INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2012 examinations

Subject ST1 – Health & Care
Specialist Technical

Purpose of Examiners' Reports

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 who are 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. Although Examiners have access to the Core Reading, which is designed to interpret the syllabus, the Examiners are not required to examine the content of Core Reading. Notwithstanding that, the questions set, and the following comments, will generally be based on Core Reading.

For numerical questions the Examiners' preferred approach to the solution is reproduced in this report. Other valid approaches are always given appropriate credit; where there is a commonly used alternative approach, this is also noted in the report. For essay-style questions, and particularly the open-ended questions in the later subjects, this report contains all the points for which the Examiners awarded marks. This is much more than a model solution – it would be impossible to write down all the points in the report in the time allowed for the question.

T J Birse
Chairman of the Board of Examiners

July 2012

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 April 2012 paper

The paper was generally towards the more straightforward end of the range, with well-prepared candidates scoring 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 8, were less well answered and students should recognise that these are generally the questions which differentiate those students with 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.

1 Hospital accommodation is more comfortable / get a private room
No waiting list
Able to choose a location to suit
Able to choose a particular doctor/specialist
Wider range of treatment options e.g. homeopathy
See a specialist at a time to suit
Able to see the same consultant
Better quality treatment and advice, therefore likely faster recovery
Perception that hospitals are more hygienic
Overall, greater peace of mind
It may be a mandatory requirement in that country e.g. because State provision does not exist or because the person falls outside the eligibility criteria for means-tested State provision
There may be very limited State provision available in that country for those who are not insured
Perceived to provide value for money in individual circumstances
Costs are more predictable than paying for treatment when required
There may be tax benefits in purchasing this insurance
Employers may purchase group PMI as part of a benefits package to attract and retain good staff and to ensure faster return to work

In general this question was well answered being straight bookwork. However, several candidates included background bookwork that was not asked for (for example, the definition of PMI) – the question asked for reasons why someone might purchase PMI, not for a description of the benefits provided.

2 (i) **Advantages**
May allow absence rates to be better managed and assist in resource planning/productivity analysis.
May help to identify reasons for sickness which are within the employer's direct control and could be mitigated, e.g. removal of potential workplace hazards.
Allows employers to spot any trends – e.g. employees who are frequently absent on a Monday.
Could discourage false sickness absence.
May allow employers to use their own data in getting quotes for insurance. However, this may be good or bad depending on whether they think their rates are higher or lower than normal.

Disadvantages
It costs money to collect and store the data.
It might in some cases aggravate staff who think they are now "getting in trouble" when they take a sick day.
Employees may feel pressured to return to work whilst still too sick or infectious.

(ii) The insurer might have wanted to increase the number of employers collecting data. This would increase the number of quotes where they can use own data and reduces the risk of incorrect pricing/reserving.
The insurer might have wanted to increase awareness of their brand by getting their survey reported in the press.
The insurer may want to use the results to help target marketing.
The insurer might have wanted to use this as a precursor to designing or launching a new product.
The insurer might have wanted to highlight the risks of absence, so that they can increase volumes sold of insurance protecting against absence.
It may have been done as a precursor to setting up industry data.

Most candidates were able to make a good attempt at this question, particularly part (i) where a good range of valid points was generally provided. In part (ii) some candidates seemed to interpret the survey as being a collection of sickness data itself, rather than simply finding out whether such data were collected or not.

3 Replacement ratio
Net post-claim income
Pre-claim income net of income taxes
Occupation class
Recorded change of occupation
Claim definition
Country of residence
Group/individual indicator if CI only sold on an individual basis
Contract type (with profits, conventional, unit-linked) if CI only sold on one basis
Guarantees/options/riders
No claims discount
Full time/part time/hours worked

Premium escalation
Benefit escalation before claim
Benefit escalation in deferred period
Benefit escalation in claim
Partial/proportionate benefit level
Maximum payment age or date
Benefit payment frequency
Linked claim period
If currently in linked claim period
Date of linked claim period expiry
Waiting period
If currently in waiting period
Deferred period

Reinsurance basis if more than one type of reinsurance used for IP

Whether or not currently claiming
Notification date of current claim
Start date of current claim

