

# **EXAMINERS' REPORT**

*June 2017 examinations*

## **Subject F102 — *Life Insurance* Fellowship Principles**

### **INTRODUCTION**

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

## QUESTION 1

i. Parameters:

- Base Mortality rates
- Expenses
- Lapse rates
- Mortality trends
- Inflation – of expenses
- Interest rates
- Margins
- Profit requirements
- Anticipated volume of business
- Mix by distribution
- Average sums assured

ii. Base mortality:

- A good starting point will be the experience for the current book of business.
- Mortality for the new product is likely to be (significantly) worse due to the fact that there is very little underwriting.
- In particular you will need to add a loading for HIV, since an HIV test is not being done.
- The company may have experience on other products it writes, with limited underwriting, which could be used to calibrate the fully underwritten experience.
- You should make an allowance for anti-selection, given that no medical tests will be done.
- You can get pricing assistance from reinsurers, who may have experience on similar products.

Expenses:

- The expense assumptions will be very different to those for your existing product.
- However, the total expenses may end up being similar.
- You do not need to make an allowance for commission.
- You need an estimate of the total marketing costs for the period over which you are doing the pricing.
- The take-up of policies per campaign / per Rand spent on marketing is a key assumption.
- The sums insured will be lower than for the existing product, so you will need to consider carefully how to spread the expense per policy.
- The underwriting expenses will be significantly less than for the existing product.
- You will need to make an allowance for the cost of the IT development of the on-line offering, and the cost of the call centre.

- Some of the expenses, e.g. policy administration, and claims, may be similar to those for the existing product.
- It might be more admin-intensive than broker business because the company has to interact directly with policyholders when selling directly (rather than this being via a broker).

#### Lapses:

- The lapses are likely to be significantly different from those on the existing product.
- There are no intermediaries to keep the relationship with policyholders “warm”.
- It is likely that there will be a high percentage of Not Taken Ups (NTUs).
- The existing product’s lapse rates can be used as a starting point, but some margins should be built in to this.
- Consider the lapse rates of any other limited underwriting / direct product offerings the company has.
- Reinsurers may also be able to assist with setting this assumption.

#### Expense inflation:

- This could be similar to the existing product.
- A good starting point could be CPI or salary inflation.

#### Mortality trends:

- There are likely to be very little data in the sub-Saharan country.
- You could consider the company’s existing data to detect any macro trends.
- It would be worth looking at trends in the country.
- You could approach a reinsurer for assistance.

#### Interest rates:

- This is not a key assumption as there are no surrender values.
- You could use a similar assumption to that used for the existing product.

#### Margin:

- There is a lot more risk in the new product, so higher margins than used for the existing product would be required.
- Higher margins will be required in respect of the assumptions where there is the most uncertainty. However, this will be restricted by the need to make the new product competitive.
- If the business is reinsured this may reduce the need for margins.

Profit margin:

- As above, you would want to load this, but within reason.
- The profit margin could be the same as that for the existing product if you have allowed for sufficient risk margins.
- It will also depend on the value placed on getting a foothold in this market.
- Consideration should also be given as to the impact on the existing product.

Mix by distribution channel:

- Some sensible assumption for the mix will be required.
- Sensitivity testing should be carried out.

Volume of business:

- Consider the existing sales volumes and consult with the company's marketing staff to get an initial estimate.
- Consider how well such business has been doing in the country as a whole.
- Reinsurers may be able to provide input on this.
- Sensitivity testing will be important.

Average sums insured:

- The current average sum assured would give an upper limit to the estimate.
- It might be possible to work backwards from an expected affordable premium.
- Sensitivity testing should be carried out.

