INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2013 examinations

Subject ST1 – Health & 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.

D C Bowie
Chairman of the Board of Examiners

January 2014

General comments on Subject ST1

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.

It is often helpful to use subheadings when answering long part questions.

Comments on the September 2013 paper

Overall, the paper was of a fairly 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 questions 6 and 7, were 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 are advised to include these areas in their revision.

1 (i) The State can offer tax relief on premiums for appropriate insurances.

The State can exclude some or all of the population from certain aspects of the national welfare scheme.

The State can offer a reduction in general taxation where appropriate insurance is in place.

The State can reduce the cost of private purchase of healthcare services by direct subsidy to the providers.

(ii) The premiums for LTCI could be paid out of gross income, thus reducing the policyholder's tax bill. This could be done by employers paying the premiums before tax or by policyholders reclaiming the tax on the premiums.

Policyholders with LTCI cover may pay a reduced rate of income tax or have a flat rate deduction from their tax bill. People with total assets over a certain amount could be ineligible to live in State run nursing homes or might be ineligible to get benefits to help them with nursing home costs.

The State could pay insurers a specific amount of money for offering an LTCI product or pay a set amount of money per LTCI policy sold or provide a tax subsidy for LTCI business.

Benefits could be made tax-free.

A layering arrangement could be introduced where the State indemnifies above a certain level which should encourage insurance provision up to that level.

(iii) Policies may need to offer at least a fixed minimum level of benefit.

The product may need to offer guaranteed benefits (rather than being purely unit-linked).

The product may need to meet requirements for escalation of benefits once in payment.

Policies may need to have an element of indemnity (rather than just a cash benefit).

Policies may need to meet requirements about the definition of incapacity triggering claim.

Policies may need to have at least a certain capital backing (to ensure that the payments are actually made when due).

Benefits may need to be dependent on professional care being required (rather than paying out if a spouse provides the care).

There may be requirements on the premium payment structure – e.g. the incentive only applies for policies paying regular premiums (rather than paid-up or deferred policies).

There may be limits on premiums or premium increases.

There may be restrictions on the maximum deferred period (no longer than a specified maximum number of months).

Surrender values may be prohibited to ensure that money is used to purchase long term care rather than providing a lump sum which has benefitted from tax breaks but is used for purposes other than providing long term care.

Benefits could be made payable to the provider rather than the individual.

Many candidates scored well on the first part of this question, but then failed to apply the incentives listed to a pre-funded long-term care product in part (ii). Similarly few candidates provided more than one or two product features that might be used to determine whether a long term care product would be eligible to qualify for State incentives. As a result this question was generally not well answered.

2 (i) New business premiums/amounts split by regular and single, or perhaps as regular premium + single premium/*N*
Numbers of new policies
Average sums insured
Value of new business
New business strain
Capital requirements; how does new business affect the solvency requirements

Likely to be split by product, design features, size of policy, by distribution channel / distributor, territory and by group/individual. May also split further e.g. by gender, occupation, age band to help with setting model points for pricing.

May split by guaranteed/reviewable premiums and between standard rates and underwritten rates

May split by reinsurance terms

Collect and report on a monthly basis and look at trends over time, e.g. year on year. Compare month with same month in previous year to allow for seasonality effects.

Compare actual new business sales with targets and market share information (if available).

Need to decide how to deal with any "cooling off" period (e.g. lapse very quickly due to change of mind) and whether increments are included in the analysis.

(ii) *Current embedded value*

Embedded value is the value of shareholder profits arising from existing business only, with no credit taken in respect of profits on future new business. Hence there is no direct impact on the current embedded value due to lower expected future new business volumes. However, lower expected new business volumes are also likely to mean higher per policy expenses due to the need to spread overheads and fixed expenses over a smaller portfolio. This could reduce the current embedded value, due to the existing business needing to support a greater proportion of these overheads.

