

# **INSTITUTE AND FACULTY OF ACTUARIES**

## **EXAMINERS' REPORT**

April 2016

### **Subject ST1 – Health and Care Specialist Technical**

#### **Introduction**

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

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

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

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

F Layton  
Chair of the Board of Examiners  
July 2016

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

1. The aim of the Health and Care Specialist Technical subject is to instil in successful candidates the ability to apply, in simple situations, the principles of actuarial planning and control needed in health and care matters on sound financial lines.
2. Candidates who approached the questions, especially the more substantial elements of each question, in a methodical and detailed manner were far more likely to satisfy the examiners and receive a pass in the subject. Candidates will gain few marks if they do not address the question asked. The mark allocation for each question part gives an indication of the relative length of answer or number of points to be made to gain full marks.
3. It is often helpful to use subheadings when answering long part questions.

**B. General comments on *student performance in this diet of the examination***

1. Overall, the paper was of a standard level and well-prepared candidates scored well across most of the paper. As usual, questions that focussed on knowledge of the Core Reading were well answered by those who had prepared thoroughly. However, questions requiring wider thinking or application of core reading to specific circumstances, such as question 6, were often less well answered and students should recognise that these are generally the questions which differentiate those students with a good grasp and understanding of the subject. The comments that follow the questions concentrate on areas where candidates could have improved their performance. Candidates approaching the subject for the first time are advised to concentrate their revision in these areas.

**C. Comparative Pass Rates for the past 3 years for this diet of examination**

<i>Year</i>	<i>%</i>
April 2016	45
September 2015	47
April 2015	45
September 2014	44
April 2014	43
September 2013	43

**Reasons for any significant change in Pass Rates in current diet to those in the past:**

The Pass Rate for this examination diet is in line with previous diets.

**D. Pass Mark**

The Pass Mark for this exam was 62%.

**Solutions**

**Q1** This is a short-term, annually renewable product.

It provides a lump sum when the policyholder undergoes surgery of a non-investigative or non-cosmetic nature. The lump sums are predefined and set out in the policy terms and conditions. The product is therefore not indemnity.

The lump sum is estimated to be sufficient to cover the in-patient costs, incidentals and recuperation expenses.

The lump sum varies with severity but does not indemnify the policyholder for the cost of surgical complications unless the policy states this expressly and the insurer has an agreement with particular hospital chains for fixed price surgery. Nor is there a need for the policyholder to use the lump sum to pay towards private treatment.

Premiums are lower than for full PMI.

Outpatient treatments are not covered.

The product may be written as a rider benefit to another policy.

There may be a maximum cap on the benefits payable overall.

Although this question was bookwork, not all candidates scored well. Many candidates did not make the points that the product provides predefined lump sums and does not indemnify the policyholder or discuss the circumstances in which payments would be made or not, for example outpatient treatments are not covered.

**Q2** (i) The principles of investment are that an insurance company should select investments that are appropriate to the nature, term and currency of its liabilities.

The investments should also be selected so as to maximise the overall return on the assets, where the overall return includes both income and capital.

The extent to which the company may depart from investing in appropriate investments in order to match its liabilities, depends amongst other things on the extent of the company's free assets and the company's appetite for risk.

OR

The company should invest so as to maximise the overall return on the assets, subject to the risk being taken on being within the financial resources available to it.

- (ii) As the company has low solvency it will have to pursue as far as possible a policy of closely matched assets and liabilities.

Liability outgo consists of benefit payment plus expenses less premium income.

The level annuity liability outgo is fixed in nature; therefore suitable matching assets would be fixed interest securities.

As the duration of the liabilities is likely to be relatively short term depending on the age and health of the policyholder the bond durations should also be short.

Durations should be chosen so that the expected cash flows from the bonds match those in respect of the liabilities i.e. so that a combination of coupon and redemption payments are expected to be sufficient to match the annuity payments. Bonds with a range of terms may be held to help achieve this.

The currency should be the same as that in which the annuities are written.