*Part (i) was straightforward and was, as would be expected, generally well answered by candidates.*

*Part (ii), a fairly straightforward pricing assumptions question, was generally very poorly handled. Surprisingly few candidates used the list of assumptions they had identified in part (i) as the items needing to be covered in part (ii). Very few candidates could identify what the three most important parameters were. Some did not even bother to try to do that (suggesting they did not even read the question carefully). Many chose the wrong three, which showed their lack of understanding of how to price a whole life product. Many candidates picked interest rate as a key parameter which given there is no surrender value, is not that crucial for pricing purposes. Some candidates even managed not to select mortality as a key parameter. Incredibly, some candidates while identifying the correct assumptions (or many of them) in part (i), simply ignored those identified and came up with others in part (ii).*

## QUESTION 2

i. The two ways for allocating UWP bonuses are:

- The price of a unit remains fixed and the insurer allocates additional units to each contract (usually annually) at the bonus declaration. There could be a minimum bonus declaration of zero or some positive percentage.
- The insurer changes the price of the units (usually on a daily basis). The increase is made up of a guaranteed part (possibly zero) and a bonus part.

ii. There is a difference in the way that the insurer determines the price of the units and therefore the benefits payable.

For unit-linked business there is a direct link to a specified pool of assets, with unit prices being adjusted as and when the underlying asset values change.

With UWP business bonuses are allocated to the UWP fund at the discretion of the life office.

The key distinction is the discretion that the insurer has over the bonuses granted.

For UWP a terminal bonus could be added when the insured event occurs.

For unit-linked business there is no terminal bonus when the insured event occurs as unit prices change when the underlying asset values change.

For UWP the insurer will take a longer-term view of investment returns and smooth the bonuses it allocates.

For both products the surrender value will usually be the fund value (possibly less a surrender penalty).

However, for UWP the insurer may retain the right to apply a market value adjustment (MVA) at its discretion on surrender.

iii. Modelling could be carried out on a policy-by-policy basis using the full in-force policy data.

Alternatively suitable model points representing the business can be used.

Model points should be selected such that the use of model points rather than the full in-force policy data will not materially impact on the results.

A stochastic model simulating investment returns would be used to project, for each time period:

- the value of the assets; and
- bonus allocations and the charges to the UWP fund.

Assumptions relating to the probability, distribution mean and volatility of the investment returns are needed.

These assumptions must take the asset mix of the accumulating with profits fund into account.

These assumptions can be calibrated using a market-consistent approach.

Declared bonus rates will be linked to the projected investment returns and actual fund (asset share) for the policy.

Thus the model will allow for interaction between the cashflows.

The model will project, for each time period:

- withdrawal, death and maturity benefits
- charges, which are used to calculate the future unit fund
- insurer expenses (taking expense inflation into account)
- supervisory requirements to hold reserves

Assumptions on mortality, withdrawal and expenses would take into account expected experience.

These will probably be allowed for on a deterministic basis.

Since investment returns are modelled stochastically, the inflation rate can also be modelled stochastically.

All assumptions should be consistent with each other and allow for interactions between variables

(e.g. investment return and expense inflation assumption and surrender rates could be linked to the economic scenario).

Consider whether an annual or monthly time period is appropriate for projections to balance complexity and accuracy.

The net cashflow for each time period:

- will be the net non-unit cash flow less the increase in the non-unit reserve
- will be projected to the termination of the policy
- will be discounted using an appropriate risk discount rate to obtain the present value
- the discount rate might be the company's risk discount rate and might depend on the specific economic situation for each simulation.

The present value of the projected net cashflows for each policy will be aggregated (model points will be scaled up) to obtain the total for the in-force UWP policies.

A large number of simulations would be required (between 1000 and 5000).

The expected present value of the future profits relating to existing business will be the average of these discounted net cashflows over all simulations.

The variability of the present value of future profits is reflected in the distribution of the simulated present value of future profits.

*Parts (i) and (ii) were bookwork, and were answered reasonably well by the better prepared candidates. Some candidates misinterpreted part (i), and described reversionary and terminal bonuses.*

*Part (iii) produced a wide range of marks. Most candidates who scored poorly simply failed to write enough.*

### QUESTION 3

Insurer A could use a replicating portfolio approach where the value of the liabilities is determined as the value of a portfolio of assets that exactly match the cashflows of the liabilities (in this case a portfolio of zero-coupon government bonds of appropriate terms and amount), or by discounting future cashflows (expenses and annuity payments for the expected future lifetime of policyholders taking any minimum payment on death into account) at the risk free rate (using government bond yields or swap rates).

