

EXAMINERS' REPORT

November 2021 examinations

Subject F102 — *Life Insurance* Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principal 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.

Expropriation price:

- The expropriation price is the price at which a company would cancel a unit, and is calculated as:
 - The market bid price value of assets held by the fund;
 - less the expenses incurred in the purchase and stamp (and other duties) payable in respect of such a purchase;
 - plus the value of any current assets, such as cash on deposit or investments sold but not yet settled;
 - less the value of any current liabilities, such as investments purchased but not yet settled or loans to the fund;
 - plus any accrued income such as interest income from fixed-interest securities and deposits, net of any outgo, such as fund charges;
 - less any allowance for accrued tax, if applicable.
- This gives the net asset value of the fund on a bid basis, which is divided by the number of existing units at the valuation date.

ii.

Principal risks:

- Unit prices are generally set at discrete points in time, whereas the underlying asset values effectively change continuously.
- This is a particular risk if:
 - The underlying asset values are volatile or if there is a sudden once-off movement in market values.
 - Any timing delay in adjusting unit price introduces a pricing risk for the company due to the mismatch between the company's liabilities, dependent on the unit price, and the value of the underlying assets.
- The unit price calculation would include some approximations, including:
 - An allowance for tax on unrealised capital gains.
 - An allowance for accrued assets and liabilities, e.g. accrued interest not yet received.
 - Estimates of the market value of assets, where the market value is not immediately observable.
 - For example, property, as there is a risk that the actual values are very different to the estimates.
- There could be errors in the actual unit price calculations:
- This could be a particular risk if:
 - Unit prices are based on the appropriation/ expropriation prices of the underlying assets, depending on whether the company is creating additional (net) units or cancelling (net) units. There is a risk that the company uses the wrong basis when calculating the unit prices.
 - The unit prices could be based on incorrect data (e.g. the asset managers provided the incorrect market values of assets).
 - There could be an error in the calculation process/ method.

- Although regulations generally do not specify how units are to be priced, regulations may restrict what policy charges, for example, may be included in the unit price. Any changes to regulation could be a risk to the company (e.g. if regulation is incorrectly interpreted the prices determined may be incorrect and need subsequent correction).

Part (i) was bookwork and it is expected that candidates score well. However, a number of candidates struggled to get good marks.

For part (ii) candidates needed to focus on the justification of how errors could have occurred, rather than listing all the aspects of the calculation and indicating that there may be an error. The majority of candidates failed to score well on this question. Some candidates gave general risks instead of considering the risks when deriving the price of a unit.

SOLUTION 2

i.

Accumulating with-profits:

- Bonuses are declared annually in relation to the premiums paid to date and previously declared bonuses, with an interim bonus applying for claims between bonus declarations.
- There may be a guaranteed minimum annual bonus. This minimum could be zero.
- A terminal bonus may be added at maturity and possibly withdrawal.
- The insurer may be able to apply a market value reduction (MVR) on withdrawal.
- Regulation or market practice may dictate that the MVR is zero.
- Bonuses declared and the MVA are at the discretion of the insurer, subject to policyholder expectations.

ii.

General

- The general principle will be to use historical experience to derive best estimates of each assumption, and adjust for expected future conditions for the period the assumptions will apply.

Accumulating with-profits business

- With-profits fund growth:
 - Expected return on the with-profits fund based on the asset mix of the fund.
 - This return will be reduced for expected investment expenses (these will be based on the product information for investments available in the market).
 - These returns may be compared to government bonds of suitable term.
 - A stochastic investment model is required if there is a minimum guarantee on regular bonuses or the MVR is zero.
- Expenses:
 - Use the recent expense investigation i.e. the expenses allocated to this product.
 - Allowance needs to be made for expected business volumes and new business mix in terms of size of premiums to allocate overheads.
- Expense inflation:
 - Needs to be a mix of salary and price inflation.
 - Assumptions for expense inflation need to be consistent with the assumptions for the growth in the with-profit fund and risk discount rate assumptions.
- Withdrawal assumptions:
 - Needs to be based on the past experience for this business adjusted for expected future changes.
 - The insurer may consider expected future economic conditions and employment rates and how this may impact on the withdrawal experience for this business.
- Tax:
 - Is based on current tax rates on this type of business and expected changes.
- Profit margin:
 - Will be based on the required profit from the business.