Government bonds are recommended as they are secure and are usually liquid which would help to meet death benefit payments.

Some proportion may be invested in corporate bonds. This would enhance the return on the assets and may allow the company to offer more competitive annuity rates.

A large part of the extra return comes from accepting the liquidity risk associated with corporate bonds and this is acceptable as the immediate annuities cannot be surrendered, and so part of the liabilities is illiquid. However, the risk of default is normally higher than for government bonds. Since the company has a low level of solvency, only high grade bonds should be invested in.

To reduce the impact of default of a corporate bond, the company should invest in a diversified portfolio of corporate bonds by company/sector. The company could use credit derivatives to reduce the risk of default.

The low solvency level of the company suggests that the proportion of the assets invested in corporate bonds should be relatively low.

The other half of the annuitant liabilities are price index-linked in nature. Index-linked bonds could be considered the best match for these liabilities if such assets are available (in the currency) and there is a deep and liquid market and assuming that the same index is used for inflation-linking the assets as for

the liabilities. If not, then bonds linked to a similar or correlated index may be the best match.

There may be a lag in the index used for index-linking the bonds which could create a mismatch if the index is volatile in the short term.

There will also be an expense liability for both types of annuity. This will increase broadly in line with inflation which might be linked to a mixture of price and wage inflation so the recommended backing assets are as for the index-linked annuity or possibly equities to some extent.

The guaranteed return of the balance of premium on death could be onerous. It would be necessary to project the expected timings of deaths and invest in bonds of these terms to meet the lump sums payable at those times.

It is recommended that generally no equities are held to back the claim liabilities unless more suitable assets are not available.

It is recommended that no property is held to back the liabilities.

Although investing in property and equities would be expected to outperform fixed interest in the long term and in the long term provide a hedge against inflation both would be more volatile than fixed interest and so will cause a mismatch between income and outgo.

Property investment is also not suitable due to illiquidity causing delays in sales of assets and due to being large investments (if done directly), which will require a large block of annuities – which is not the case here. There are also high transaction costs, reducing investment performance and expertise would be needed to manage any direct investments, which is unlikely to be available for a small company.

The company needs to keep sufficient assets in liquid assets like cash and/or other money market instruments to meet the outgo on early deaths and any short term cash flows.

The surplus assets (i.e. assets in excess of the liabilities) could be invested in equities and/or property to gain higher returns. However, the low solvency level suggests that this may not be feasible so may also be invested in fixed interest assets.

New business premiums could be used to make annuity payments (to permit greater investment freedom for the remaining assets) and to pay the return of premium on existing business rather than holding too much cash for this purpose although care would be needed as new business is not guaranteed.

Overall, the best investment strategy might therefore be (very approximately) 50% fixed interest bonds, 50% index-linked bonds (or other strategy, if justified).

It will be necessary to consider diversification of assets, avoiding concentration where possible.

It will also be necessary to consider any regulatory restrictions e.g. restrictions on holding certain assets, levels of mismatching allowed (e.g. no currency mismatching).

It may also be necessary to consider the risk appetite of the shareholders, if there are any.

Part (i), which was bookwork, was very well answered.

Part (ii) involved applying knowledge to a specific scenario and was also well answered, with candidates providing a wide range of points.

Whilst many candidates stated that corporate bonds were potentially a suitable asset to match fixed liabilities, relatively few mentioned that the extra return came from the increased liquidity risk associated with corporate bonds, and the default risk for corporate bonds was higher than the equivalent risk for government bonds. Similarly, few students mentioned how the insurer could manage the risk of default on corporate bonds.

Not all candidates discussed that, as the company was small and had a low level of solvency, investments in equities and property would not generally be advised. Few candidates mentioned points related to the diversification of the assets or the need to consider any regulatory restrictions or discussed how the surplus assets held by the insurer might be invested.

**Q3** (i) Need to decide the period to which the expense analysis will relate.

Need to subdivide expense data into:

Direct expenses: i.e. expenses that depend on the volume of new business or level of in-force business.