It might be possible to take credit for the illiquidity premium offered by corporate bonds (since the annuity cashflows are predictable and matching bonds held to maturity). However, this is unlikely to be accepted by Insurer A as this will reduce the transfer value of assets.

Generally Insurer A will lean towards including margins for uncertainty in the valuation which would increase the amount of assets that are transferred.

Insurer A may consider the impact of the transferred business on the overall risk of the business of the insurer when setting the margin for uncertainty. However, future cashflows for the annuity portfolio are not known with certainty.

It will be difficult to obtain a market-consistent assumption for mortality and expense assumptions as a deep and liquid market to trade these risks is unlikely to exist.

The assumptions could be set using a best estimate plus a risk margin reflecting the compensation required by the market for the uncertainty in each individual assumption, or the insurer could calculate a single risk margin using a cost of capital approach to determine the risk market.

The best estimate for mortality experience could be set with reference to insurer or industry experience or reinsurer information, and needs to include assumptions about mortality improvements.

The best estimate for expenses could be set with reference to insurer or industry data. Price inflation can be estimated using the difference between yields on conventional and index-linked government bonds, but insurer expenses are unlikely to follow price inflation exactly (as salary expenses will increase with salary inflation).

*This question was not answered well, which is disappointing given that it was a straightforward bookwork application question. Most candidates struggled to generate even half of the above points. A number of candidates wasted valuable time describing how assets would be valued, and gave the rationale and advantages of market-consistent valuations.*

## QUESTION 4

### i. Principles:

- Surrender values should be affordable, i.e. should not exceed earned asset shares, in aggregate, over a reasonable time period.
- Surrender value designs should minimise the risk of selection against the company.
  - E.g. by limiting the lapse-and-re-entry risk.
- Surrender values need to take account of policyholder reasonable expectations (PRE).
  - At early durations surrender values should not appear too low compared with premiums paid taking into account projections provided at outset.
  - At later durations surrender values should be consistent with projected maturity values.
- Surrender values should maintain equity between:
  - Surrendering and remaining policyholders: the profit taken should be consistent between exiting and remaining policyholders.
  - Surrendering policyholders and shareholders: a reasonable profit can be extracted on surrender.
- Surrender values should take account of:
  - Surrender values offered by competitors.
  - Auction values.
- The approach should be practical:
  - Not be subject to frequent change, unless dictated by market conditions.
  - Not be too difficult to calculate, taking into account computing power available.
  - Not be too difficult to explain to policyholders.
  - Be capable of being documented clearly.
- Surrender values need to be in line with regulation if applicable.
- Avoid discontinuities in surrender value by policy term.

### ii. Affordability:

- The surrender value at early durations is based on the earned asset share and therefore likely to be affordable.
  - Losses will be made on early duration surrenders when the asset share is negative, as surrender values cannot be negative.
- Surrender values at later durations are likely to be smaller than the earned asset share, which includes historic margins.
  - However, there is no guarantee that the prospective method will not result in surrender values that are consistently above the asset share.

### PRE:

- At early durations the retrospective approach is likely to be consistent with PRE, because it is comparable to premiums paid less initial expenses.

- Nevertheless, deductions for initial expenses may not seem reasonable to policyholders.
- The prospective approach is likely to meet PRE at later durations as it will tend to the sum assured payable on death.

#### Equity:

- A surrender value based on the (positive) asset share means that the insurance company will not make any profit on early surrenders, which is generous to surrendering policyholders.
- The prospective method means that the insurance company will retain profit that has accrued to date of surrender (broadly), which seems equitable.
  - However, no margins that are expected to emerge in the future will accrue to the shareholders and some shareholders may view this as unreasonable.

#### Consistency with competition:

- The method could be consistent with that used by competitors.
- The prospective method is likely to be consistent with auction values

#### Practicality & Regulation:

- Because the surrender value later in the policy term is based on the current premium basis, the risk of lapse-and-re-entry is managed.
- If information to calculate the earned asset share is available the retrospective approach should not be overly complex to calculate.
- The prospective method should be easy to calculate since it does not require any knowledge of past experience.
- There is a risk that there are discontinuities in the surrender values when moving from the retrospective to the prospective method.
- Because premium bases are generally not changed frequently, the surrender values should not change frequently.
  - However, at early durations, asset shares based on actual experience, could be volatile.
- There should not be any problems with regulation (unless, for example, minimum surrender values are specified).
- This method may be complicated to explain to policyholders.

