Subject SP7

CMP Upgrade 2018/19

CMP Upgrade

ActEd often produces a free CMP upgrade, which provides details of changes to the syllabus, Core Reading and ActEd materials. This year, however, the large number of changes to the Core Reading, Course Notes, Q&A Bank and X Assignments means that it is not practical to produce a full upgrade.

We offer a full replacement set of up-to-date Course Notes/CMP at a reduced price if you have previously bought the full price Course Notes/CMP respectively in this subject. The prices are given in Section 0 below.

Section 1 of this document provides a summary of the major changes so that you are aware of the main 'themes' of these changes and which chapters have been subject to the greatest change.

0 Reduced price materials

When ordering *reduced price material*, please use the designated place on the order form or tick the relevant box when using the online store.

	Upgrade price
2019 printed CMP for those having previously purchased the Subject ST7 printed CMP directly from ActEd in the last five years	£65
2019 printed Course Notes for those having previously purchased the Subject ST7 printed Course Notes directly from ActEd in the last five years	£49
2019 CMP eBook for those having previously purchased the Subject ST7 CMP eBook directly from ActEd in the last five years	£23
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1 Summary of the changes

1.1 Changes to the syllabus

A new syllabus objective on ‘Solving problems’ (covered in Chapter 4) has been added, as follows:

6.1 Analyse hypothetical examples and scenarios in relation to the financial management of general insurance companies.

6.1.1 Propose solutions and actions that are appropriate to the given context, with justification where required.

6.1.2 Suggest possible reasons why certain actions have been chosen.

6.1.3 Assess the implications of actions within a given scenario.

6.1.4 Discuss the advantages and disadvantages of suggested actions, taking into account different perspectives.

1.2 Changes to the Core Reading and ActEd Course Notes

We recommend that you read the whole of the new version of the Course Notes and Study Guide to ensure that you are familiar with the course. There have been a large number of small changes to the Core Reading and ActEd text and we do not attempt to list all of these small changes here. However, in order to help you focus your preparation we summarise the main changes to the structure and content of the Course Notes below.

Chapter 27 (Regulation) has been moved and is now Chapter 8 (Regulation). As a result, all subsequent chapters have been renumbered (so the old Chapter 8 is now Chapter 9, *etc*). This also means that the Regulation chapter is now in Part 1 of the course and hence students attending tutorials will be expected to have read this chapter before attending Day 1 of the tutorial. All other chapters are in the same Part as they were last year (*ie* the topics in each part are the same, despite the renumbering, with the exception of regulation). All references below are to the old (*ie* 2018) chapter numbers.

In all of the chapters mentioned below, changes have been made to the Core Reading, with consequent changes then being made to the accompanying ActEd text.

- Chapter 3 (Insurance products – types) has a new section on ‘Emerging risks’.
- Chapter 4 has been renamed and significantly rewritten to incorporate new Core Reading on the topic of ‘solving problems’. You can use the replacement Chapter 4 (Problem solving) provided at the end of this upgrade.
- In Chapter 10 (Risk and uncertainty), there have been lots of small changes to the text.
- In Chapter 11 (Data), the section on ‘Data protection’ has been updated to include material on the EU General Data Protection Regulation (GDPR).
- Two new sections have been added to Chapter 14 (Triangulation methods), one on ‘Comparison of results from different methods’ and the other on ‘Recoveries’.

- Three additional stochastic reserving methods have been added to Chapter 15 (Stochastic reserving methods), namely the 'Merz-Wüthrich model', 'Actuary-in-the-box' and the 'emergence pattern method'. A short new section on 'Stochastic reserving in practice' has also been added to the chapter.
- Chapter 20 (Capital modelling – assessment of capital for various risk types): In the section on 'Insurance risk', new Core Reading text has been added to the subsections on 'Gross underwriting risk', 'Gross reserving risk' and 'Net insurance risk'.
- Chapter 23 (Determining appropriate reinsurance): A new section has been added on 'Testing the appropriateness of alternative reinsurance structures'.
- Chapter 24 (Reinsurance reserving): A new subsection on 'Inwards reinstatement premiums' has been added to the section on 'Reserving for inwards reinsurance'. New subsections have been added to the section on 'Reserving for outwards reinsurance'. These include subsections on 'Combinations of methods' and 'Other considerations'. (The 'Other considerations' include 'Outwards reinstatement premiums', 'Losses occurring during *vs* Risks attaching during', 'Indexation clauses' and 'Reinsurance exhaustion'.)
- Some details relating to the IFRS Phase II project have been deleted from Chapter 25 (Accounting methods) and Chapter 26 (Interpreting accounts).
- The definition of 'Part VII transfer' has been deleted from the Glossary and three new definitions have been added, namely 'Bancassurance', 'IMAP' and 'Verticalisation'. A few definitions have been edited. The abbreviations section has also seen a few additions, deletions and edits.