- Risk discount rate:
 - Will be based on risk free rate (yield on government bonds) with an allowance for return for shareholders and to reflect the risk of the business.
 - Margins for uncertainty may be included in the individual assumptions or allowed for in the risk discount rate.

Group life business

- Mortality rates:
 - Use the recent mortality investigation for this product.
 - Depending on the amount of internal data insurer has, mortality rates may be combined with standard table rates using credibility theory.
 - Mortality rates may be calculated separately for different industries.
- Permanent disability rates:
 - Follow a similar process to that of mortality assumptions.
 - Although data will be more limited for permanent disability cover.
- Expenses:
 - Expenses will be determined in a similar way to the accumulating with-profits product.
 - Expense inflation is not relevant as the product is renewed every year.
- Profit margin:
 - Margins for uncertainty are likely to be included in the assumptions.
 - These margins maybe significant if there is less data on which to base assumptions.

*Part (i) was largely a bookmark. However, many candidates did not focus sufficiently on the specifics of **how bonuses are awarded** and hence did not cover how market value reductions could also be applied.*

Part (ii) was fairly poorly answered overall. Too many students spoke about how to conduct detailed experience investigations (despite the question indicating that this was not required). In general, there insufficient emphasis was placed on the specific considerations relating to each product in the question. There a lack of breadth in the assumptions considered e.g. very few candidates spoke about with-profits fund growth, taxation, risk discount rate and profit margin.

QUESTION 3

i.

Advantages

- No initial underwriting will make the product more attractive and will lead to more sales than if there were initial underwriting.
- This could allow the company to reach viability quickly, assuming the product is priced correctly.
- No initial underwriting will reduce the company's up-front costs as it would not need to hire medical underwriters.
- The risk is also reduced as this is a unit-linked product, and so may be meeting a savings need and not just protection.

Disadvantages

- As there are no medical checks the company opens itself up to anti-selection.
- The impact will depend on what the market practice is relating to initial underwriting, the risk of anti-selection is higher if other insurers use initial underwriting.
- Furthermore, people who are sick could fail to disclose their state of health and take up the policy.
- Higher than expected claims will lead to losses to the insurer, even though the sum assured is low.
- Although the company could decline some claims based on the health question, claim rejections may be challenged on grounds of different interpretations of "good health".
- Declining too many claims will also not be good for the company's reputation.

ii.

Obligatory/ Obligatory Reinsurance

Advantages:

- The insurer has guaranteed cover for each risk placed.
- The insurer knows up front what maximum risk that it can accept.
- The insurer is likely to get more comprehensive service, and better long term pricing, if they give more business to one reinsurer.

Disadvantages:

- The insurer has to cede a certain amount of the risk to the reinsurer.
- This may mean giving away more profit than they would like to.
- It is more likely that the treaty reinsurer will have some say in the underwriting and claims management process.

iii.

Underwriting:

- For very small sums insured, below R100,000 say, a declaration of health may still be sufficient.

- For larger sums insured, start by introducing some medical questions into the application form.
 - These could include any pre-existing conditions, current health conditions, family history.
- If they answer “yes” to any of the questions then they could be asked to do any of the following:
 - Fill in a more detailed questionnaire.
 - Undergo a medical examination with a nurse or doctor.
 - Have blood tests carried out.
- For the maximum sum insured you could ask for a declaration of income, or proof of debt (if that is the purpose of the cover).

iv.

Possible changes to the product design:

- Reduce the maximum guaranteed sum insured.
- Introduce a waiting period before people become eligible to claim the guaranteed sum insured.
- Link the product to a specific financial need, e.g. repayment of a housing loan on death.
- Remove the flexibility to increase the guaranteed sum insured once it has been reduced, to avoid anti-selection.
- Introduce a mortality charge, to explicitly charge for the sum at risk.
- This charge can be varied by policyholder mortality risk factors.
- Ensure that all charges on the policy are reviewable at the discretion of the insurer.