Future embedded value

In future, lower new business volumes will mean lower present value of future profits; however net assets may be higher than previously expected if the products generate new business strain. Overall the likely outcome is that the embedded value will increase more slowly under lower new business volumes than it would otherwise assuming that new business is written on terms which are profitable on the embedded value basis.

(iii) The insurer could simply reduce the premiums or could attempt to reduce premiums by increasing expense efficiency or by increasing capital efficiency.

The insurer could offer cheaper, more affordable, product design variants e.g. lower benefit amounts, longer deferred periods, more stringent benefit criteria or limited payment term. Alternatively, may need to improve the above features (for the same premium) in order to make the product more attractive.

The insurer could offer a variant which differentiates itself more clearly from competitors e.g. could offer guaranteed premiums if competitor products are mainly reviewable premiums or rehabilitation services, linked periods, riders.

The insurer could offer more attractive distribution remuneration to reward effort appropriately. The insurer could invest in sales training to assist distributors or in a marketing campaign to educate the potential policyholders as to the benefits of this type of insurance and to correct any misconceptions relating to State provision.

The insurer could change distribution channel or change target market.

The insurer could offer both group and individual policies, if not already doing so.

The insurer could aim to improve the overall perception and profile of the company and/or industry e.g. through sponsorship or donation to worthy causes or by improving customer services.

The insurer could develop a highly simplified version to make it easier to explain to customers or try and make it more popular e.g. with free gifts or add-ons like vouchers or memberships.

The insurer could try and sell it as an add-on to other products – the expenses would be lower so the marginal cost of the add-on could potentially be smaller.

The insurer could reduce the underwriting burden.

It is important to note that many of these approaches could increase risks (e.g. lapses) or reduce profits per policy, and hence not necessarily be entirely constructive.

Part (i) was not well answered with candidates appearing to struggle to generate a wide range of ideas, perhaps due to not thinking enough about what insurance companies would do in practice. In particular, few candidates mentioned analysing trends over time or discussed how to deal with cooling off periods.

Parts (ii) and (iii) were generally better answered with candidates particularly providing a good variety of different ways in which an insurer might increase sales in part (iii).

3 The internet is most appropriate for simpler products. It might therefore be more appropriate if the insurer were to use it for its health cash plan products. It could also consider offering a simplified version of its individual PMI product. However it is unlikely to be feasible to sell group business through the internet: this normally requires specialist broker advice. Alternatively the internet could be used to provide information leading to sales by telephone or other means or encourage renewals for group business.

Selling via the internet could give the insurer access to a wider target market and hence sell more business and increase its profits. The insurer needs to consider how much additional business it might sell through this route, allowing for the possibility that some who currently use insurance intermediaries may switch to the internet. It also needs to consider the insurance intermediaries' reaction to the proposal; it could have an adverse affect on their willingness to give business to this insurer, if it is perceived as competing against them.

The target market for the two types of distribution channel is likely to differ on average. Those using insurance intermediaries are likely to be more affluent and financially sophisticated. Therefore average premiums may be lower for products sold via the internet. The underlying experience of the internet target market is likely to differ from that of the insurance intermediaries; morbidity levels might be higher, as might non-renewal rates since insurance intermediaries will normally aim to maintain a relationship with clients and because there may be more impulse purchases via the internet.

Distribution costs will also differ. The internet is likely to be a cheaper distribution channel if insurance intermediaries demand high commission. However, if the intermediaries instead receive fees direct from the client then the internet sales would require a higher distribution cost loading.

Underwriting is likely to be simpler for products sold via the internet; this will reduce the costs for the internet products. However, the insurer will need to develop new systems and processes to deal with this new distribution channel, including secure internet sites and staff will need to be trained. These developments will incur additional costs.

Overall, the insurer may therefore need to reprice its products for sale via this new distribution channel. It should also consider whether its key competitors use the internet distribution route. If so, it needs to ensure that the products which it is intending to offer will be similar in design and competitive in price, particularly if there are "comparison sites" on the internet.

