, sum insured, location etc. Very few mentioned about group business and no student discussed the need to balance the amount and data required by website and ease of sale to customer.

Part (ii) Most students could identify the various risks for example, risk related to high/low volume, mix of business risk, expense risk etc. Better candidates elaborated the risks as applicable to the specific circumstances under question and identified the price pressure or difficulty in comparison of benefits of the products offered on website.

Part (iii) Most of the students could not answer well to this question; they did not cover all the relevant pointers in a comprehensive manner. A few did not address the question directly and wrote around the topic.

Solution 2:**i) Uncertainty around cost of cover for PMI in a new market using another market's data:**

- a) Differences in lifestyle and prevalence of medical conditions
 - e.g. obesity linked to heart disease and diabetes
 - Leads to differences in frequency
- b) Difference in demographics
 - Aging population, leads to increased demand for healthcare services
- c) Effect of innovation on the cost of medical treatment covered
 - e.g. Availability/use of more sophisticated medical technology may increase the cost of cover
 - e.g. Innovations in surgical procedures may shorten the required recuperation time in hospital
 - e.g. Availability of health care resources – increased access increases utilisation, and vice versa
 - e.g. Differences in availability of clinics or cheaper facilities for less serious conditions
 - Leads to differences in cost of care
- d) Differences in policyholder and healthcare provider behaviour
 - e.g. could result in higher utilisation of medical services
- e) Differences in claims control and fraud
 - Poor claims control can result in insurer paying claims that should have been excluded due to benefit limitations
- f) Effect of introducing claims management processes such as preferred providers or managed care
 - e.g. negotiated fees
- g) Currency fluctuations
 - Less developed country vs well developed country and the currency rates with exporting countries
 - leads to volatility in cost of medical treatment that relies on imported equipment or pharmaceuticals
- h) Regulation overseeing products offered
 - Differences in cover, benefit limitations and exclusions
- i) Differences in distribution channels
 - Different mix by distribution channel may also result in different claiming patterns and experience

[Max 5]**ii) Advantages and disadvantages of using the electronic record:****Advantages:****1) Marketing and Underwriting**

- a) Positively received by policyholders, leading to increased volumes of business or promoting existing policyholders to stay with the insurer
- b) Competitive advantage if tool is perceived to be useful and/or the best
- c) Faster and easier underwriting.
- d) Improve quality of underwriting and ability to classify different risk profiles

[1/2]**2) Better data**

- a) More complete data set for the insurer, resulting in more accurate pricing
- b) Insurer receives data timeously:
 - reducing lag to receive data
 - Helping to refine IBNR reserve
- c) Improve quality of underwriting decision
- d) less duplication of tests saving on the costs of these tests

- e) Reduce risk of error in data due to manual capturing, improving the quality of the data
- f) Can have checks in place to capture data correctly, e.g. alphanumeric vs numeric vs special characters
- g) Can encourage or enforce certain data fields to be input, e.g. ICD10 codes level I,II,III
- h) Collect clinical results, resulting in better understanding of the epidemiology of the policyholders (leading to more accurate pricing) and better understanding of the quality of care provided
- i) Large amounts of data to track different types of health hazards linked either to medical, environmental or social factors

[2]

3) Submitting claims

- a) Positively received by providers, assisting with building relationships
- b) Faster, easier
- c) Can use the tool to apply for pre-auth and approval/denial it
- d) Can determine co-payments applicable or benefit limits reached/available etc. via the tool immediately

[1/4]

4) Save on costs

- a) Less duplication of tests, and less unnecessary tests
- b) Preventing hospitalisation if appropriate treatment protocols are followed correctly
- c) Efficiencies gained by electronic transfer of data instead of manual data capturing
- d) Improved coordination of care improves health status
- e) More accurate forecast of claims - counts and value both – Required for smooth manpower planning and P & L management respectively

[1]

5) Reduce admin burden

- a) Assist doctors with creating and managing appointments
- b) Real-time alerts to doctors on patients' conditions, tests required, time elapsed since last consultation etc.