For part (i) candidates were generally able to identify the advantages of limited underwriting. Weaker candidates failed to discuss the risk of anti-selection and relying on claim underwriting in sufficient detail.

Part (ii) was a relatively straight forward question. A number of candidates scored poorly in this question because they discussed general the merits of reinsurance rather than focusing on the advantages and disadvantages of the specific type of reinsurance treaty in the question.

For part (iii) stronger candidates differentiated the underwriting approach relative the level of sum assured and discussed options for additional underwriting for higher risk applicants.

Weaker candidates gave too much detail on information to be collected from a questionnaire.

For part (iv) weaker candidates gave general methods of managing anti-selection risk and failed to focus on project design changes.

SOLUTION 4

i.

Limit on amounts (Proposal A):

- The proposed regulations place limits on the benefits that insurance companies may offer, which may mean that the reduced benefits may not fully meet financial needs of policyholders.
- Reduced benefits would mean lower premiums which would make these policies more affordable.

Limit on benefit payment term (Proposal B):

- This limitation is likely to severely impact policyholder needs and resulting unappealing and unmarketable benefits from the perspective of most policyholders.
- It will have much less impact on policyholders closer to retirement age, and a larger impact on younger policyholders.

Limit on guaranteed term (Proposal C):

- This creates some uncertainty for policyholders who may not be able to afford large unexpected increases in premium rates.
- Steep increases could lead to policyholders lapsing and being left without cover.

ii.

Risks and challenges:

- Products will need to be repriced and there might not be data available on claims and policyholder behaviour under new policy conditions.
- New product features may be unattractive to customers, leading to reduced sales and premium volumes, which may result in companies not recouping expenses.
- It is difficult to predict the impact of these changes under different economic conditions. This adds the uncertainty of the impact of these changes.
- If policyholders do not understand that benefits are governed by legislation, they will blame the companies for poor benefits leading to reputational risks for companies.
- The indirect impact of these regulatory changes may be lower future product innovation and greater standardisation.
- Product standardisation could lead to products being mostly differentiated by price and high competition could lead to unsustainably-low premium rates.
- Changing administrative and other processes may be difficult and costly.

iii.

Advantages:

- There may be an improvement in the underwriting experience on these products due to the benefit reducing after six months, as this is likely to encourage some claimants to return to work leading to shorter average claim durations, depending on the length of the deferred period for these products.
- As the levels of guarantees offered are reduced, the capital requirements on these products should also reduce, helping improve the financial position of insurance companies in difficulty.

- Limiting benefits to ten years materially reduces the assumption risk for an insurer, as a short projection period improves the reliability of modelling for pricing and reserving purposes.
 - It may also be easier to find investments of suitable matching terms.
- Limiting rate guarantees to five years also helps as any mispricing or worse than expected experience could be corrected for (at least partially) after a 5-year initial rate guarantee period.
 - Although there are likely to be challenges in implementing premium increases in practice.
- Due to the competitive nature of the market, it might have been difficult to have implemented measures to make the product more financially viable without regulatory intervention.

This question was fairly straightforward and the majority of students scored well as expected.

SOLUTION 5

i.

Equating policy values method for calculating the revised premium rate for increased sum assured on these contracts.

- The value of the existing contract will be calculated using prospective or retrospective method.
- The basis used to calculate the policy value for the existing contract should be between a realistic basis based on actual experience (used to calculate the asset share) and basis used to price the original contract.
- This will be equated to the policy value for the altered contract using a prospective method.
 - Plus alteration expenses and additional commission for the increase in the sum assured (if applicable).
- The mortality assumptions will be based on the expected mortality of the policyholder, based on the underwriting applied at the date of the increase in the sum assured.
- The renewal assumptions will be based expenses and expense inflation at the date of the alteration.
- The terms and premium basis for the increased sum assured should be consistent with the premium basis and terms for new policies.
- The premium for the altered policy should not be higher than the premium for a new contract for the same sum assured, to avoid the risk of lapse and re-entry.
- The choice of the basis used will impact the profit that is being recognised by the insurer and consideration would be given towards fairness of profit recognised between the shareholder and policyholder.

ii.