1.3 Changes to the Q&A Bank

There is no longer a Q&A Bank. However, many of the questions have been moved to other parts of the CMP. In particular, each chapter of the Course Notes now has a set of Practice Questions at the end, and many of the questions from the Q&A Bank have been incorporated into the Practice Questions.

1.4 Changes to the X Assignments

We have updated questions and solutions for the changes in the Core Reading and ActEd text. New questions have also been added.

We only accept the current version of assignments for marking, ie those published for the sessions leading to the 2019 exams. If you wish to submit your script for marking but have only an old version, then you can order the current assignments free of charge, but only if you have purchased the same paper in Subject ST7 the previous year (ie sessions leading to the 2018 exams), and have purchased marking for the 2019 session.

2 Other tuition services

In addition to the CMP Upgrade you might find the following services helpful with your study.

2.1 Study material

We also offer the following study material in Subject SP7:

- Flashcards
- Revision Notes
- ASET (ActEd Solutions with Exam Technique)
- Mock Exam.

For further details on ActEd's study materials, please refer to the 2019 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

2.2 Tutorials

We offer the following tutorials in Subject SP7:

- a set of Regular Tutorials (lasting three full days)
- a Block Tutorial (lasting three full days).

For further details on ActEd's tutorials, please refer to our latest *Tuition Bulletin*, which is available from the ActEd website at **www.ActEd.co.uk**.

2.3 Marking

You can have your attempts at any of our assignments or the mock exam marked by ActEd. When marking your scripts, we aim to provide specific advice to improve your chances of success in the exam and to return your scripts as quickly as possible.

For further details on ActEd's marking services, please refer to the 2019 *Student Brochure*, which is available from the ActEd website at **www.ActEd.co.uk**.

2.4 Feedback on the study material

ActEd is always pleased to get feedback from students about any aspect of our study programmes. Please let us know if you have any specific comments (*eg* about certain sections of the notes or particular questions) or general suggestions about how we can improve the study material. We will incorporate as many of your suggestions as we can when we update the course material each year.

If you have any comments on this course please send them by email to **SP7@bpp.com**.

4

Problem solving

Syllabus objectives

6.1 Analyse hypothetical examples and scenarios in relation to the financial management of general insurance companies.

6.1.1 Propose solutions and actions that are appropriate to the given context, with justification where required.

6.1.2 Suggest possible reasons why certain actions have been chosen.

6.1.3 Assess the implications of actions within a given scenario.

6.1.4 Discuss the advantages and disadvantages of suggested actions, taking into account different perspectives.

0 What is expected of candidates?

The ability to look at a problem, solve it and then communicate the results clearly is a very important skill that actuaries need in their day to day work, whichever field they work in. The examiners will test your ability to solve such problems in the exam.

There is no explicit Core Reading for this objective.

Well, actually there is – but it's not technical like it is in the other chapters.

All the material that is covered in the rest of the Core Reading for this subject also covers this objective. The examiners will expect candidates to be able to apply the knowledge and understanding that they have developed through the study of this Core Reading to produce coherent advice and recommendations for the overall management of a general insurer.

Candidates should recognise that the exams will contain scenarios and situations that have not been covered in the Core Reading, in order to test that candidates have understood the material sufficiently to apply their understanding to a new situation. The Subject SP7 exams, however, do not require any knowledge beyond that contained in the Core Reading (although there are often additional marks available for candidates with a broader understanding). In so far as an exam question requires underlying knowledge that is not contained in the Core Reading, this will be provided as part of the question.

Where candidates are preparing for the exam using broader educational materials (for example, as provided by ActEd) which contain both the Core Reading and additional content, we recommend that candidates aim for a greater level of familiarity with the Core Reading elements. Only the Core Reading itself is directly considered by the exam setting team and a higher quality of answer is generally required, particularly on bookwork questions that are directly based on Core Reading. However, the additional content should be of great value in interpreting the Core Reading and understanding ways to apply it.