Cause of current claim
Amount paid to date in current claim
Date of any payment increases due in current claim
Percentage of any payment increases due during current claim
Maximum potential payment which could be made in current claim
Maximum potential term of current claim

Start date of each previous claim
End date of each previous claim
Cause of each previous claim
Amount paid in each previous claim
Date of any payment increase in each previous claim
Percentage of any payment increase during each previous claim
Reason for termination of each previous claim
Claim definition used in each previous claim

The question only asks for additional data, so data that would already be included in the extract (e.g. age, sex) would not be required. Some candidates discussed the nature of the reinsurance or how the product might be underwritten, which was not sufficiently closely related to the elements of a data extract, as required by the question. Candidates who paid close attention to key words in the question (such as "list" and "additional") were able to score most highly in this question.

4 (i) The proposal would save the government money both in benefit payments and admin costs. Thus helps with their objective of "balancing the books". It would encourage people back to work which helps to boost economic production. It would also reduce exaggerated claims.

It would encourage the use private insurance for illnesses of longer duration and encourage innovation in insurance products. Private insurers are often better at controlling long term claims.

However, there are many serious illnesses which would result in incapacity of more than a year. Cessation of a claim after one year will give genuine hardship to many, particularly the lower paid, who tend to have jobs with a higher potential for injury and a higher rate of sickness. Therefore it fails to meet a potential objective of "subsidising the poor".

Those for whom benefits cease may become more sick as a result. It therefore fails an objective of "protecting the nation's health".

It could be perceived as treating disability as a "crime" and hence could be unpopular with voters, with serious political implications for the government. It might also go against previous political promises.

The costs of other State benefits that would need to be provided after expiry of the incapacity benefit may increase *and there may be other secondary effects,* e.g. increased housing costs.

There would be short term costs in changing and also need to publicise the change. It would also be necessary to consider if this is only for new claims or also claims in payment.

Would need to consider whether a linked claims type clause or maximum number of claims should be included.

(ii) (a) The costs of different periods could be modelled using existing data.

The term might vary according to some feature (eg type of illness).

There are similar basic advantages to the proposal as in (i) (albeit to a lesser extent). It makes life easier for claimants with incapacity of longer than one year and so is more palatable politically but could encourage longer claims at more government expense and it does not solve the problem of what happens when claim payments stop.

(b) This proposal focuses benefit on those most in need so may be more politically acceptable as provides less disadvantage to vulnerable groups.

Stronger definition of incapacity will reduce the number of claimants. Stronger controls should reduce the time for which benefit is paid. In particular, should better help the government to identify and stop/reclaim fraudulent claims. Therefore overall the government will spend less on benefit payments. However, changes to incapacity definition may not be popular politically.

If medical professionals (e.g. GPs) are required to perform more work in implementing the controls, this may also be unpopular.

It requires a new and more rigorous administration system/organisation which costs money to run so need to compare this against the expected benefit savings. It also requires tight rules based on objective tests to confirm claimant is fit for work. This is difficult since the same medical condition can affect claimants in different ways from day to day. Hence implementation is likely to cause issues and complaints/appeals that will also need to be dealt with.

Would need to explain/publicise the change clearly and carefully and would need to review existing claims, if applied to them

Many candidates appeared to forget, as they were answering this question, that they were writing about a state benefit (rather than one provided by an insurer). In part (i) several candidates suggested potential reasons giving rise to the problem rather than discussing the proposed solution. In part (ii) several candidates suggested other alternative solutions, which were not asked for. It is important to focus on the specifics of the question being asked, in order to score fully.

5 (i) The health status of the actual *individual* members of a group scheme is not taken into account up to the free cover level. Rather, a more global view is taken in assessing the expected experience of the group as a whole. Some lives in poor health may be accepted because they will be balanced out with lives in good health. Account may, however, be taken of the actual experience of the group and an "actively at work" requirement may be imposed.

Limited underwriting is often the case where take up rates are high or compulsory. The amount of underwriting may also be dependent on size of scheme or eligibility options.

(ii) The term refers to a number between 0 and 1which represents the proportion of the final risk premium that is derived from the past experience of the company with the balance coming from book rates.