Product design change considerations:

- Ease of explaining the new option – for some target markets it may be too complex.
- Whether this change adequately meets customer needs, e.g. a CPI-linked annual increase might meet the customer needs better.
- Affordability of the added option to potential customers.
- Whether the option should be a voluntary add-on at sale or a required feature.
- There is likely to be an anti-selection risk as customers in poorer health are more likely to exercise the option than those in better health – the insurer should consider ways to manage and minimise this risk.
- The difficulties associated with pricing and valuing this option need to be considered.
 - In particular, data needed to estimate the option cost might be limited as this is a new feature.
- Consider the potential risk of lapse and re-entry and how this can be managed.
- Any other administrative issues specifically related to administering and engaging with customers to effect the option and to record their decision.
- The impact on the capital needs (and financing requirements) since this option will likely result in an increase in capital requirements given the increased risk the insurer is exposed to.

- Any potential reaction from competitors and how this affects the profitability of the insurer.
- Consideration should be given to the consistency of the option with other options offered by the insurer as this could simplify the administration effort and also impact lapse and re-entry risk.
- Any impact on existing reinsurance arrangements and whether or not the additional cover will also be reinsured.
 - In particular, will the insurer be comfortable to underwrite the additional risk without underwriting?

iii.

Minimising anti-selection risk:

- Limit the sum assured increases if CPI is likely to fall below 10%. For example, the insurer might consider a min of CPI and the 10% to help keep the option affordable and avoid over-insurance.
- Some form of financial underwriting might be considered.
- The timing of exercising the option may be limited, for example:
 - The option might only be exercisable on certain life events (annual salary increase, marriage, divorce or birth of a child).
 - May impose a limited number of exercise dates.
 - May impose a maximum age for the exercise of the option.
 - May impose a maximum duration for the exercise of the option (cover increases after 10 years may require underwriting).
- Consider imposing a maximum initial sum assured for the option or maximum sum assured after increases.
- May impose maximum policy term.
- May need to restrict the option to lives accepted at standard terms.
- The insurer can ensure that the option is priced prudently with margins while ensuring the pricing does not become so high that only the high risks take out the policy.

In part (i) a number of candidates lost marks for giving vague points or only giving the equation of value. Many candidates failed to discuss the basis considerations in the approach. Weaker candidates made "absolute" statements such as "the insurer must use the prospective approach ..." which might not hold in all cases and therefore did not earn credit.

For part (ii) candidates who focussed on the main product design considerations scored well. Weaker candidates gave too many points on pricing considerations and failed to cover other critical aspects in the design of the option.

For part (iii) candidates who gave specific suggestions which were well explained scored well.

SOLUTION 6

i.

Description of the model required to calculate the present value of future profits to shareholders:

- The model would use an appropriate risk discount rate to reflect the level of risk associated with the portfolio of policies.
- The risk discount rate may be lower than the risk discount rate used in pricing policies because there is less uncertainty relating to existing business.
- The model should project the expected future cashflows, for example, expected premiums, claims and expense cash flows under the funeral policy book.
- Future supervisory reserves should also be projected.
- Proper allowance must be made for guaranteed alteration terms such as benefit increases.
- Assumptions will be made for mortality, lapses, renewal expenses and expense inflation.
- The model parameters should reflect the realistic experience expected of the target market.
 - The model should allow for the variation in mortality levels for different lives covered under the policy, for example, grandparents vs children.
- Allowance should be made for interactions and correlations between different variables.
 - In particular, those that should remain consistent, for example, inflation rates and interest rates.
- The model will use all the in-force policies.
- Alternatively, the model should allow for different model points representing various product features and customer profiles.
- The frequency of cash flow projections must be short enough to produce reliable results, preferably annually.
- The model will produce the net present value of future profits to shareholders on the basis described above.
- The model should also allow for the variation of parameters in order to determine the sensitivity of the expected future profits to shareholders to the assumptions.

ii.