Overheads: e.g. those that relate to general management and service departments.

In practice, there is not a clear dividing line between these categories and some judgements will have to be made

Split further by:

Distribution channel

Product line, i.e. IP and CI

Possibly also between individual and group, if relevant

Possibly also between stand-alone and accelerated CI, if relevant

Then split into initial / renewal / termination / claim / investment, e.g.:

Initial – cost of obtaining medical evidence, policy set up.

Renewal – premium processing.

Termination – notifying IP claimants at expiry age that the claim will no longer be payable.

Claim – split between initial claim validation (CI and IP) and ongoing claim maintenance (IP).

Investment - split between different investment funds

Initial, renewal and termination expenses may also be split according to whether the expense is proportional to the number of contracts or amount of benefit/premium.

The individual business is most likely to be all regular premium but if there is any individual single premium business, this should be separated in the analysis.

Need to ensure that cells are not too small otherwise the analysis could be unreliable.

### **Salaries and salary-related expenses**

For each department or function the salaries and salary-related expenses would be split into the above cells.

This would be done by the following method:

Identify those departments (or individual staff) that are directly involved in servicing policies, and those that are overheads.

Identify any departments (or individual staff) that are obviously linked to a particular product and activity, and so can be directly allocated to that cell.

For those remaining members of staff whose work comes within more than one cell, need to split time by product/process undertaken. This can be done using a timesheet analysis.

Departments identified as pure overheads can be split pragmatically across other departments e.g. Human Resources could be split in proportion to the number of staff in each direct area

### **Salesforce costs**

Exclude insurance intermediary commission from the analysis on the basis that its format is known and can be allowed for explicitly.

Direct salesforce will be likely to receive a basic salary and other related expenses, which can be treated as above.

Sales bonus costs should be separated and allocated based on expected new business premium income, for example.

### **Property costs**

The building is self-owned so a notional rent needs to be charged to the relevant departments e.g. notional rent may be determined by looking at the

market rent paid on similar properties. Heating costs and other property-related expenses would be included.

Total property costs can be split by floor space occupied across all departments and split as department costs.

Property costs that are not attributable to a specific department can be split pragmatically as overhead departments.

### **Computer costs**

Allocate to departments by computer usage.

The costs of purchasing new computers could be amortised over useful lifetime (and then added to ongoing computer costs).

### **Investment costs**

Directly allocated to investment expenses.

Split directly by asset type and product line based on funds under management.

### **One-off capital costs**

Amortise over expected useful lifetime and treat as part of overheads and spread by department.

Exceptional items that are unlikely to recur will be excluded from the analysis.

### **Expense Drivers**

The expenses by cell would then need to be converted into allowances per policy, e.g. using:

Renewal expenses: average number of policies in force over analysis period

Initial administration expenses: number of new business policies.

Sales bonuses: likely new business premium income.

Marketing expenses: typically new business premium income (related to commission).

Underwriting expenses: normally size of benefit.

Claims validation expenses: average number of claims and possibly also by size of benefit

Claims maintenance expenses for IP: number of in-force IP claims

Expenses may need to be inflated to a current period.

Investment expenses are likely to be expressed as a percentage of funds under management so that they can be treated as a deduction from earned investment return.

- (ii) The company would start with data from its most recent expense analysis.

Assumptions would be set using the analysis cells that are appropriate to the new business being priced and sales method.

Any results which look strange may be smoothed out e.g. due to small data quantity in a particular cell so not a credible result.

If the product being priced is completely new then could start with the closest equivalent existing product and adjust as appropriate. Any cross subsidies would need to be taken into account.

Expenses would need to be inflated from the mid-period of investigation to the period for which they will be used based on current and future expected rates of price and wage inflation. The differential between the return on government fixed interest securities and on government index-linked securities, could be used, where these exist

Different inflation assumptions may be needed for different types of expense e.g. underwriting medical tests v. salary costs v. property costs.