#### iii. Possible changes:

- Consider using a basis that is closer to the realistic prospective reserve (particularly at later durations) thus reducing surrender values.
- Include a condition that the surrender value may not be higher than the asset share when the prospective approach is applied
- Move from the retrospective basis to the prospective basis at an earlier duration. to retain more profit.
- Include/increase a margin for profit in the surrender value expense assumptions.

*The majority of candidates did very well on part (i) which was a standard bookwork question. However, candidates struggled to critique the proposal in part (ii). The question required an “explanation” and candidates often made vague or unsubstantiated statements e.g. “the method is easy to implement”, without explaining the rationale why this is so. Answers were often not tailored to the specific scenario provided in the question. For example, a significant number of candidates suggested that the product has a maturity value – which suggests some term product – when the question stated the product is a whole of life product.*

## QUESTION 5

i. The impact of regulations include:

- Restrictions on the type of assets that can be invested in.
- Restrictions on the amount that can be invested in particular assets (to prevent concentration risk). These can be applied per asset class, per currency, per individual asset.
- Restrictions on the extent to which assets of a particular type can be included when demonstrating solvency.
- Maximum counterparty exposure to an individual company or individual (to reduce credit risk).
- Solvency capital may have to be invested in specific assets.
- Limitations on the extent to which mismatching is allowed.
- A requirement to hold a mismatch reserve or solvency capital if applicable.
- Prescribed assets i.e. a requirement to invest a minimum proportion of assets in specific types of investments (usually government bonds).
- Rules on how to value assets, incl. unlisted assets, depreciation of fixed assets.
- Tax regulation may treat some types of assets more favourably than others. .
- Regulations might require independent custodians.

ii. Reasons for a high level of fixed-interest investments include:

- The company might have a relatively high level of guaranteed benefits (basic sums assured and reversionary bonuses) which are best matched by fixed-interest stocks.
- The high level of guarantees might be due to:
  - A young book of policies (hence the sum assured is a large proportion of the liabilities).
  - The company may have a policy of higher than average sum assured for a given premium.
  - The company may have a policy of higher than average reversionary bonuses and lower terminal bonuses.
- Policyholders may expect (based on communications from the company) lower than average bonus variability, hence requiring fixed-interest investment to smooth bonuses.

- Low free assets may lead to the regulator requiring higher levels of fixed-interest assets to reduce the risk of insolvency.
- Even if not required by the regulator, the company's risk appetite may require less volatile assets when free assets are low.
- The company may wish to protect its solvency position in order to continue writing new business.
- The company might expect fixed-interest assets to generate the best returns.
- Other liabilities might require matching with fixed-interest stocks (e.g. without-profit products).
- If solvency admissibility rules place no limit on fixed-interest assets the company will want to make sure all its assets are counted for demonstrating solvency. If other insurers have relatively high free assets then they will not be as heavily affected by this restriction.
- Risk-based solvency requirements might be lower for fixed-interest assets.
- If decrements are higher, or less predictable, than average then fixed-interest assets might be suitable due to generally good liquidity.

*This question was answered reasonably well, although it could have been done better. Part (i) was very straightforward, yet a number of candidates struggled to think broadly enough to score full marks.*

*Part (ii) was also straightforward, yet a number of candidates showed very weak understanding of the components of with-profits liabilities, and how each component should be matched. A number of candidates made senseless comments e.g. "Tax incentives/regulations could have led to the high fixed-interest holding", without thinking that such incentives/regulations would have affected other insurers too.*

## QUESTION 6

- The cost of a mortality option is the value of the excess of the premium that should, in the light of full underwriting information, have been charged for the additional assurance over the normal premium rate that is charged.