[1/4]

[Max 3]

Disadvantages**1) Low uptake**

- a) Will render all advantages meaningless

[1/4]

2) Legal considerations/ Regulation risk

- a) Privacy issues around what information can and cannot be shared
- b) Risk of providing incorrect data
- c) Needs adequate control and standards
- d) IT security / Data security – risk of being hacked and data stolen.

[1/2]

3) Increase costs

- a) Development expenses, including possibly needing more IT staff and additional systems
- b) May increase cost of cover by doing more screening and more tests
- c) Training sessions to train doctors to understand and use the tool, and to train insurer's staff to field questions about it and to use the data, and train brokers to explain tool to policyholders

[1/2]

4) Reputational risk

- a) Confusing to doctors and policyholders
- b) Risk that the tool doesn't work well
- c) Added admin burden to doctors, including data overload
- d) Insured persons may not understand the questions and may not get relevant information – which may lead to more rejection and grievances may increase as a result

[1]

5) Competition

- a) How does the tool compare to the tool offered by competitors, if any.
- b) Will doctors be able to learn to use both tools –for online assessment/underwriting

[1/2]

6) Systems integration

- a) Will the tool work with the systems that the providers have available, across all providers in the care chain

[1/4]

[Max 3]

[Max 6]**iii) Corrective actions**

In order for appropriate action to be taken, it is imperative that the company understands the reasons for any adverse trends in the experience. [1]

Update assumptions for future experience – e.g. understand if trends are changing and update assumptions so that they are appropriate for expected future experience

- a) Re-pricing of products considering claims experience and or include higher profit margin
- b) Re-design of products – e.g. through introducing Co-payment, deductible or sub-limits etc.
- c) Change the investment strategy – e.g. an investment strategy that maximises investment returns for the acceptable level of risk
- d) Change the sales strategy – e.g. which products are marketed through which distribution channel, change the commission structures for new business and renewal etc., target populations with the best claims experience/the most profitable group
- e) Change the reinsurance strategy – e.g. take out reinsurance to protect against future adverse experience
- f) Change the underwriting strategy – e.g. apply stricter underwriting in order to better price poor risks or to exclude members that do not meet the application criteria
- g) Increase investigation – e.g. Review triggers for Fraud, Waste and Abuse
- h) Re-organise the workforce and IT systems to make more efficient use of expensive resources
- i) Change care Providers arrangements – e.g. negotiate hospital tariffs, introduce risk-sharing agreements
- j) Focus on increasing renewals
- k) Train sales staff to avoid mis-selling and reduce cancellation

[½ mark per action, & ½ mark for an example]

[Max 8]**[19 Marks]**

Part (i) Many candidates identified risks. However stronger candidates elaborated the risks appropriately and generated wider points

Part(ii) This question was poorly answered. Most of the candidates identified areas such as ease and faster underwriting and claims management and increased costs but failed to generate sufficiently appropriate and practical points for marks.

Part (iii) The question was answered well by a few of the students though the rest did not cover all pointers relating to investment, reinsurance strategy etc.

Solution 3:**i) Investigative surgery**

This is surgery that is undergone in order to advance the diagnosis (nature and extent of the complaint). It is generally covered under PMI products but may not be so under MME products.

[1]

ii) Moratorium

Certain PMI products, in place of formal medical underwriting at inception, do not over medical conditions that existed during a pre-specified (Pre-existing conditions), usually between two and five years.....

....but will then extend cover to these conditions if no related treatment, symptoms or advice takes place for a period of two years after first taking out the policy (or after receiving full treatment)

The policyholder, however, on immediate risk for all other conditions. [1]

iii) Acute illnesses

Illnesses or conditions of a non-degenerative nature where a cure is a reasonable prospect. This should be contrasted with *Chronic illnesses*. [1]

iv) Anti-selection

People will be more likely to take out insurance contracts when they believe their risk to be higher than the insurance company has allowed for in the premium, *ie* the benefits are worth more than the premiums payable. This is known as anti-selection.

[1]

[4 Marks]

Part (i), (ii), (iii) and (iv) This question being a book work was well answered by most.

Solution 4:

i) How could community rating lead to cross-subsidy?