The expense assumptions may need to be adjusted for known changes e.g. changes in business mix, changes in underwriting/claims management procedures, changes in policy terms and conditions that might affect expenses, changes in distributors

In particular per policy expenses may need to be respread if a materially different volume of business is expected in the future.

Past expense analyses could be looked at to identify (non-inflationary) trends over time and project these forwards if expected to continue.

Pricing assumptions may be set on a best estimate basis so no further adjustment is required. Alternatively, an additional margin for risk or uncertainty may be included.

Consistency with previous pricing assumptions would be checked and any material differences investigated.

Consistency with valuation assumptions would be checked.

The company is unlikely to be able to compare its assumptions with competitor assumptions, but there may be some industry data available or it may be able to check with reinsurer.

Many candidates scored well on part (i), although relatively few candidates discussed salesforce costs and some candidates included commission in the analysis although this is generally allowed for separately.

On part (ii) candidates did not always put down a sufficiently wide range of points to gain a high score. Few candidates mentioned checking consistency with previous pricing assumptions and with valuation assumptions or comparing against competitors or industry data, if available.

**Q4 (i) Major conditions**

Cancer  
Stroke  
Heart attack  
Coronary artery by-pass surgery  
Major organ transplant  
Kidney failure  
Multiple sclerosis

**Other conditions**

AIDS/HIV contracted by blood transfusion (OK if just mention AIDS)  
AIDS/HIV contracted during occupation  
Alzheimer's disease  
Aorta graft surgery  
Benign brain tumour  
Blindness  
Coma  
Deafness  
Heart valve replacement or repair  
Loss of limbs  
Loss of speech  
Motor neurone disease  
Paralysis/paraplegia  
Parkinson's disease  
Third degree burns  
Creutzfeldt Jakob disease/CJD  
Chronic emphysema  
Diabetes  
Pre-senile dementia  
Rheumatoid arthritis

- (ii) The condition should be or potentially will be perceived by the public to be serious.

It could be a condition that is feared by the public out of proportion to its actual incidence. This could reflect active awareness campaigns or high profile in the press.

If not life threatening, it should at least be lifestyle threatening.

The condition should occur sufficiently frequently. It should not be so rare that there is a negligible risk of occurrence so that it can add value in its own right.

The insurer must be able to define the condition clearly so that there is no ambiguity at the time of claim.

There should be sufficient data available so that the benefit can be priced as accurately as possible bearing in mind the relative impact of the condition within the overall rate. This includes being able to predict future trends in claims relating to that condition.

The ability to avoid anti-selection is sometimes added to the list of desirable features of a critical illness condition.

(iii) ***Advantages***

If the company is already a market leader, this may be a good move to further establish its market leader status.

Competitor companies may already be offering conditions in addition to the standard list of conditions, so it needs to add them to keep pace.

It could be a strategic move for the health insurer to increase brand awareness and this would be particularly positive if it is viewed as the insurer listening to the needs of its customers/the public in general.

Some currently uncovered conditions may be gaining popularity with potential customers, so it may be popular with distributors.

It could provide a more comprehensive list of products at little extra cost.

Some conditions do not cost much but might increase marketability.

It could result in increased new business volumes (or market share) for the CI business or even more widely across other products and future lapses may be lower if the product is valued more by policyholders and allow greater spreading of overhead expenses.

In all these cases, more profit could be generated.

The company may be anticipating changes in regulation and hence get a 'head start' against competitors.

### ***Disadvantages***

The premium is likely to have to increase which could outweigh the attraction of the added cover.

It may be difficult to compare against competitors' products.

The availability of a cheaper product with less depth of coverage may increase the sales penetration across the public in general.

Around 90% of all claims arise from the major illnesses which are likely to be covered already in the standard list. Therefore lengthening the list of illnesses for which the benefit is paid out might only provide a minimal increase in the cover for the client. For example, the incidence of some conditions may be low at the ages where the benefit is available.

The sales process may become more onerous if product becomes too complex, deterring potential customers

It could increase the risk of anti-selection especially if competitors don't cover the extra conditions.