The impact on the value of the shareholders share of net assets:

- The value of the assets should increase as there is a lower outflow for new business.
- The value of liabilities for new business should increase as future commission payments will be reserved for.
- The overall effect may be positive, but it will depend on:
 - Any differences in the value of the initial commission and the total aggregate value of new regular commission payments over the term of the policy.
 - Impact of discounting the regular commission payments.

The impact on the present value of future profits to shareholders:

- Profit in future years may increase due to the release of the prudent reserves for regular commission payments compared to expected commission payments based on realistic assumptions.
 - Although there may be less prudence in the reserving assumption there is less uncertainty in future commission payments compared to other assumptions.

Potential changes in the overall profitability of the policies:

- If aggregate regular commission payments are lower than the initial commission payments the profitability of the products should increase.
- If the investment returns on the reserves set aside for future commission payments are higher than the discount rate then the insurer will make a profit.
- The longer the term of the contract, the higher the impact of the change.
- Persistency may improve under the new commission regulations which will increase the profitability overall for new policies.
- Intermediaries selling the product may prefer upfront commission.
 - Possible lower sales volumes may cause an under recovery of expenses with a reduction in profitability of new policies.
- The interaction of all these potential changes will determine whether the overall profit under the new commission structure is higher than for the old structure.

In part (i) the majority of candidates were able to describe the basic framework of the model, i.e. the data required, the cashflows to be projected, the assumptions required and the need to discount the cashflows to find the present value of future profits. Very few of candidates made the points around allowing for guarantees, allowing for variation in mortality levels of the different lives, allowing for variation in parameters to profit test, or expanding on why the discount rate for the profit model may be different from the one used in the pricing basis.

Part (ii) was generally very poorly answered. Few candidates correctly differentiated between the impact on assets and liabilities versus the impact on profit. Most candidates failed to state that the liabilities would increase, or that the release of these liabilities reserved for on a prudent basis, may cause profits to increase as these reserves are released over time. Very few candidates considered that there would be positive and negative impacts and that the full impact would depend on the relative sizes of each impact.

QUESTION 7

i.

Matching investments:

- A matching strategy should be suitable for the nature, and currency of the liabilities.
- Nature of the liabilities.
 - The benefits are fixed in money terms.
 - Life office expenses are likely to be real (increasing by a mix of salary and price inflation).
- Term: this depends on when annuities are purchased – typically purchased at retirement so terms can be long (e.g. 30 years) for single-life, and even longer for joint-life.
- Currency: expected to be the same as that of the developing country for benefits and expenses.
- Fixed interest bonds are suitable for most of the liabilities:
 - They match fixed benefits by nature.
 - Bonds of varying terms are usually available, however sufficiently-long bonds for the longest dated liabilities may not be available in the developing country.
 - Government bonds are usually very liquid, even in developing countries, but this may not be true in this country.
 - There should be enough supply of local currency bonds for the insurer's liabilities.
 - If local bonds of suitable term and liquidity are not available, the life office could consider fixed interest bonds in other countries, and manage the currency risk through hedging instruments.
 - However this is only feasible if similar returns are available on foreign bonds, or if annuity pricing reflects foreign bond returns.
- Inflation-linked bonds could be a reasonable match for expenses:
 - They match the real nature of expenses.
 - However expense inflation might be higher due to wage inflation, however the life company may try to offset this through greater efficiencies.
- To the extent that index linked bonds are not available in sufficient quantities, the life office may consider using other real assets, such as equities.
 - However equity returns can be very volatile in the short term, making this asset more suitable for longer-term matching of expense liabilities.
- Cash is liquid and should be held for very short term obligations.

ii.