The insurer will not have any direct experience of the new target market which increases pricing risk and it may also need to hold higher reserving margins. The level of disclosure/moral hazard is likely to be different. Anti-selection risk might be lower for this target market as insurance intermediaries may be more likely to identify and take advantage of anti-selective opportunities or higher because of simplified underwriting. The risk of selective non-renewals might be lower for the internet sales.

The insurer may include more incentives for renewal (eg no claims discount)

The extent of internet usage amongst the intended target market for this product would need to be considered. There is a risk that the insurer would not sell sufficient volumes under this new distribution method and therefore would not recoup the development costs or too high a volume and systems unable to cope.

The risk of mis-selling will differ for this new distribution channel, since the insurer now has direct control of the whole sales process. There may be greater risk of customers not having understood the product sufficiently if purchased without insurance intermediary advice which could lead to higher claims rejection rates and consequently greater reputational risk.

Counterparty risk (insurance intermediaries failing to pass on premiums) would be lower for the internet distribution channel.

If the insurer currently uses reinsurance, it needs to consider the views of the reinsurer and get their technical assistance, if necessary. It also needs to consider any additional regulatory implications, e.g. specific legislation relating to internet sales.

The insurer could instead consider alternative distribution channels which might be more effective for these product types e.g. worksite marketing.

This question was generally well answered with candidates providing a wide variety of points and showing that they understood the different markets likely to purchase private medical insurance through intermediaries and brokers and through the internet. Not all candidates mentioned points related to group PMI; in particular, that it was unlikely that group PMI would be sold via the internet.

4 *Guaranteed rates – advantages*

Guarantees are attractive to consumers so you may sell more business

They give policyholders financial certainty and peace of mind

They make it easier to understand and for intermediaries to explain at point of sale
An insurer may need to offer guarantees to compete with other companies who offer them

There is less ongoing administration than reviewable products and expenses are likely to be lower per policy for guaranteed rates

Guaranteed rates generate higher profits if morbidity experience is better than that expected

Reviewable products have a heavier burden of demonstrating treating customers fairly and need to have more carefully worded terms and conditions. Reviewable products may also cause poor reputation if premiums are increased materially on review which might impact future sales or the insurer may find at review that rates cannot be increases (or not by as much as needed) due to policyholder reasonable expectation considerations or competitive reasons, therefore the rates might effectively be guaranteed anyway.

Reviewable products may be more prone to lapsing at the review date. These lapses are likely to be selective lapses.

Reviewable rates – advantages

An insurer can offer the product at lower premium rates than if guaranteed; affordability leads to greater financial inclusion and increased consumer choice.

More easy for an insurer to allow for adverse experience in existing business and able to amend more quickly to allow for medical advances.

The use of reviewable rates is likely to encourage innovation.

Reviewable premiums can go down leading to happy customers.

There is likely to be lower morbidity risk than for guaranteed products and hence lower risk margins in pricing. This leads to lower reserving and capital requirements.

Reinsurance is likely to be more readily available.

If CI rates are falling, less prone to lapsing.

This was a standard question which was generally well answered by the better prepared candidates. Whilst most candidates gave several advantages of guaranteed rates, rather fewer gave many advantages for offering reviewable rates.

5 (i) Group arrangements may have to be purchased because it is a legal requirement

e.g. income protection insurance in some territories.

It may be purchased to cover employer's statutory sick pay payments or to provide protection against absence of key persons such as its use as locum protection. It may provide a positive message to prospective employees at the recruitment process or to existing employees at a certain stage of promotion. It may also help to retain good staff. It can act for both parties to promote health and ensure a speedy return to work following operation (group PMI).

It can act as a mechanism to smooth the process of early retirement when an employee is in continuing poor health (group IP).

Group covers may have tax advantages over individual insurances in some territories or may be cheaper than individual insurances, e.g. due to economies of scale.

(ii) The basic benefit is payment of a regular income whilst the employee is unable to work due to sickness or accident. It is normal to base the scheme benefit on salary gross of tax. This would have a maximum benefit of perhaps two-thirds to three-quarters of gross salary, perhaps with some offset in respect of entitlement to State incapacity benefits. However, net pay schemes are offered by some insurers. In these cases, incomes after tax are compared and a claimant can receive up to 90% of net pre-disability income.