If a life, who is in good health and who would be expected to satisfy normal underwriting requirements, exercises the option, then the option will generate little or no additional costs. The exercise of the option by lives in poor health will generate considerable additional costs.

The total expected additional costs of an option depend on the health status of those who choose to exercise the option, and the proportion of lives that choose to exercise the option, i.e.

$$(\text{proportion of lives exercising option}) \times (\text{average health of lives exercising option})$$

Some factors affecting the cost of mortality options:

- The term of the policy with the option. The longer the term, the longer the policyholder will have the option, and the more likely it is that, at some time, his or her health will make the option appear worthwhile.
- The number of times the policyholder gets the chance to exercise the option, e.g. every five years, on every policy anniversary or at any time whatsoever. Restricting the points of time at which the option can be exercised can reduce the risk of anti-selection.
- Conditions attaching to exercising the option such as limiting the size of the option or restricting the percentage increase in sum assured available under the option.
- The proportion of lives that choose to exercise the option. In general, the smaller the proportion who exercise the option, the worse will be the subsequent mortality experience of those exercising the option. If a substantial proportion exercises the option, then their subsequent mortality experience will on average be less extreme.
- The encouragement given to policyholders to exercise the option. Publicising the option more widely can achieve greater take up by healthy lives, but care should be taken that the benefit (from future profits) is not outweighed by the risk of attracting a bigger proportion of the loss-making high risk lives from taking up the option as well.
- The extra cost to the policyholder who exercises the option. If the option involves a steep increase in premiums, then the healthier lives might shop around to try to get the same cover cheaper elsewhere. This means that the company will lose out on the potential profit that these policyholders would have generated.
- Selective withdrawals. A healthy life may cancel a ten-year renewable term assurance policy after two years because he or she discovers that the cover without mortality options is much cheaper. The company has not in this case collected the option loading from this person for very long, but is still left with the unhealthy lives who will exercise the option to the cost of the company.

ii. Underwriting considerations:

- Does any training for underwriting staff need to be carried out to ensure that the underwriters better understand the risks involved with mortality options.
- It may need to make underwriting stricter at the outset of the policy to avoid anti-selection and to assess whether the risk is acceptable and, if so, setting the appropriate premium. This may also lead to the underwriting system needing to be updated to capture additional information due to stricter underwriting.
- Reviewing the information currently requested from a potential policyholder and determining whether additional medical, lifestyle and financial underwriting needs to be conducted.
- Financial underwriting will become more important especially for options where policyholders have the ability to increase their sum assured.
- Medical and lifestyle underwriting will become more important for options where policyholders can extend the term of their policy.

- If the product is going to be reinsured, the reinsurer may require certain changes to the underwriting process or require a certain level of underwriting to be in place. The reinsurers may also change the referral limits for underwriting. This could have an impact on turnaround times.
- If policyholders are not given standard rates, the company needs to decide the terms and conditions attached to the options. Will these be issued on the same terms or will the company decline to offer the option on the policy or offer different terms.

iii. The company needs to consider:

- What products are being offered by its competitors. If competitors are selling term assurance products with mortality options attached to them, then the company may need to start offering similar products if it wants to maintain market share. If competitors are not selling these products, then they may decide to enter the market to differentiate themselves from competitors.
- However, if the product is not offered in the market then the company runs the risk of being selected against if it starts to attract a disproportionate number of unhealthy lives due to offering this option
- Whether there is a need in the market for such a product and whether consumers are looking for and purchasing these options.
- If so, then is the option to increase the level of cover during the term of the policy or the option to renew the policy at the end of its original term without providing additional evidence of health be offered, or both.
- Whether the company is going to continue selling term assurance products without mortality options.
- Whether its administration systems can capture the new product design features. If not, the cost of a new system needs to be considered.
- The extra cost in extra training of staff and extra marketing literature need to be taken into account.
- The company needs to determine how it is going to value these options (North American Method or Conventional method)
- The charging structure and whether the option be profit neutral or profit making needs to be determined if it is going to be put in place.
- Whether it wishes to take on the extra risk and whether the increase in sales volume and future profit justify taking on the additional risk.
- The impact on capital requirements when selling the policy initially and also at the time when the option is exercised....
- If a number of policyholders exercise the option in the future, it could cause a large financial strain on the company if these have a major impact on their capital requirements.
- The policy wording and contract terms, to ensure these are not unfair and that customers are treated fairly.
- The policy wording must also be watertight, to avoid the company being exposed to unintended risks as a result of providing the options.
- Whether there are any regulatory restrictions regarding the selling of mortality options.