The value of the factor depends on the amount of data available due to the size of the scheme and/or length of historic recorded experience. Thus, a larger scheme, with more experience, would have a higher credibility factor

(iii) (a) Little data available so may make no adjustment

There may be very low turnover so lapse rates should be reduced

They may have very healthy lifestyles e.g. lower than average levels of drinking/smoking or relatively well educated. Also, there is likely to be less risk of faking illness so may have lighter morbidity. However, may not have a stable home environment or time to take exercise so may have heavier morbidity.

May be very motivated to work so recovery rates may be better than average.

May on average be older than the normal insured population due to having obtained "leader" status. However, pricing may or may not be based on average age, so this may not be a factor for which a change should be made.

(b) There might be very high turnover so lapse rates should be increased. However, cover may only be offered to senior management in which case lapse rates may be fairly average.

Most of the staff *may* be lower socio-economic class and may have a poor diet if meals are generally provided at the outlet. If so morbidity rates may be higher. There may also be high rates of job-related injuries e.g. burns. There may be low motivation to return to work.

They may on average be younger than the normal insured population.

(c) Leisure centres can have high staff turnover too, so increase lapse rates

Staff may take a higher than average amount of exercise so morbidity rates may be lower. However, they may have a lot of sports injuries and they may be more likely to be more aware of need for treatment (e.g. physiotherapy). Depending on the covers involved, these factors may worsen claim rates. However, fitter people generally recover faster so recovery rates should be improved.

Not all leisure centre staff will be very active, but on average this should tend to be the direction in which the assumptions move.

This question was reasonably well answered. Candidates who had a deep understanding of the concepts covered by this subject were able to demonstrate that to the examiners in this question by applying their knowledge. Some candidates did not tailor their answers closely enough to the specific groups given. Some answers were rather narrow and tended to focus on aspects which would affect the rates in one direction only, without going on to discuss potentially offsetting effects (e.g. pointing out that morbidity rates might be lower for those working in fried chicken outlets due to lower average age, but without mentioning the potential for higher rates due to poor diet and/or socio-economic status).

6 General considerations:

All reinsurance passes a share of any profit to the reinsurer so the suitability of any type would depend on its perceived value for money, on the cedant's solvency position and risk appetite, on the potential for tax arbitrage where the reinsurer is taxed on a different basis to the insurer and on the potential for solvency margin arbitrage where the reinsurer is required to hold less capital per unit of risk.
The security of reinsurers should also be considered i.e. increases counterparty risk.
A company entering a new market will need assistance which can be provided alongside any of the types described here e.g. could include the provision of data for claims, pricing, risk premium rates or with underwriting, claim handling etc.

Proportional reinsurance:
Reinsurer covers agreed proportion of each risk
Administered automatically
A treaty may be required. All policies complying within treaty scope must be ceded.
Can be facultative or obligatory. If facultative, the reinsurer can decide whether to accept or reject the business.
The proportion can vary as the insurer gains experience of new product or territory though variation usually applies to future new business, not retrospectively to the existing business.
May provide income in the form of commission or deposits back
Can be written on an "original terms" basis i.e. sharing all aspects of the original contract or a "risk premium" basis i.e. based on the reinsurer's premium rates.
Premium rates may or may not be guaranteed and may be level or increasing.
Sum-at-risk can be used rather than initial sum assured to achieve a similar effect.

Proportional reinsurance would be suitable for the company entering the new market e.g. to help it accept a greater capacity of business. However, because it does not cap

the cost of any very large claims the insurer would also need some form of non-proportional reinsurance.

It is generally used for long term health insurance lines. However, quota share may be used for new PMI business.

Quota share
Fixed proportion of each risk
Often used in this type of situation to spread risk e.g. to allow the insurer to write larger portfolios of risk and encourage reciprocal business or to improve the solvency ratio and satisfy the statutory solvency requirement.
It can be useful as reinsurer may want to have a significant participation in risk to compensate for expertise being provided.
Quota share has the disadvantage of ceding the same proportion of each risk, irrespective of size. The insurer may prefer to cede a greater proportion of the larger risks than the smaller ones, owing to their greater loss potential.
Provision of financial assistance (new business strain, bolstering free assets) could be very useful for a new venture.