Community rating means that individual rating factors are not used to determine premiums. To the extent that community factors do not account for all the variation in claims between policyholders, some policyholders will pay premiums that exceed their expected claims costs plus expenses, and some will pay premiums that are less than these costs. To this extent there will be a cross-subsidy between policyholders.

[2]

ii) Opportunity for selection against the insurer?

Within each community-rating group it will still be true that premiums should depend on age, gender (if permitted by legislation) and other factors. To the extent that policyholders are aware of these differences there is the opportunity for selection against the insurer. For example, younger people in good health will tend to delay buying insurance until they are older and it appears to be better value.

[1]

In addition, if other insurers in the market do not use community rating (assuming this is allowed), the problems for the insurer who does use it will be exacerbated. Better risks, such as young people, will buy insurance from the insurers that rate individually, because they will offer lower premiums.

[1]

[Max 2]

iii) Lifetime community-rating system

As we have seen the greatest opportunity for selection against the insurer is the fact that individual ages are not used in the rating process. If premiums can vary by age at entry, then the insurer can determine an appropriate level premium to cover the increasing risk over the expected policy lifetime of the insured.

[2]

In this case each individual would have an incentive to renew because they are actually paying a level annual premium for an increasing risk. There would be no perceived advantage in delaying the purchase of insurance.

[1.5]

There would still be cross-subsidy as the result of not using other individual rating factors (*eg* gender), but here the cross-subsidy is smaller.

[1/2]

[Max 4]

[8 Marks]

Part (i) , (ii) and (iii) This was a standard question and most candidates scored highly on this question.

Solution 5:**i) Impact on Balance sheet and Solvency ratio of the insurer**

- Amount of mismatch reserves depend on the investment strategy of the insurer and the level of mismatch in the fund
- The more the level of mismatch in the fund, the greater the requirement of mismatch reserve creation
- This will lead to the reduction of free assets of the insurer and thereby fall in the solvency ratio
- It will also impact the P & L of the insurer due to additional increase of liabilities
- The creation of mismatch reserve may also add volatility in the P & L of the insurer as it is sensitive to the change in asset mix
- The reduction of free assets may reduce the investment freedom of the insurer and thereby moving to a more conservative investment strategy
- This will reduce the investment income and further impacting the profits and solvency ratio
- The assets held for mismatch reserve may also impact the investment income of the insurer due to requirement of safe investment strategy
- The insurer may incur additional expenses to manage the ALM position, which will further impact the solvency ratio
- The creation of Mismatch reserve will also lead to increase in Required Solvency Margin and thereby fall in Solvency ratio.

[0.5 per point, Max 5]

ii) Action taken by the insurer to manage the mismatch reserve

- Insurer should select the best matching assets for managing this product
- Insurer may invest a part of its assets under Index linked government bonds to reduce the level of mismatch
- A part of investment shall also be invested in fixed interest securities that will help to achieve the minimum guaranteed return
- Insurer may also look for some Alternative Investment funds, linked to index to minimize the level of mismatch
- Insurer may also look for investment in property, where returns are based on the inflation index
- Insurer shall invest in range of equities to maintain diversification in the funds
- This will also help to reduce the risk of default
- Insurer may also look for alternative product design or reduce the volume of new business in the product to reduce the level of mismatch reserve
- Insurer shall also strengthen its ALM framework to quantify the risks and reduce the level of mismatch between assets and liabilities

[0.5 per point, Max 5]

iii) Framework to determine appropriate investment strategy

- The company need to select suitable model points to represent the business under the product

- It will need to project its liabilities using a model office
- The liabilities shall be projected forward using the expected future experience of the portfolio
- It may use deterministic approach although a stochastic approach may be used for inflation index
- It will choose a target investment mix basis assumed scenarios and project the returns on this investment mix using its stochastic models
- It can vary its investment mix and repeat the exercise a number of times to check which investment mix is appropriate
- It needs to decide suitable criteria to determine the best investment strategy
- These criteria may be acceptable level of solvency ratio or the level of free assets or maximization of shareholder return or minimization of mismatch level in the assets and liabilities
- The projected assets and liabilities can then be valued at the end of each year of projection on company supervisory basis
- The choice of parameters for the model, particularly the random variables (for stochastic approach), will have a large impact on the results, and so must be chosen with great care
- Dynamic iterations should be built into the model
- Simulation techniques shall be used rather than analytically because of the complexity of the model
- All results shall be checked for reasonableness