- To determine if the company is going to reinsure the new product or not. If it is going to reinsure the new product, what are the views of the reinsurer in terms of product design and pricing.
- The impact on its current book of business and whether a special offer allowing existing policyholders to switch to the new product will be allowed.
- If existing policyholders are not allowed to switch to the new product the company could suffer losses due to lapse and re-entry.
- The sales channel used to sell the products and if appropriate, how commission will be calculated for policies exercising the options.

*Part (i) was generally poorly answered and highlighted candidates' lack of bookwork knowledge and poor exam technique. A large proportion of candidates chose to list the factors affecting the cost of a mortality option rather than outlining the factors and hence scored poorly on the question. Many candidates that did outline the factors did not provide enough points to score well.*

*In part (ii) a number of candidates focused on the impact additional underwriting would have on the cost of the product and also the marketability, rather than the underwriting process. Generally candidates did not provide enough points to score well on the question. Part (iii) was generally well answered by most candidates.*

## QUESTION 7

### i. Mortality risk:

- Mortality experience may turn out to be higher than expected when pricing the product.
- This risk is exacerbated by the lack of relevant data to price the product, and having to base assumptions on products which could have very different experience.
- Since a single mortality assumption is used for all policies there is a risk that the mix of business is not as expected.
  - E.g. The average age of lives insured may be higher than that assumed in the pricing.
- The insurer is exposed to random fluctuations in mortality experience, particularly if business volumes for this product are low.
- Anti-selection is also a risk, as obtaining cover through the funeral parlour scheme is voluntary (and underwriting is likely to be limited).
  - The extent of the anti-selection risk depends on whether there is a waiting period for cover.
- There may be a risk of claims fraud (false death claims).
- There is a risk of a concentration or aggregation of risk (as lives are not independent when the whole family is covered).
- The fact that the policies are annually renewable (and hence can be re-priced if required) reduces the risk.

Persistency risk:

- As the business is renewable annually there is a risk that annual renewals are lower than expected or lapses are higher than expected.
  - This could be lapses of individual policies and/or cancellation of the distribution relationship with certain funeral parlours.
- In particular there is a risk of higher withdrawals than expected at early durations when the asset share is negative, as initial expenses will not have been recouped and a loss will be made.
- There is the possibility of selective withdrawals where healthier lives withdraw leaving a pool of lives in worse health than anticipated.
  - This is exacerbated by the fact that premiums are not differentiated by the risk presented by the policyholder
- Low persistency can adversely affect expense experience as there will be fewer policies to contribute towards fixed expenses.
- The risk relating to correctly estimating persistency is exacerbated by:
  - Competition in the market;
  - Low income policyholders struggling to pay premiums; and
  - Possible mis-selling of products to the financially unsophisticated target market.

Expenses risk:

- There is a risk that actual expenses (including business acquisition and ongoing administration expenses) are higher than assumed in the pricing.
  - Expense assumptions will depend on business volume assumptions (new business and persistency of business).
  - Lower than expected business volumes may mean that the insurer does not cover fixed costs.
  - If the company writes more business than expected the capital required to support the business may be higher than what was budgeted for by the insurer.
  - There are likely to be significant cross-subsidies in the pricing (e.g. by business volume per funeral parlour).
    - Thus there is a risk of the mix of business being different to that expected in the pricing, leading to an incorrect expense loading.
- ii. The insurer will aim to investigate whether any differences in actual experience compared to the experience expected in the pricing for mortality, persistency, expenses, business mix and business volumes would explain the losses for this business.

For the mortality and persistency investigations:

- Group the data by possible rating factors to consider the effect of business mix, e.g. size of group, age, funeral parlour.
- The number of factors used to group the data will be limited by needing to have sufficient data in each cell for the results to be credible.