The claim definition is likely to be occupation based rather than other alternative incapacity criteria.

In addition to covering the scheme members' salaries, additional cover may be provided under the group policy, such as employee pension contributions, employer pension contributions, employee State welfare contributions and employee State welfare contributions.

Policy benefits may escalate whilst in claim in order to maintain the claimant's standard of living.

A continuation option may be offered. This allows the employee of a company to effect an individual policy without providing evidence of health when he or she leaves the service of the employer. Continuation option benefits are limited to those that were offered under the group IP policy.

May have limited benefit period, or deferred period or linked claims clause.

May provide recuperation/rehabilitation services or provide proportionate benefits.

Under the locum protection version benefits are designed to cover the costs of a temporary replacement professional.

(iii) *General point:*

There might be a need for prudential reserving depending on the purpose of the reserves e.g. more realistic for internal management accounts.

Reserves should be net of reinsurance, if applicable.

The methodology may be prescribed to some extent by the regulator.

Unearned premium reserve

This reserve is the balance of premiums received in respect of periods of insurance not yet expired.

Determine the total time from the valuation date to the end of coverage as a proportion of one year, this gives the percentage of the premium which is deemed to be "unearned". Multiply this percentage by the actual premium paid to get the unearned premium.

Unexpired risk reserve

This reserve is in respect of the above unexpired insurance premium where it is felt that the premium basis is inadequate. This would normally be set as an approximate uplift to the unearned premium reserve. Using the ratio of the theoretical premium which should have been charged over the actual premium charged.

Outstanding claims reserve or Claims in payment reserve

This reserve is in respect of claims which are in payment as at the valuation date. This is often the largest component of the technical provision for group income protection business. This would normally be calculated using the discounted cash flow method. Assumptions will be needed for the future experience items including recovery rates, mortality, expenses (including claims expenses) investment return and inflation.

Incurred but not reported

This reserve is in respect of claims that have arisen but that have yet to be notified to the insurer. This could be determined as an uplift to the outstanding claims reserve depending on historic analysis of IBNR ratios. Estimates of both the possible numbers of IBNR claims and the potential duration of such claims will be needed, which would on average be expected to be longer than for those currently in-force as they have not yet commenced. Any historical data used should be adjusted to allow for known changes/trends.

IBNR reserves are not so relevant for this type of business.

Incurred but not enough reported

As for IBNR but where it is felt that not all detail has yet been submitted and a provision needs to be established for the remainder. This could be determined on a case by case basis using statistical analysis and historical data or may simply be estimated as an approximate uplift to the IBNR.

Equalisation or catastrophe reserves

These are reserves where it is felt that the current year is atypical and amounts will have to be held back for abnormal events. They are high level reserve which would be set based on expert judgement and analysis of claim trends.

Claims in transit

This reserve is in respect of claims reported but not assessed, or not recorded. Methodology would be similar to calculating IBNER reserves

Investment mismatching reserve

This could be determined by carrying out yield stresses calculations.

Options reserve

This could be determined using stochastic/multi-state modelling.

Reinsurer default reserves

This could be determined taking into account credit rating and exposure.

Parts (i) and (ii) were standard bookwork questions and generally well answered by the better prepared candidates. In part (iii) whilst many candidates listed most of the typical reserves, it was disappointing that rather fewer gave indications of how those they listed might be calculated.

6 (i) The insurer may start by checking the terms of the treaty in relation to cancellation such as the appropriate notice period and definitions of new v existing business, e.g. to clarify treatment of increments. The insurer may also wish to confirm that existing reviewable premium business will continue to be reinsured past the review dates.

Because the reinsurance remains in place for existing business, the effect of the cancellation will be gradual. The impact will also depend on the level of new business relative to the existing reinsured portfolio (e.g. more significant if new business levels are much higher now than in the past).