[0.5 per point, Max 5]

iv) Financial reinsurance to improve capital position

- It is used for improving the accounting or supervisory solvency position of the insurer
- It involves a very small amount of transfer of insurance risk
- It is of two types – Risk premium reinsurance and surplus relief reinsurance
- In case of risk premium reinsurance, reinsurer provides the capital in the form of reinsurance commission depending on the volume of new business
- The repayment to the reinsurer is spread over a number of years, in the form of increased reinsurance premium rates
- The reinsurers consider the expected experience of the portfolio to determine the terms of the repayment
- In case of surplus relief reinsurance, the reinsurer provides contingent loan to the insurer
- The repayment of the loan is contingent upon the stream of future profits emerging from the portfolio
- Insurer doesn't have to consider the repayment as a liability in the Balance sheet
- The insurer will lose its future profit (VIF) emerging from the portfolio, which is not shown as assets in the balance sheet
- This is allowed subject to prior approval from the regulatory body

[0.5 per point, Max 5]

[20 Marks]

Part (i) Most of the candidates could identify fall in solvency ratio and increase in liability, some pointed out fall in free assets and reduction in profits due to lower return. However, very few candidates covered the impact of mismatching reserves on the Balance sheet and P&L.

Part (ii) While a few of the students answered this question well, many did not cover all asset categories and approach well.

Part (iii) This question was not answered comprehensively covering all points of a model projection by most of the students

Part (iv) This question was answered well by very few candidates covering all aspects and types of financial reinsurance.

Solution 6:

i) Reasons for monitoring the experience

- It helps to update the experience for different actuarial projections e.g. Product pricing, Valuations, Business Plan, ALM etc.
- It helps to understand the trend of experience emerging from the portfolio
- It helps in comparing actual experience against the assumptions used for pricing of the portfolio
- It helps to take corrective action at the right time which may include re-pricing of the products, changing the sales / reinsurance / underwriting strategy
- It provides information to the management that helps in taking business decisions
- It helps to take more informed decisions about pricing and about adequacy of reserves
- It helps to identify any impact of anti-selection in the portfolio
- It helps to identify any loss making business or distribution channels or products
- It helps to implement successful investment strategies for the portfolio
- It helps in changing/improving marketing message
- It also helps in improving wordings of policy contracts

[0.5 per point, Max 5]

ii) Alternative actions to improve the portfolio experience

- Insurer could have strengthened the underwriting terms of the product e.g.
- It could have increased the medical limit rather than processing majority of the applications through simplified underwriting
- Insurer may relook the definition of pre- existing clause, based on emerging experience
- Insurer may also put an additional waiting period for specific disease, where the incidence rate has increased due to pandemic
- Insurer may put additional clause to exclude Heart and Lungs related claims after the trigger of Covid claims
- Insurer shall perform the analysis for different age bands and compare the volume of new business against the amount of claims in each band
- New business sourcing may be stopped for those bands where the claim experience is large against the business volume
- Insurer may also look for reinsurance arrangement (Quota share/Surplus) so that the loss can be minimized

- Insurer may also look for non - proportional reinsurance, if the claim amount due to pandemic exceeds a certain limit
- Insurer may also look for repricing the product / revision in premium rates to minimize the loss

[0.5 per point, Max 5]