Surplus
Proportion ceded relates the insurer's preferred monetary retention to the overall sum assured. May be used to write larger risks, which might otherwise be beyond the insurer's writing capacity. The major benefit is to enable the insurer to limit its exposure for the policies concerned on an individual basis. It can be used fine-tune experience by allowing different proportions of each policy to be ceded.

Many candidates did not indicate how or why proportional reinsurance would be suitable for a new company writing health and care business. There was often confusion between the various types of reinsurance which hampered many candidates' ability to score highly in this question. Learning the bookwork, and understanding the effects of different types of reinsurance, is to be recommended. Many students did not appear to have left themselves sufficient time to do justice to this question, given the fairly high number of available marks which suggests that a lot of detail and depth must be required.

7 (i) IP pays a benefit in the form of a regular income if the insured life is unable to work (referred to as incapacity) through illness or accident or injury. The specific conditions under which the benefit becomes payable and under what circumstances it will cease, will be clearly defined in the policy document.
Unemployment, redundancy, early retirement and reluctance to return to work would not normally be included. There is also likely to be exclusion of certain kinds of illness / physical injury — e.g. HIV, attempted suicide.
The policy is usually written as a long term policy under which a number of separate periods of benefit payment can occur, without the policy ceasing.
There may be a clause dealing with linked claims.
There may be a waiting period during which a claim may not be made.
There may be a maximum benefit formula, relating to replacement ratio.
Benefits are not normally paid during the first few weeks of sickness (the deferred period).

There will be an expiry age, at which any benefits in payment cease, which is often the same as the expected retirement age. There may be a further limit to the term of payment of benefits.
Benefits can be level (i.e. fixed at outset) or may escalate in and/or out of claim (e.g. in line with prices).
There may be proportionate benefits or other benefits available to aid rehabilitation.
There may be guaranteed insurability options or other options.
Premiums do not usually increase with age. However inflation linking of premiums is common, particularly when benefits escalate when not in claim.
Policy can be written under guaranteed or reviewable premium rates. For reviewable product, insurers reserve the right to revise the premiums should claims experience across the whole portfolio be poor (and may reduce premiums if the experience is good). There may be a waiver of premiums whilst the policyholder is receiving benefits.
There may be a no claims discounts.
There are also group IP products, bought by employers wishing to provide benefits to their employees

(ii) **Own occupation**
This definition of incapacity provides the greatest level of income protection cover. For example, a policyholder may have a high pressured job that leads to high stress levels which in turn leads to them no longer being able to fulfil the duties of that specific occupation. The policy would pay out and the insurer would not require the policyholders to take a less stressful position.

Suited occupation
This provides a lesser degree of cover than a policy with the "own occupation" definition. Under this definition the insurer may require the policyholder to return to work in an occupation for which they are suited. The insurer will determine what is a suited occupation based on the policyholders' skills, training, qualifications and experience. For example, a policyholder suffering from stress may be required to take a less stressful position at the same firm or elsewhere.

Any occupation
This definition provides less earnings protection than a policy with an own or suited occupation incapacity definition. The insurer may ask the policyholders to undertake any occupation for which they are deemed to be medically capable. For example, policyholders who previously had an active occupation but are now suffering from physical disability may be required to take an office based position at their existing company or elsewhere.

A time limited mixtures of the above may be used e.g. inability to perform own occupation for an initial period (e.g. the first two years) of claim followed by inability to perform any occupation thereafter.

Work tasks / Activities of daily living
Using a work tasks or activities of daily living definition of incapacity provides the lowest level earnings protection. Under this definition the

income protection policy would pay out based on the ability of the policyholder to complete certain tasks, regardless of occupation. For example, common tasks include the activities of daily living (ADLs) – feeding, dressing, washing, toileting, mobility and transfer. It is usually the case that the policy would pay out if two or more of these tasks cannot be completed without further risk to health.

Functional assessment tests (FATs), activities of daily working (ADWs) and personal capability assessment (PCA) are other examples.