There may be overlap in coverage if the illness is effectively already covered by a TPD benefit (although perhaps at a later stage of the illness).

The additional condition coverage may not generate sufficiently high additional new business to cover the development costs incurred e.g. due to changes to the policy terms and conditions and literature and changes to systems.

There may be a need for staff training in relation to the new conditions.

The change in conditions may lead to underwriting process changes.

Maintenance expenses may increase. Similarly claims management / underwriting costs.

Differences between existing business and new business could lead to operational errors.

If a new covered condition results from a high profile media story, say, the insurer may sell unexpectedly high volumes of new business resulting in potential admin/capital strain.

The longer the list of covered conditions, the harder it may be to avoid ambiguity in the definition of critical illness. This is a particular problem where the nature of the benefit structure inevitably leads to the use of complex medical terminology.

There may not be sufficient data available on which to price the new conditions accurately particularly if they are not standard in the rest of the market, so no industry data are available. Hence pricing margins for these conditions would have to be high.

Lack of experience with the new conditions may also make underwriting them more difficult.

There may be implications for any reinsurance.

There may be lapse and re-entry of existing policyholders or complaints from existing policyholders who feel they should also be covered for these additional conditions but were not given this opportunity. Complaints could result in reputational damage.

There may be regulatory restrictions on the conditions that can be covered, e.g. the “standard” list might be all that is permitted.

Reserving margins for the new conditions would have to be relatively high due to the uncertainty arising from lack of experience.

Parts (i) and (ii), which were bookwork, were generally well answered.

Part (iii) was also well answered, with the better candidates providing a good range of advantages and disadvantages to score well.

- Q5** (i) For income protection insurance, the maximum benefit amount is defined in terms of the replacement ratio. This is stated as a maximum proportion of salary and other earnings that could be paid out as a benefit.

Data on the policyholder would be collected, including salary and other sources of income. It would also be established whether the policyholder holds multiple IP insurance contracts.

At the claim stage, the maximum replacement ratio is multiplied by the pre-claim income. This may be done net or gross of tax. Any State benefit receivable during incapacity should be deducted. The result is then compared to the benefit amount payable under the policy. If the benefit is higher, it will be reduced accordingly.

- (ii) Financial underwriting is used to avoid over-insurance.

The maximum replacement ratio is designed to encourage people to return to work. Hence it is normally set to be less than 1.

If the benefit payable is higher than the earnings that a person is able to get prior to the claim being admitted, there is no incentive to go back to work.

Particularly since expenses during disability could be lower than those incurred when in normal working health e.g. there would be no travel to work expenses.

- (iii) In many cases, the incapacity can develop over time. So, for example, someone might initially reduce the amount of overtime that they work or they may reduce their hours and work part-time, before making an admissible claim. This would reduce the pre-incapacity income that would be taken into account when applying the replacement ratio.

(iv) ***Advantages***

Removal of this underwriting could be viewed as treating customers fairly as it provides greater certainty to the customer. In particular, they may have felt that an ability to reduce the benefit amount was unfair given that they paid premiums for the full amount of cover. The attractiveness to customers therefore may increase.

Distributors will probably like it.

Other competitors may have done it already, so the insurer has to do so in order to avoid losing market share to them. Alternatively, it may be seen as innovative by the market.

It simplifies/speeds up the claim management procedures.

It could improve the general reputation of the insurer e.g. if viewed as the insurer listening to the customers' opinions and needs.

Therefore the company could significantly increase new business sales of the product or even more widely across other products.

Lapses may reduce, as some policyholders may have otherwise lapsed a policy with a high benefit relative to their current income.

The insurer will save the costs of performing the financial underwriting.

Overall, the proposal could increase profits.

It could reduce the number of disputed claims and hence improve customer satisfaction

There may not have been many cases of over insurance, so there should be little negative effect.

***Disadvantages***

Removing the financial underwriting at claim stage introduces additional risks to the insurer.