The insurer will be exposed to more volatile claims experience and to single large or accumulated losses. Hence profits will be more volatile. This may not be a particular issue for ABC Health as it does not have shareholders and so smooth earnings may not be expected although this depends on how the profits are actually distributed, e.g. if to policyholders via dividend or bonus payments then they may expect this to be relatively smooth.

Volatile profits and exposure to large losses could also lead to higher risk of solvency problems. The insurer might therefore have to limit the amount of new business written or stop selling. Alternatively it could reduce the maximum sum assured offered, avoid certain risks (e.g. high risk occupations or areas), strengthen its underwriting processes or its terms and conditions (e.g. more exclusions).

The above product changes would likely have adverse implications for new business volumes with corresponding implications for future profits and the ability to cover overheads and fixed expenses. They may make products less capital intensive.

The insurer might have to consider launching other products to provide some diversification e.g. long term care insurance.

The reinsurer may be prepared to reinsure and provide assistance with other product lines: it may be just CI and IP business that it no longer wishes to reinsure.

New business strain may be higher going forwards. Reserves could be higher if the cost of reinsurance is lower than the cost of claims on the reserving basis. Higher margins might also be required in the reserving basis due to greater uncertainty or the insurer might need to hold a claim experience fluctuation reserve. Additional solvency capital requirements could also be higher although there could be a slight offset from lower credit risk.

The risk premium reinsurance arrangement might also include an element of financing (e.g. via commission payment), which would no longer be received. The implication of all of the above would be lower surplus assets.

The investment strategy may have to be reviewed.

Since the insurer is a mutual, it may find it difficult to raise additional capital or demutualise. There may be a negative impact on the mutual's credit rating.

Reinsurance generally passes profit to the reinsurer. Therefore without the cover in place, new business may be more profitable or it may be possible to price the CI and IP products more competitively. Alternatively, if the reinsurer was able to offer very competitive terms then prices would have to increase (or profits could fall) for example this could be due to tax arbitrage or solvency capital arbitrage benefits.

There is a risk that the reinsurer will withdraw any technical experience which it was providing, now that there is no longer a new business relationship. This could have implications for the ongoing quality of pricing and underwriting and costs. The insurer may need to seek alternative expertise.

On the other hand, the insurer may now have gained sufficient experience to enable it to perform adequate pricing and have generated sufficient surplus assets to absorb greater volatility. Perhaps it had intended to reduce its reinsurance programme anyway; therefore the cancellation might not have any impact other than the timing of the decision.

Some of the above changes will take time to have an effect – they are not all immediate solutions.

(ii) The insurer should investigate to determine how much truth there might be in the rumour. If it proves to be correct, then the implications in part (i) will now be more significant as will now also apply to the existing portfolio. The terms of the existing treaty should be considered for possible actions.

The insurer could delay making premium payments or try to increase netting off of payments, if possible.

It might be harder to unentangle from IP claims in payment

The insurer may be more likely to do its best to find an alternative reinsurance arrangement in this situation (if the reinsurer is expected to collapse) even if it has to be a different type of reinsurance e.g. excess of loss. However there may be penalties if the insurer decides to exit now.

The insurer could seek some form of guarantee or collateral from the reinsurer.

The insurer may need to hold higher reserves immediately to allow for anticipated non-recovery of reinsurance claims currently owed. Solvency capital requirements also may increase further if explicit allowances are included for credit risk as the insurer may need to allow for a higher default probability than previously assumed (even 100%). Extra capital may need to be raised.

The insurer could consider holding back on any bonus distribution to policyholders.

If the reinsurer is a big player in the market, the insurer also needs to consider whether to communicate and reassure customers and distributors that the reinsurer's default will not affect the insurer's ability to settle claims.

The insurer will need to consider what to do for reinsuring future business and any lessons learnt.