iii) Steps for expense analysis

- The loss in business volume of flagship product could have reduced the contribution towards the overall expenses of the company
- It could have impacted the pricing and reserving basis of the insurer
- It would be relevant for the financial planning of the insurer
- Expenses can be divided into direct and overhead expenses
- Identify the expenses e.g. salary costs, computer costs etc.
- Commission shall be excluded from the analysis as it can be allowed explicitly
- The non-commission costs shall be subdivided into the required cells i.e. initial, renewal, termination, claim and investment and whether related to per policy, premium or sum insured
- Some expenses can be allocated directly to a particular cell and some expenses may need to be subdivided between cells using the timesheet analysis
- Overhead expenses shall be allocated on pragmatic basis e.g. in proportion to the split of direct expenses
- Property expenses can be allowed by charging a notional rent to each department in proportion to the floor space occupied, then allocated to different cells in proportion to the department salary costs
- Costs of computer equipment shall be spread over their expected lifetime and then allocated to different department in proportion to usage
- Investment costs would be subdivided by asset class and usually allowed for by reduction in yield for each class
- One off capital costs would be spread over their expected future lifetime of the item and then treated as an overhead
- Exceptional expense items, which are not likely to recur shall be excluded from the expense analysis
- The expense allocated under each category (New business, In-force policies, terminated policies) is then summed up to reconcile with the total expenses in the published account of the insurer
- Additional checks shall be performed on the results e.g., comparing trend with previous years, comparison with industry statistics etc.

[0.5 per point, Max 5]

[15 Marks]

Part (i) It was a relatively straightforward question and answered well by most of the candidates.

Part (ii) Only few candidates covered all the aspects from the dimension of underwriting, design, sourcing, reinsurance, and pricing with good and practical examples.

Part (iii) It was a relatively straightforward question and answered well by most of the candidates.

Solution 7:**i) Risks and its mitigation****Risk faced by the Insurer**

- Data used by the Insurer for product pricing may not reflect the target segments for acquired policies
- Assumptions used for the purpose of pricing like incidence rates for different claims may not be correct
- Estimation of claim amounts for different procedures may not be correct
- Advancement of medical science, leading to acceleration of claims that Insurer may not have adequately allowed in product pricing
- Actual expenses incurred by the Insurer are higher than expected amount due to low business volume
- Different business mix as considered at the time of product pricing
- Very high business volume leading to more requirements of capital and resources for administration
- Large number of fraudulent claims due to poor operational controls
- Payment of additional claims due to change in regulatory environment
- Competition in the market leading to reduction in the premium rates
- Too many claims in the portfolio due to anti-selection
- Product mis-sold to the customer, leading to wrong expectation and legal hassles

Mitigations

- Insurer shall do proper market survey before the launch of new product
- Insurer can use the reinsurer's data with suitable adjustments to determine the price of product corresponding to target market
- Low retention limit or Quota share subject to maximum amount may protect the insurer from large claims in the portfolio
- Take the help of reinsurer to determine the underwriting criteria and reduce the impact of anti-selection
- Take the help of reinsurer to frame the terms and conditions of the product to protect itself from legal hassles in future
- Take the help of reinsurer in adjudication of large claims
- Lobby the regulator for any change in terms and conditions, which has not been considered in product pricing
- Proper monitoring of business mix or sourcing channel to manage the product profitability
- Stringent action against all those distributors and providers engaged in fraudulent claims
- Mandatory pre-authorization can be introduced to put more control over the claims process
- Proper monitoring of the sales message to manage the customer expectation

[0.5 per point, Max 10]

ii) Reinsurance arrangement for the product

- Insurer may look for either proportional / non-proportional or a combination of both the reinsurance arrangement depending on the need
- Proportional reinsurance (Quota share) is preferable for
 - ✓ Improvement in solvency ratio
 - ✓ Using the technical expertise of the reinsurer, particularly in underwritings
 - ✓ Writing large volume of business without increasing too much capital
 - ✓ Competitive offerings in the market to capture large market share
 - ✓ Being a new company, may not have enough relevant data and get help from reinsurer in product pricing
 - ✓ Becomes more relevant, if the foreign partner doesn't have too much expertise of managing short term products (Mediclaime policy)
- Non-proportional (Excess of loss) is preferable
 - ✓ Insurer is confident of using the expertise of foreign partner and willing to take more risk
 - ✓ Not willing to share too much profit with reinsurer
 - ✓ To protect from insolvency from aggregation of claims arising from any catastrophe event
 - ✓ To stabilize the technical results by reducing claims fluctuations

[0.5 per point, Max 5]

[15 Marks]

Part (i) Most students could identify the risk related to data, assumptions, claims, high/low volume, mix of business risk, expense risk and their mitigation. Better candidates elaborated the risks as applicable to the specific circumstances under question.

Part (ii) It was a bookwork question and answered well by most of the candidates.