Candidates will also be expected to solve problems that may be set in novel or unfamiliar circumstances or for which there are no generally recognised solutions by:

- **drawing upon knowledge and understanding of similar products, situations and current issues**
- **applying actuarial techniques and concepts**
- **exercising judgement**
- **utilising the information provided in the question.**

In Section 3, we illustrate how to put these techniques into practice by considering an unusual product which is unlike any of the products you will have seen in Chapters 2 and 3.

Although there is significant overlap in underlying content between this exam and Subject SA3, the level of understanding expected of candidates is different. Candidates are expected to have a solid grasp of the technical aspects of general insurance work and some understanding of the broader commercial, regulatory and operational context; the non-technical elements are the greater focus of Subject SA3.

Broadly, we would expect a passing Subject SP7 candidate to be a mid-senior ranking member of a function team (*eg* reserving, pricing, capital), depending on the size of the organisation, who is able to operate with limited supervision for routine analytical work, but would draw upon more senior expertise for complex or contentious situations.

1 Examples

The problems candidates are expected to tackle may be of a similar level of complexity to:

- **applying standard actuarial techniques to a situation, *eg* triangle projection methods or compiling a balance sheet**
- **working with incomplete, distorted or unreliable historical data and understanding the challenges and implications of this**
- **managing necessary data adjustments for an analysis, *eg* allowing for inflation, exposure, earning distortions or time period issues**
- **applying actuarial insight to a review of data provided in a question to identify any features pertinent to the question, or any anomalies or errors**
- **understanding the different claims characteristics of particular product lines and how they might affect a particular situation**
- **assessing the implications for insurance markets of regulatory changes or proposals**
- **understanding the structure of a capital model and key considerations in its operation and use**
- **evaluating the risks and benefits associated with a proposed venture or strategy**
- **designing a suitable reinsurance structure given an insurer's risk profile and appetite or calculating outcomes for a reinsurance programme.**

These are only some general examples, and past exam papers provide a good indicator of the type of questions that might appear on an exam and how some of the generic questions above might be examined in practice.

2 Exam techniques

Stronger candidates (and indeed the exam setting team itself in generating the marking schedule) will have a set of lists for each element of the course to remind themselves of the points that are worth considering on a particular topic. These lists can be compiled from the Core Reading, past exam papers and sample questions. Candidates can refine the lists every time there is a relevant point that their lists did not pick up.

Where possible, lists should be supplemented by a general toolkit for idea generation that can be applied flexibly to a variety of situations to generate a range of potential points.

The strongest candidates also accompany this with a good understanding of the situation and the underlying concepts, which helps to identify points that are particularly salient, or that are not relevant given the specifics of the way the question is constructed. Although there are no negative marks given for providing incorrect or irrelevant answers, candidates will create unnecessary time pressures for themselves if they do not filter their thoughts to address the questions as set.

Below we provide some suggestions for idea generation or for compilation of useful revision lists:

- **Consider the stakeholders in any situation, for example:**
  - **regulators**
  - **reinsurers**
  - **rating agencies**
  - **customers or claimants**
  - **management**
  - **investors** and/or shareholders
  - **brokers**
  - underwriters
  - competitors.
- **Consider the different functions within an insurance company which form a necessary part of the infrastructure for any product or company to be effective, for example:**
  - **claims** handling and reserving
  - **finance**
  - **underwriting** and pricing
  - **sales and marketing**
  - **risk**
  - **compliance**
  - **IT and Operations**
  - **data and management information**
  - capital modelling
  - reinsurance purchasing.

- **Visualise what is actually going on, for example:**
  - **what a policyholder actually does**
  - **what they are buying a policy for**
  - **what the real world event is that triggers a claim**
  - **how a claim is assessed and resolved *etc*.**