It could result in increased anti-selection against the insurer e.g. through customers with professions more likely to result in lower earnings prior to any illness (for example where significant income results from overtime). Anti-selection risk is exacerbated if financial underwriting at claim stage is a standard market practice.

The proposal removes protection against over-insurance.

If the policyholder is unemployed before the claim, they may still be able to claim from the policy on incapacity.

There may be bigger average claim sizes as some claims won't be scaled down.

Existing policyholders may change their behaviour, with resulting increase of non-disclosure of changes in salary.

Claims may last longer if there is over-insurance as there is no incentive to return to work earlier.

These will all reduce the profitability of the product.

If the insurer is unable to hold the promise and finds that it has to perform some financial underwriting at claim, it may result in significant reputational damage.

If the company uses external reinsurance, the reinsurer may require claim stage underwriting to be done or reinsurance premiums may increase if it is removed.

The company may need to increase reserves.

Literature/administration/system changes will be required which will incur cost.

If a lot of business is sold, the company may incur admin/capital strain.

It may lead to redundancies and loss of morale in the company

There may be regulatory restrictions that prevent the change.

- (v) Only remove claim stage financial underwriting for new business and introduce detailed initial financial underwriting at the proposal stage.

Continue to apply the maximum replacement ratio when the policy is first taken out (i.e. restrict the chosen benefit according to initial income levels) but set it lower to reduce the risk of over-insurance.

Place a limit on the annual benefit size available for purchase.

If only small benefits, financial underwriting wouldn't be needed as much.  
Could carry out spot checks on the largest policies to reduce the risk of deliberately neglectful policyholder behaviour.

Carry out targeted marketing to influence the mix of new business and reduce the risk of anti-selection.

Monitor the experience and decide if premiums should be revised, if necessary.

Quality training of those conducting the sale, reducing the incentive to over-insure.

Reserve the right to check if the person was employed prior to the claim.

Increase the premium.

Restrict the number of occupations that this removal applies to. In particular, investigate and exclude the occupations where the earnings are most volatile.

Negotiate with reinsurers to see whether they will accept the business with no extra premium.

Seek legal advice in relation to what flexibility the insurer can retain in certain cases.

To improve its reputation (if a benefit is reduced at claim stage due to financial underwriting), the insurer could refund all of the overpaid premiums to the customers (in such circumstances).

Require notification of claims before a certain point e.g. x weeks before the end of the deferred period.

Rehabilitation services could help to encourage return to work.

Investigate what competitors do and stay in line with them, to avoid anti-selection.

Use reinsurers/third party outsourcers to help with the risk of capital/administrative strain.

Part (i) was generally well answered.

Part (ii) was also generally well answered.

Part (iii) was not always well answered. Credit was given for any relevant example, where supported with appropriate reasons, such as examples related to tax changes, changes in replacement ratios, implications of financial underwriting not being fully explained in the sales process or product literature, seasonal pay, policyholder's reasonable expectations.

Part (iv) was generally well answered, with candidates providing a wide range of points. However only the better candidates mentioned the potential for reduced numbers of disputed claims or that there may not have been many cases of over insurance, in which case there should be little effect. Similarly, relatively few candidates mentioned the potential increased claims costs due to claims being paid for longer as there is no incentive to return to work or some claims wouldn't be scaled down.

Part (v) was generally less well answered. Whilst many candidates made the points that financial underwriting could be introduced at the initial stage, that experience should be monitored and increasing the premium, only the better candidates mentioned providing rehabilitation services, targeted marketing to influence the mix of business, limiting the overall benefit payable and restricting the occupations to which the removal would apply.

## **Q6 For in force business**

The insurer may have increased the assumptions relating to claims inception rates.

The insurer may have reduced the assumptions relating to recovery rates / increased the assumptions relating to claims duration e.g. if claims management procedures have become less stringent.

The situation will be exacerbated if the insurer increases the claim inception assumptions as well as reduces the recovery assumptions (or increases duration assumptions). For example, this may have been due to concerns about the outbreak or spread of a pandemic or expected changes in the economy affecting stress levels.