Candidates who had a clear grasp of the concepts involved here were able to make a good attempt at both parts. However, many candidates did not develop some of the points they made (for example, claim payments could be more volatile potentially leading to higher reserves). Also several candidates did not mention that there is a cost to reinsurance and that this also involves sharing potential profits. Many candidates also did not provide a sufficient range of different points to gain high marks, noting the high mark allocation for this question.

7 (i) It is important that the claims paid are consistent with the assumptions made when the product was priced and designed. If more claims are made then premiums would have to increase accordingly.

It should be noted that not all claims meet the terms and conditions of the product.

Insurers have formal complaints procedures to deal with any cases where individuals feel that they have been declined unfairly.

Claims can be declined when the underlying medical condition resulting in the claim is one of the exclusions listed in the policy conditions at the time at which the contract was taken out. These may be general exclusions which are imposed on all policyholders or specific to the particular policyholder, e.g. a pre-existing condition. These exclusions are used in order to ensure that the price of the insurance is affordable to the individual and to reduce the risk of anti-selection against the insurance company, i.e. the risk of selling high volumes of business to those who know they are very likely to claim which would then further increase the cost of health insurance to all.

Claims can also be declined because information provided at the time of claim materially contradicts information provided when the policy was taken out where this is deemed to have been deliberate. Overall the practice of declining claims in these circumstances is intended to protect other policyholders by ensuring that premiums remain affordable.

The practice of claims pre-authorisation (for PMI) is intended to reduce the level of declined claims. However, the industry should check the limits of the cover provided and it might have to acknowledge that there could be an inherent problem to some extent if the terms and conditions relating to

exclusions and disclosure are not sufficiently clear, or may be out of date, in which case this should be improved.

The industry might also decide to undertake a wider educational campaign to help policyholders understand the importance and benefits of claim management.

There could be more training of distributors to ensure that customers understand the policies they are buying.

(ii) If the majority of healthy individuals take out private insurance the experience of those remaining people including those uninsurable could prove too expensive for the State to meet all the cost. However, even with a free State healthcare service, individuals may still prefer to purchase insurance in order to gain access to private healthcare provision. The quality of the private healthcare provision may exceed that of the State service; for instance it may offer more choice of treatments, more choice of providers / specialists, more choice of location. Private healthcare may reduce the waiting time for non-urgent procedures. The State may offer only a basic or limited range of benefits for free. Purchasers may have worries about future state provision.

The government of Actuaria may encourage more affluent individuals to make their own insurance arrangements in order to help reduce the overall healthcare cost to the State i.e. helping the government to meet an objective of "balancing the books" or in order to allow it to prioritise State healthcare spending to those less able to provide for it themselves i.e. helping the government to meet an objective of "subsidising the poor".

It may only be private medical insurance (PMI) which has benefits that overlap with the services provided by a State healthcare service.

There may not be universally available free long term care provision in Actuaria. Hence long term care insurance solutions may still be needed to protect individuals from the financial burden of not being able to care for themselves in old age. It may be purchased by individuals who are worried that the State may not be able to provide for them in this capacity when they need it in the future (even if there is an LTC State provision now).

State benefits payable to employees who suffer significant sickness or accident may not be generous and it may not be a requirement in Actuaria for employers to provide such benefits (or such provision may be limited) so there remains a need for income protection insurance to protect individuals from loss of income due to incapacity (or meeting loan repayments).

Although the State healthcare service will provide medical support if an individual suffers from a critical illness, the State may not provide significant additional welfare benefits in such a case so there remains a need for critical illness insurance to protect individuals from financial hardship as a result of suffering a critical illness, such as for example the repayment of a loan, installation of specialist equipment at their home or rehabilitation treatment.

Health care may not be free to non-Actuarial residents in Actuaria (or to Actuarian residents overseas).

Having a H&C insurance sector may encourage innovation in protection, products, treatments.

This question was a good differentiator. In part (i) only the better candidates mentioned pre-authorisation, campaigns to educate potential policyholders or training for distributors. For part (ii), candidates often made high level comments but could have scored more marks by considering the potential need for each type of health insurance in turn.

END OF EXAMINERS' REPORT