  Doing this as part of revision will help with the generation of examples.
- **Think what is likely to go wrong in practice; some of the questions you may ask yourself are:**
  - **Is there data?**
  - **Is it of adequate quality?**
  - **Is it representative?**
  - **Can you get it out of the IT systems or process it?**
  - **Are other stakeholders or colleagues being honest with you (or with themselves)?**
  - **Are there political constraints that will mean the analysis isn't considered fairly?**
  - **Will your competitors or the regulators change the environment before you can respond?**
- Use your knowledge of the Core Reading and any professional guidance.
- Consider each of the areas of the course or use a 'mega-list' of all the key words in the course.
- Consider the steps involved in a process.
- Consider the actuarial control cycle.
- Use the clues in the question, and do a quick brainstorm of each detail.
- Use ideas from your own experience (but avoid the temptation to go over the top if you know a lot of detail about a particular subject).
- Use ideas from similar questions (but make sure that you tailor them to the question being asked).
- Ask yourself questions such as: why, when, who, how, what for, *etc.*

The above is by no means exhaustive nor necessarily the best framework for all candidates, but it is helpful to develop some form of toolkit for idea generation. Candidates can also evolve and enhance that toolkit by working through practice questions, and for any points on the marking schedule that they didn't think of, trying to identify a transferable question they could have asked themselves which would have led to that point. This is most effective if attempting the question under exam conditions, as many points which seem obvious on reading a solution may not have been generated under exam conditions.

Candidates should also try to avoid thinking of questions as being confined to one topic area, such as reserving, or capital, as this may lead to a lack of confidence in answering questions they perceive to be outside their area of professional experience. These traditional practice areas are just purposes to which an actuary's understanding and judgment can be applied.

If a candidate has a good understanding of the underlying product and of the practical operation of an insurance company, they should be able to apply this to a variety of purposes, and there is in any case significant overlap. Data issues, for example, will create challenges in every area, and the same risk and uncertainty characteristics that a pricing model would seek to capture with rating factors can lead to large loss or late development characteristics that create reserving challenges, or to volatility and uncertainty issues that need to be reflected in a capital model.

It is always useful, however, for candidates to engage with colleagues working in a different practice area to understand their perspectives on the same underlying portfolios, for their own professional effectiveness as well as for exam preparation.

The Examiners' Reports also contain a significant level of recurring advice for each subject (most notably a strong recommendation to make sure that you read the question properly). For each paper, they also highlight the mistakes commonly made by candidates on each question, which should be of use in avoiding similar errors when sitting the exam in future. We recommend that candidates read this.

3 Tackling an unusual product

3.1 Unusual classes of business

The Subject ST7 exam, the predecessor to Subject SP7, quite frequently covered unusual or specialist classes of business, many of which only get a passing mention in the Core Reading, if at all. Some notable examples include:

- sports injury insurance
- crop and hail insurance
- livestock insurance
- cyber-risk insurance
- insurance for a school fundraising game
- utility price increase insurance
- negative equity insurance
- gap motor insurance *etc*.

It would take you months to read up on every conceivable type of insurance cover, and we don't suggest you try. When very unusual or innovative products are examined, the cover provided by the product is usually described in the question.

You can find even more examples of questions on unusual general insurance products by looking through past exam questions for Subjects ST3, ST8 and SA3. These questions could easily be adapted to make future Subject SP7 exam questions.

The purpose of this section is to enable you to:

- apply the principles covered in Chapters 2 and 3 to think of perils, risk factors and claims characteristics for an unusual product
- recognise when these claims characteristics are relevant for reserving and/or capital modelling.

Section 3.2 below covers a (very) unusual product by way of a question. To get the most from this section you should attempt the question yourself before looking at our ideas.

3.2 Question

The National Football League is about to be rocked by a breakaway of the biggest 22 clubs. They are going to form their own Ultimate League, with substantial extra finance promised to them by a consortium of cable and satellite TV companies. At the end of each season the bottom three clubs in the Ultimate League will be demoted to the top division of the remaining Football League and replaced by the three teams who have finished at the top of that division.

The chief executives of the 22 prospective breakaway clubs have approached the large general insurance company that you work for. They are seeking to negotiate a new form of insurance for the clubs against the risk of demotion from the Ultimate League to the (impoverished) Football League, in which their share of the money from television fees is likely to be minimal.

A student actuary who is very keen on football has provided you with the following background information:

'There is a reasonably clear hierarchy of football clubs. The big ones (like Bigclub United, AC Winsagain and Yeovil Town) have been winning trophies for years, while others of the breakaway clubs (like Notsogood United, Real Trouble and Manchester City) are expected to struggle in the new regime. Football is a funny old game though, and these expectations may not be fulfilled. At the end of the day it's just eleven players against eleven players, after all.'

You have been asked to prepare a report for the directors of your company on this proposed new form of insurance.