(iii) Intermediaries may be uncomfortable with the limitation of benefits or may not be clear on the key sales messages.
IP may be perceived to be more difficult to sell than other health products, so sales advisors choose not to focus on it. Similarly, sales remuneration may not be as generous for IP as for other health products. The sales process may be regulated.
Consumers may struggle to understand the true value of cover and/or do not see the need to protect against long term disability.
There could have been unfavourable press about the product or insurance industry in general e.g. due to strict claims management and high levels of declined claims.
Consumers may already have, or think they have, disability cover, e.g. from the government or they may have generous employment provisions (or think that they do) which mean that their employer will continue to pay them whilst sick.
Consumers may be completely unaware of the existence of the product, e.g. due to lack of marketing by the industry.
The product design may be too complex. Consumers may prefer lump sum benefits.
The application process may be too lengthy. Consumers may be put off by medical underwriting requirements.
Premiums may appear too high particularly if the country is in an economic downturn and disposable income is reduced. IP insurance may be seen as a "luxury" item rather than a necessity.
Taxation treatment of premiums or benefits may be relatively unfavourable.
There may be cultural differences/barriers to sale.
The market may be saturated.

Most candidates did well on part (i) which is bookwork. In part (ii) several candidates did not explain "the relative levels of cover provided" as asked in the question. Part (iii) was generally well answered.

8 (i) Products will need to be simple since a small business needs cover but probably has limited time to "read the fine-print". The products need to be affordable and tax efficient. All embracing cover is likely to be required, with minimal exclusions.

The business is likely to expect relatively light touch (and thus low cost) underwriting.

The business is likely to wish to swap the uncertainty of pay as you go costs for certainty in costs.

PMI may be provided for employees in order to speed up recovery and return to work but this is likely to be provided for higher earners only.

CI is less likely for a small business as it is more likely to be more popular in larger cafeteria schemes. But there may be opportunities for keyman insurance to cover sickness for particularly important employees whose absence would cause significant loss in profits or additional recruitment costs or it may be used to buy out a sick partner.

IP may be provided in order to speed up recovery and return to work.
May be used to provide locum cover (eg for doctors or dentists partnerships)
Would probably be a simple benefit formula.

LTC very unlikely to be required.

Likely to require some employee contribution.

(ii) The proposal suggests that underwriting and acceptance criteria will have to be significantly relaxed, but that premiums also need to stay acceptably low. The major risks are therefore anti-selection by the "control group" in the small business, in particular, inclusion of bad insurance risks.

Small group business could constitute a wide variety of risks. Niche businesses will be difficult to price. Claims fluctuation is higher for smaller group insurance. Therefore need higher reserves and capital requirements

Some individuals could be particularly high risk (e.g. keyman insurance on the business owner) and a disproportionately large part of the overall insured group.

May experience higher lapse/non-renewal rates due to higher rate of failure of small businesses.

May not be able to obtain reinsurance unless the government also makes this a requirement for reinsurers.

The business may not be profitable for the insurer under the easy access requirements, for example due to disproportionately high expenses / fixed costs.

May need to change distribution methods to those more empathetic to small businesses.

May be more difficult to differentiate from competition; for example, through price or service.

(iii) Seek adequate reinsurance if it is available, e.g. quota share, risk premium or stop loss, to reduce volatility or to provide technical expertise.

Ensure that underwriting is as stringent as it is permitted to be e.g. enforce an "actively at work" requirement or take up at first opportunity or compulsory membership. Have a sensible free cover limit. Introduce exclusions, e.g. PECs.

Good claim control system. Require pre-authorisation for a PMI claim. Use preferred providers to manage PMI costs.

Change the product design; for example, use excesses/ experience sharing, introduce waiting periods and/or longer deferred periods, provide rehabilitation / partial benefits, impose maximum benefit amounts, if permitted, consider limiting conditions for which payments would be made and don't provide guarantees.

Make sure there are clear terms and conditions / documentation

Include adequate loadings in premium for cost of administration and for uncertainties

Ensure that administration processes /systems are efficient. Provide good broker support personnel and good service levels to ensure lapse rates are low.

Pricing advice from consultants/reinsurers

Diversify by region, type of business covered etc

Undertake aggressive marketing to increase volumes of sales

Engage in risk management processes with employers

Lobby the government to ensure precise details work for the insurance industry

Could attempt to subsidise with profits from business with large employers but this would depend on level of competition

In part (i) many candidates did not think about health insurance requirements which are specific to small businesses, but merely named and briefly described all types of health insurance. In general, many candidates did not give enough points in parts (ii) and (iii) to score highly.

END OF EXAMINERS' REPORT