The insurer may have increased its assumptions on maintenance expenses. For example, this could have been the result of the default of a third party service provider or a significant increase in staff salaries/benefits.

The insurer may have increased the expense inflation assumption or its benefit increase assumption, if applicable e.g. due to changes in the future economic outlook.

The assumptions relating to persistency may have been strengthened. In particular there may have been an increase in the early duration and a reduction in later durations, for example due to changes in economic conditions in the country.

The allowance for commission clawback may have been reduced or removed in the reserve calculation.

The insurer may have strengthened any option reserves, if applicable e.g. increased assumed take-up rate or the option reserves may be higher because the options are now “in-the-money”.

Any of the assumptions could have been strengthened due to actual experience during the year being worse than expected in the previous valuation basis or due to projecting forwards an observed trend.

The mix of business may have shifted materially e.g. shorter deferral periods or taking over another company.

**For claims in payment**

The insurer may have reduced the assumptions relating to recovery rates for these specific cases or similarly mortality rates.

The claims handling expense assumption may have been increased, for example due to more stringent claims management processes having been put in place.

There may have been significantly more claims incepted during the year than were expected in last year's valuation.

The insurer might have strengthened its assumption about the proportion of claims that have been incurred but not reported (IBNR) (without a corresponding decrease in other reserves).

There may have been increased delays in paying claims.

**For both**

The interest rate used for discounting the cash flows may have been reduced. This may have been due to interest rates (and/or bond yields) having fallen in the relevant economy.

There may have been a strengthening of any credit risk allowance, i.e. a higher proportion of the credit spread is now assumed to be attributable to credit risk and so not allowed for in the discount rate.

There could have been a significant number of credit rating downgrades relating to securities relating to specific industries, sectors or regions.

The lower discount rate may also have been the result of a significant change in the mix of the underlying assets backing the liabilities (particularly if not valued on a market consistent basis).

The company may now be holding assets with a lower average yield, for example, as a result of switching from corporate bonds (and taking credit for the liquidity margin)

to government bonds or the assets being of a different term (at a lower point of the yield curve) or a different currency.

There may have been a termination of reinsurance arrangements where a significant proportion of the business was reinsured in the previous valuation or the reinsurance retention level may have been increased. The default of a reinsurer could have led to the strengthening of reinsurance default provisions.

Changes in approach to risk may have required extra reserves.

Reserves may have been set up in this valuation for exceptional items such as mis-selling. They could also relate to large expected project costs such as implementation of new systems or finance transformation.

There could have been a data error in the previous year's or this year's policy data extract or there could have been a large block of data missing from the previous valuation.

The increase in reserve could therefore be the result of a data cleansing exercise or modelling errors in this valuation or the previous year's.

New functionality or systems implemented for this valuation could be flawed.  
The insurer may have changed the reserving methodology, for example, moved to a risk-based approach  
or from a case estimates to a statistical method  
or from a non-market consistent to a market consistent approach  
or from deterministic to stochastic modelling.

It may have incorporated much more conservative valuation margins.  
It could have changed valuation basis e.g. from a best estimate (plus large SCR) to a more prudent estimate (plus smaller SCR).

There could have been a reclassification of certain risks e.g. moving teachers from a low-risk to a high-risk occupation

This valuation may be the first time that a more onerous regulatory regime has been implemented.

There could have been a change in hedging or investment strategy which led to a significant increase in any mismatching reserve.

The insurer may have written a significant volume of new business since the last valuation.

The tax situation may have changed.

The State benefit regime may have changed with consequential increases in benefits paid by the insurer.

This question was generally not well answered. Many candidates did not always put down a sufficiently wide range of points to gain a high score. Candidates who thought through the detailed assumptions made when setting the reserves or who thought more widely, for example, on possible errors that may have arisen in the valuation process, changes in the reserving methodology, changes in investment strategy and the assets held scored well.

## **END OF EXAMINERS' REPORT**