Read the question

Reading the question carefully is an important skill that you must develop. As you read, you may find it helpful to underline key words and annotate the question paper, or rough paper, with your ideas. (If this seems a touch patronising we apologise, but a slightly different style is required for the later exams and for some students this could be their first attempt at one of the later subjects.) Having read it quickly a few moments ago, go back to the question again now before reading our thoughts on the question, which are given below.

Thoughts on the information given

'The National Football League is about to be rocked by a breakaway of the biggest 22 clubs. They are going to form their own Ultimate League, with substantial extra finance promised to them by a consortium of cable and satellite TV companies. At the end of each season the bottom three clubs in the Ultimate League will be demoted to the top division of the remaining Football League and replaced by the three teams who have finished at the top of that division.'

- Note that 3 teams from 22 are demoted each season. All other things being equal this would imply a claim probability of 3/22.
- *'Substantial extra finance'* means that any club demoted will lose significant revenue for the following year.
- Can these TV fees be predicted at the start of the season?
- Is there a schedule of who will be on TV and when, or would we need an end of year adjustment to reflect actual exposure?
- Do all clubs get an equal share of the fees or do some get more than others?

'The chief executives of the 22 prospective breakaway clubs have approached the large general insurance company that you work for. They are seeking to negotiate a new form of insurance for the clubs against the risk of demotion from the Ultimate League to the (impoverished) Football League, in which their share of the money from television fees is likely to be minimal.'

- Note that your company is *large*. This may mean that you have the resources available to consider such a one-off arrangement. On the other hand, it may mean that you are not interested in odd one-off arrangements that will presumably imply considerable per policy expenses. Conversely, there may be prestige and free publicity in being involved with the project.
- Note this is a *new* form of insurance. This means there is no direct historical data to use. However we could consider league positions in the previous season as some indication of the likelihood of demotion this season.
- We need to decide what form the new insurance will take.
- This is a niche market with a maximum of 22 policies per annum. We would want to know how many clubs will take out the cover.

'There is a reasonably clear hierarchy of football clubs. The big ones (like Bigclub United, AC Winsagain and Yeovil Town) have been winning trophies for years, while others of the breakaway clubs (like Notsogood City, Real Trouble and Manchester City) are expected to struggle in the new regime. Football is a funny old game though, and these expectations may not be fulfilled. At the end of the day it's just eleven players against eleven players, after all.'

- There is clearly a difference in the likelihood of demotion between the big clubs and some of the others likely to struggle. This would imply that we cannot just treat all clubs as equals.
- A probable assumption, in the absence of better information, is that the big clubs appear on TV more often and get a higher share of the money than the smaller clubs.

Now try some structured thinking

So far, all you have done is read the question, think about it and annotate the question paper. But note how many initial points have been raised. The next stage is to do some more structured thinking about the question. There are a number of valid approaches. The order in which you apply them is not important.

Ask yourself as many basic generic questions as you can sensibly devise about the product described. Then try to answer them.

(a) Questions about the cover to be provided

- Who is covered?
- What perils are to be covered?
- When does the cover apply, and when does it cease?
- Why should the club purchase cover?
- Are there any exclusions that should be applied?
- What is the sum insured?
- Are we providing indemnity cover?
- Do we want to impose a maximum amount of cover?

Comments

Football clubs are to be indemnified against potential loss of TV fees following demotion.

The cover should be purchased before the start of the season, so a cut-off date may be appropriate. The sum insured should be limited to a percentage, perhaps 100%, of the current year's fees.

The insurer needs to decide whether the claim period should be for one year only or if claims payments should be made until the club regains promotion. The former is likely to be the only option acceptable to the insurer. The latter option is too uncertain and open-ended. The risk to the insurer is likely to be perceived as too large. There would also be the concern that the club would have no incentive to regain promotion to the Ultimate League. This is an example of potential moral hazard.

It may well be desirable to place a monetary maximum on the amount of cover provided. This could provide protection against one of the big clubs, with a large share of the fees, being demoted. This is an example of how the insurer could limit its exposure to large claims and control the risks it writes.

(b) Questions about the method of sale

- What is our distribution method and target market?
- What commission is payable?
- What likely business volumes can we expect?
- Can we provide a bundled package of cover for other insurance too?
- What implications are there for administration and computer systems?