Index-linked annuities:

- The nature of the benefits is real and linked to the CPI index.
- Local currency CPI-linked index bonds provide an exact match by nature and currency, if these bonds are available.
- It may be unlikely that bonds of sufficiently long terms are available in the country to match the longest liabilities.
- If the required bonds are not available, the insurer must consider alternative real assets such as equity and property.
 - While returns from these assets are expected to exceed CPI over long terms, returns can be very volatile in the short term.

- This volatility can be offset to a limited extent by selecting a diversified portfolio of very high quality assets generating a reasonably stable and real income stream.
- A portfolio of direct property is only feasible if the liabilities to be matched are very large, indirect property investments may be considered.
- Offshore real assets may provide an expected real return in local currency terms if the local currency adjusts as expected by purchasing power parity, however in practice this is unlikely over short terms so the insurer faces significant currency risk.
- These alternatives to local index-linked bonds are only feasible if the insurer has sufficient free assets to act as a buffer when returns do not match CPI-linked increases in the liabilities.

iii.

Adopting a mismatched position:

- In some circumstances, it may be possible to achieve higher returns for shareholders by adopting a mismatched position on the liabilities.
 - Without-profit level annuities, which are mostly matched by fixed interest bonds of suitable term, could be backed by assets with higher expected returns for example. equities.
- In other circumstances, it may not be possible to achieve higher returns for shareholders by adopting a mismatched position on the liabilities.
 - If without-profit CPI-linked annuities are already backed by equities and property, which provide higher expected returns than other asset classes.
 - Shareholder returns might be enhanced by taking a short-term view on asset classes, however this approach is very risky.
- While mismatching assets and liabilities can enhance shareholder returns, it also increases risk to the shareholders.
 - Shareholders may not have a high tolerance for risk.
 - This higher risk is likely to result in higher solvency capital requirements (so that returns as a percentage of capital needed may not be higher than a lower risk strategy).
- The company may not have sufficient free capital to support a higher risk strategy.
- Regulations may limit the extent of mismatching allowed.

In part (i) many candidates scored well on basic bookwork points. Some candidates wasted valuable time giving points on moving away from a matched position when the question focused on a matching asset strategy. Weaker candidates failed to consider the nature of expenses and corresponding matching investments.

In part (ii) some candidates wasted valuable time giving points relating to matching investments for all features of the liabilities rather than focusing on differences compared to level annuities.

In part (iii) many candidates missed basic points on the general risks and considerations relating to moving to a mis-matched strategy.

QUESTION 8

i.

- Project the net liability cash outgo expected in each future year – this will be the expected benefit payments and expenses, less future premiums.
- Best estimate assumptions are required. In particular for mortality, lapses, expenses and expense inflation.
- A margin for uncertainty may need to be added to the best estimate view of each assumption so that the reserve is not understated, to reflect the additional return required by a market participant e.g. a reinsurer to take on the mortality risk, or an external administrator to do admin. *Credit was also given for explaining the use of the cost of capital approach on the liability as a whole to allow for margin).*
- The market consistent value can be found by discounting the cashflows at the current risk-free rates of interest.
- The risk-free rates for cashflows in the future would be determined by using yields on a government zero-coupon bond of the same term (or alternatively a swap curve if swaps are sufficiently deep and liquid).
- A small deduction for credit risk may be made.
- Depending on prevailing regulations, an increase to the risk-free rate used to discount may be acceptable if the insurer is invested in corporate bonds of appropriate term to account for the illiquidity premium.

ii.

Mortality investigation:

- Consider the period of data to be used for the product so that information is not outdated – but so that the amount of data is sufficient for the results to be credible.
 - Consider the past three years but not more than five years.
- First separate by product (group life and whole life).
- Divide data into homogenous groups: by age, gender, duration from entry, smoker status, medical status, region etc.
- Ensure that there is enough data in each group to make the analysis for that group statistically credible, otherwise groups will need to be combined.
 - This is likely to be the case for the whole life data as this is a small portfolio.
- Calculate the crude mortality rate by taking the number of deaths divided by the exposed to risk for each homogeneous group.
- Compare the results of the experience investigation with the mortality assumption and standard mortality tables.
- Investigate whether there is any evidence of trends in the mortality experience.
- Also investigate any unusual circumstances that could have affected the mortality experience.

iii.