The insurer would want to investigate the reasons for differences from expectations, and whether these are once-off or indicate a trend.

Investigate claims assessment processes to identify weaknesses in processes that may be allowing claims fraud.

Investigate customer satisfaction and reasons for funeral parlours terminating the sales distribution agreement and lapses of individual policyholders.

Conduct an expense analysis to investigate what would be a fair share of the acquisition costs, ongoing costs and contribution to fixed expenses relative to sales volumes by funeral parlour.

Investigate whether business volumes or business mix (e.g. group size) have impacted on the expenses per policy.

Investigate whether there may have been changes in the actions of the insurer (e.g. marketing campaigns).

Investigate whether there may have been external influences (e.g. changes in the competitive environment)

The insurer could compare its experience to other insurers offering similar products in the market, if available.

iii. High mortality:

- Differentiate mortality assumptions used for pricing by age, gender, etc.
- Change the mortality pricing assumption and hence increase premiums (although this could have negative consequences, such as a loss of business and increased anti-selection).
- Consider experience rating for funeral parlours with large sales volumes.
- Change the design of the product (e.g. introduce waiting periods or a maximum age at entry for the main member and immediate family).
- Exclude claims from pre-existing conditions to reduce anti-selection.
- Improve claims verification processes (e.g. develop a system of flags and checks to alert the insurer to possible claims fraud in specific groups).
- Increase initial underwriting to reduce mortality and allow more accurate estimates of mortality to be made, although limited underwriting may be expected on this product.
- Review the reinsurance programme as it may be possible to implement a more effective programme for the future, although this may carry a cost as reinsurance terms will reflect the reinsurer's assessment of the risk.

Low retentions:

- Change the persistency pricing assumption and hence increase premiums (although this would reduce competitiveness).
- Change sales agent remuneration structures to reward agents for persistency of the business.
- Ensure that sales methods focus on ensuring that the product meets the funeral parlour distributor's needs before they take out cover.
- Improve customer service (e.g. introduce a helpline for queries).
- Add attractive features to the product, possibly linked to loyalty (e.g. free cell phone vouchers or financial education sessions).
- Allow a certain number of premiums to be missed before the policy lapses.
- Offer a premium discount on renewal.
- Ensure product stays competitive in respect of premiums and commissions.

*Part (i) was answered reasonably well by the better prepared candidates. Some candidates, however, did not make it clear that it is higher mortality (etc.) then expected which is the risk and not high mortality per se. Some candidates did not seem to know what persistency means, claiming that higher persistency than expected would be a problem. Several candidates did not identify the fact that it is, in particular, early withdrawals (when asset share is negative) which are problematic.*

*Part (ii) was generally not well answered. Most candidates did not suggest a sufficient number of different investigations, and focused on mortality, withdrawal and expense experience investigations. Several candidates gave too much detail for each of these, and did not "outline briefly" as required. Some candidates just listed investigations, which again was not answering the question. Some candidates also wasted time by suggesting ways the insurer could deal with problems picked up in the investigations, which was not asked for.*

*Part (iii) was generally well answered by the majority of candidates. Several candidates wasted time by giving more than the required four actions for each problem – only the first four provided were marked.*

## **QUESTION 8**

- i. LTC insurance provides for the costs of long term care, which incorporates all forms of continuing personal or nursing care and associated domestic services.

The cover is intended for people who are unable to look after themselves without some degree of support.

It may be provided in the insured's own home, at a day centre, or in a State-sponsored or care-home setting.

It can be funded by the state, private funding by individuals or charities.