Comments

The target market is clearly defined here as the 22 clubs of the Ultimate League. There is no guarantee that all clubs will take out the cover, or that we are the only insurer that has been approached to provide cover. Hence, our potential sales volume ranges from 0 to 22 policies.

(c) Questions on modelling the business

- What factors will most influence claim frequency / severity?
- Can these be incorporated into a reserving model or will we have to use more aggregation within our groupings?
- What data should we collect?
- What are the key sources of claims uncertainty?
- Will there be correlations with other classes of business, or with other risk types?
- When will claims occur?
- How will claims be assessed?
- Is there potential for disputes?

Comments

The size of TV fees will be a key factor to model. The exact amount of TV fees lost due to demotion may not be known until the end of the following season, so the insurer will need to estimate the amount of TV exposure as well any inflation in TV fees. The initial estimate could be based on last season's share of the TV money.

With only 22 clubs in the breakaway league, there will be insufficient data for a detailed statistical analysis, so very few groupings will be used.

Data from other leagues could be collected though, *eg* to estimate transition rates from one league to another.

Alternatively a more detailed (and probably more subjective) analysis could incorporate sources of demotion risk, *eg*:

- poor performance
- injuries
- lack of finance
- poor management
- the sale of good players.

Note that the last item is an example of possible moral hazard against the insurer, which will:

- lead to increased risk of disputes
- be particularly difficult to model.

Claim amounts will also probably depend on:

- the share of TV fees – this will be commercially sensitive, but clubs are likely to be willing to provide it under confidentiality agreements
- the number of TV appearances in the Football League compared to the Ultimate League – this information is unlikely to be available at first but the insurer may be able to collect useful industry data over time
- the number of seasons the demoted team remains in the Football League (if cover is provided until the club regains promotion) – so the insurer should consider:
  - an individual club's past experience, *eg* its position last year, as this affects the likelihood of a claim
  - the results of a Markov chain model to estimate the likelihood of being promoted, based on industry data.

Premiums will all be earned on the same date, since clubs will be demoted at the end of the season, so:

- reserves should not be released until before the end of the season
- there will be increased correlations between insurance risk and liquidity risk, since several clubs may claim at the same time.

(d) Questions about the possible claim profile

- What is the likely claim frequency and average amount?
- What sort of reporting and settlement delays do we expect?
- Is this a long- or short-tailed class of business?
- Are claims fixed or unlimited?
- What potential is there for large claims or accumulations?
- Do we need to purchase any reinsurance protection?
- What investigations are we able to carry out?
- What potential is there for selection against the insurer?
- Is there any potential for moral hazard?

Comments

Depending on the number of policies sold, the claim frequency suffered by the insurer could be anything between 0% and 100%.

Claim amounts, assuming we limit indemnity to only one season's loss of fees, will be no higher than that of the largest club. We could reduce this amount further by imposing a monetary maximum.

Delays should be short. Teams will soon know when they have been demoted. Indeed, we may well be aware that this is likely several matches before the end of the season. Settlement delays should also be short. Hence this will be a short-tailed insurance product.

There is potential for very poor experience. We may only sell three policies, and all three clubs may be demoted. The insurer could use some form of non-proportional reinsurance to protect itself from this risk. There is a risk that only the clubs likely to be demoted take out cover; the insurer should consider how it can avoid being selected against.

Question

The chief executive designate of the Ultimate League Executives is also, coincidentally, a director of your company. They have unofficially proffered the following additional information:

(a) Taking out this insurance might be made compulsory for all clubs as a condition of joining the Ultimate League.

(b) Given the poor international record of the National Football team, there is a growing opinion amongst some of the players, managers and tabloid press in favour of a smaller league. There may, as a result, be a gradual reduction in the size of the Ultimate league from 22 to, say, 18 clubs over four seasons.

Comment on the implications for the insurance company of these options in turn, assuming that all other details of the new form of insurance are agreed between the company and the chief executives.

Solution

(a) The big concern about selection is much reduced if all clubs have to take out this insurance. However, we do not know if the cover is compulsory with this insurer, or whether it has competition. If we have competition we may still be faced with the situation of insuring three clubs and seeing them all relegated. Alternatively, if we are insuring all 22 clubs we know that the claim frequency will be 3/22. The only uncertainty for the insurer will be the claim amounts.