Changes:

- There will be a need to consider doing more frequent experience monitoring (even if it is not as comprehensive) as three years may be too long between investigations.
- There may be a need to add new factors to the mortality investigation, including province or town, and to require appropriate information to be captured at claims stage.

- The impact of the pandemic on mortality may be measured separately to allow comparison on a like for like basis.
- A better understanding of the unusual mortality experience and possible future trends in mortality can be obtained by using information from new data sources.
 - For example, from a government department keeping mortality, vaccination and other statistics related to the incidence and severity of the disease.

iv.

Likely impact:

- The liabilities for the group life business in the current period may increase due to:
 - Higher mortality rates.
 - Delays in reporting of claims by policyholders or beneficiaries.
 - Increases in the time taken by the insurer to pay claims.
 - For example, due to pressure on the operations of the insurer due to high claim volumes and the remote working environment.
- To the extent higher mortality is expected to continue, this should lead to a higher level of liabilities for this business, even if claim settlement patterns return to previous circumstances.
- The liabilities for the whole life product would increase if the insurer adjusted the best-estimate of the mortality assumptions based on recent (and expected future) experience.
- The extent of liability increase depends on the allowance made for pandemic deaths.
 - A prudent approach might assume indefinitely higher death rates.
 - A best estimate approach would reflect a gradual normalisation of death rates.
- To the extent that margins have already allowed for a pandemic scenario, it is the expected experience going forward relative to the assumptions and their margins that will determine the impact.
- There may be an increase in liabilities and expected claims from a potential increase in fraud or a reduction in effort toward rehabilitation in policies due to tougher economic circumstances.
- *Marks were allocated for other reasonable well justified points.*

v.

Possible actions:

- Changes to premium rates:
 - Consider whether policy conditions allow premium adjustments to existing business.
 - Consider premium increases for future business, and the impact on sales. For example, if competitors do not increase their rates.
- Changes in underwriting and claims process:
 - Consider whether factors such as vaccine take-up should be used in underwriting.
 - Consider potential long-term consequences of having had the disease related to the pandemic, or if excess mortality is linked to specific comorbidities, then questions and/or tests associated will be added to underwriting.
 - System changes might be needed to cater for changes to underwriting. For example, to capture additional information.
 - Changes to the underwriting and claims process could have an impact on the reputation of the company or sales volumes.

- Consider additional exclusions. For example, conditions related to vaccination.
- Management may wish to make changes to the product mix or distribution method:
 - If there is a view that the impact of the pandemic will be long lasting, then there may be a view to increase focus on sales on some product lines, such as annuities, and reduce the sale of others, e.g. group life cover.
 - For a time, there could be a view to increase sales in geographies that are anticipated to be less impacted by the pandemic and decrease sales on those where the pandemic is anticipated to be more impactful.
- There could be a review of the reinsurance arrangements in place.
 - This could be done to either obtain further guidance from the reinsurer or to obtain more comprehensive or cost-effective solutions.
 - Changes could be implemented immediately or implemented at a later stage subject to further experience monitoring and testing.
- Changes to investments might be made. For example, greater weighting to cash and liquid assets to meet the higher claims experience.
- *Marks were allocated for other reasonable well justified points if they were linked to impacts covered in part (iv).*

Few candidates did consistently well in all parts of the question, with some leaving out one or more parts of the question. Often, candidates did not list enough points given the mark allocation.

In part (i) some candidates listed information related to with-profits policies or to group life products which were not relevant to the question. A few also listed too much information covering more than one method which did not score marks but used valuable time.

Most candidates who answered part (ii) in a structured fashion did well.

For part (iii) weaker candidates highlighted how the pandemic may impact the business or the country rather than how monitoring of experience may change.

Weaker candidates listed too few points given the mark allocation in part (iv) and a few candidates did not seem to understand how liabilities and reserving works.

For part (v) many candidates listed just actions and failed to give sufficient detail on these actions. Many candidates listed more than the three actions.