It can be provided on an indemnity basis, or a non-indemnity (cash benefit basis).

ii. Marketability & Meeting customers' needs:

- The benefit provides greater flexibility of the whole of life product, as the LTC benefit can be used to fund long term care costs.
- The mortality improvement experience in the country increases the need for long term care benefits (older people are living longer and are likely to need assistance and frail care); thus the benefit should go some way towards meeting customers' needs.
- The proposed benefit is innovative, which might appeal to brokers selling this business and prospective clients.
- The marketing literature will need to be updated, and the key features of the rider benefit explained in clear language to ensure the product is understood.
- The distribution channel will also need to be able to explain the product (in particular the claim conditions and benefits) clearly.
- For the unit-linked whole of life assurance and LTC benefit the policyholder bears the investment risk of low unit growth in the fund resulting in benefits being lower than anticipated.
- However the minimum guarantee on the LTC benefit provides some security to policyholders
- The benefits are not designed to indemnify LTC costs, which could reduce marketability and lead to policyholder dissatisfaction if there are large gaps between costs and benefits.
- The insurer should thus try to ensure that the minimum guaranteed monthly annuity is set appropriately.
- The added cost of this guarantee, however, may be high and could thus impact on marketability.
- The lack of a guaranteed death benefit and the fact that the death benefit will be low immediately after an LTC claim (as the unit fund falls to zero) may reduce marketability.
- On an LTC claim the benefit is an annuity rather than a lump sum, reducing the flexibility of the use of the benefit.
- The insurer's reputation may be damaged if there is any miss-selling or if policyholders' long-term care benefits are too low (and insufficient to meet the cost of care).
- The fact that there is a surrender value may increase marketability of the product if no such benefit is available on the insurer's standard whole of life product.
- The insurer could consider ways to improve the benefits provided to better meet consumers' needs, but such improvements will come at a cost which may negatively impact marketability.

Profitability & competitiveness:

- The insurer will need to ensure that the charges are such that the addition of the rider benefit will prove to be profitable.
- It is likely that there will be a benefit charge to be deducted from the unit fund to cover the cost of the guaranteed minimum annuity payment (in excess of the value of the unit fund).

- As the insurer currently mainly sells whole life assurance products it is unlikely to have sufficient data on mortality improvements at older ages to set appropriate pricing and reserving assumptions for the annuity.
- The insurer will have to source this externally (most likely from industry data or from a reinsurer).
- Charges will also need to cover any development and additional administration expenses.
- Poor unit growth rates and the deduction of risk charges from the unit fund may lead to charges not being sufficient to cover insurer's expenses.
- The charges for the LTC cover will need to be competitive.
- This may conflict with the profitability requirement.

#### Financing requirements:

- The guaranteed minimum annuity payment will likely lead to higher risk based capital requirements.
- Stochastic modelling will need to be carried out to value the guarantee.
- The insurer will need to decide the extent to which the risk charges will be variable as this will impact on risk and financing requirements.

#### Risk characteristics:

- The insurer will need to decide on what level of risk is acceptable.
- The company could consider ways of reducing the risk, e.g. reinsurance.
- There is an anti-selection risk, with those who need care the most being the most likely to take out the rider benefit.
- There is also the risk of selective withdrawals, with healthy lives surrendering their policies, and the insurer only being left with unhealthy lives who are more likely to claim the LTC benefit.
- As the rider is only available on new policies there is a risk of lapse and re-entry from existing policyholders if the benefit is deemed attractive.
- This could result in not covering expenses as well as selective withdrawals.

#### Other considerations:

- Increased administration will be required to support and manage this more complex product design; administration expenses will increase.
- Systems development may be required to support the new product (guaranteed annuity payments).
- The insurer will need to implement stringent claims underwriting (when long term care benefits are triggered) to reduce fraudulent claims.
- Will need to develop clear rules to determine whether policyholder qualifies for long term care benefits, e.g. certain activities of daily living can't be performed, etc.
- The product does not cater for LTC benefit ceasing if the policyholder does not need LTC anymore, because annuity payments will continue for life. This simplifies the product design.

- Consider the investment strategy for the non-unit fund relating to the guaranteed annuity benefit.
- The insurer might need to approach a reinsurer to assist with data, pricing, and reserving, etc.

*Many candidates scored poorly in part (ii), often because one of the following applied:*

- *They did not make a reasonable attempt (possibly due to poor time allocation).*
- *They just listed the factors or posed them as questions to be considered, instead of discussing them.*
- *They made little attempt to apply the generic bookwork points to the specifics of the question.*

**END OF EXAMINERS' REPORT**