(b) We will need to know how this is to be accomplished, *eg* it could be by demoting three and promoting two clubs, or demoting four clubs and promoting three for a period of years. We should assess whether the expected claim frequency would be 3/18 if we insured all clubs. At first glance it might be assumed that there is no effect on potential claim amounts. However, if the same pot of money is to be shared amongst 18 rather than 22 clubs then average claim amounts could increase.

Other valid approaches you could use to generate ideas here are:

- Working from a checklist of ideas, to check that you have not missed a possible different angle.
- Role playing. Imagine you are trying to set the reserves for this business. Think about the questions you would want answers to, and ways in which the insurer could be selected against. Alternatively, imagine you are the football club and think about your insurance needs or things you might do for your own benefit.

What we have set out here is far more than you might expect to generate on the basis of what you have seen so far. However, it does highlight the sort of thought processes required for the exam.

The task, then, is to present the ideas generated in the time allowed, and in a suitable form for the examiner. This is a skill that you need to practise on Assignments, Exam questions and past paper questions. Try to devise new forms of insurance, then think about how you would make them work, what the perils are, how you would model them, *etc …*

4 Suggested reading

We do not make any specific recommendations for additional reading for Subject SP7, and as noted at the beginning of this chapter there is no need for any additional knowledge beyond that contained in the Core Reading. There is a significant volume of information available online for any candidates who wish to carry out further reading but we would always recommend that candidates prioritise doing extensive practice on past exam papers and sample questions, ideally under exam conditions as far as is practical.

Chapter 4 Practice Questions

4.1 You are an actuary working for a large general insurance company who writes a large range of personal lines products. The company is looking to move into the pet insurance market writing a product that covers domestic cats and dogs. You have been asked by the personal lines director, who knows very little about this product, to write a report on the product features of pet insurance, and the considerations to be made in designing the product.

Exam style

Outline the points you would make in your report. [9]

4.2 A general insurance company writes commercial property insurance in a small country. Up until now, the sale of alcohol in this country has been strictly controlled by the State. As a result, all of the country's pubs and bars were State-owned, with any risks being borne by the State (*ie* they were self-insured).

Exam style

Regulation is about to change, and so private individuals (known as landlords) will be allowed to run pubs and bars. Your company is considering insuring these landlords.

(i) Describe the particular risks to the insurer of writing this type of business. [9]

(ii) Outline the restrictions and exclusions the insurer might place on the cover. [4]
[Total 13]

4.3 Describe the characteristics of the liabilities arising for an insurer writing travel insurance business.

The solutions start on the next page so that you can
separate the questions and solutions.

Chapter 4 Solutions

4.1 Consideration should be given to the benefit provided, any maximum levels of benefits, and any indexation of these benefit levels. [1]

Benefits might include:

- vets fees, which may be capped at a maximum amount per year, per illness or per treatment [½]
- hospital benefits, which may be capped at a maximum total amount, or a maximum stay in hospital [½]
- death benefit (for death by accident or illness up to a certain age), which should cover the value of the pet, up to a maximum value [½]
- loss benefit, which should cover the value of the pet, up to a maximum value [½]
- advertisement costs if the animal goes missing [½]
- kennel fees if the owner is hospitalised [½]
- quarantine costs [½]
- liability cover if the pet attacks a third party [½]
- liability cover if the pet damages property. [½]

There may be different bands of benefit. [½]

Bearing in mind the benefits provided, it would be necessary to consider the perils that are likely to be insured. [½]

The period of cover of the contract may be one year (so that it is an annually renewable product) or a single premium contract covering the pet over its lifetime. [1]

Terms and conditions would need to be clearly defined. [½]

The terms and conditions of the product may include:

- the level of excess (if any), which may be a fixed amount, or a percentage of the claim [½]
- exclusions, *eg*:
  - certain routine treatments and vaccinations [½]
  - any pre-existing conditions [½]
  - certain breeds [½]
  - certain uses of pet [½]
  - claims resulting from incidents outside of certain geographical limits [½]
  - war / nuclear risks [½]
- eligibility criteria, such as minimum and maximum age at entry [½]
- any cancellation terms under the policy. [½]

In determining benefit levels, terms and conditions, customer needs would need to be considered. [½]

It may be necessary to offer different products through different distribution channels. [½]
[Maximum 9]

4.2 (i) ***Particular risks***

There is likely to be a lack of claims data available with which to accurately price the product. Even if the State could provide statistics on claims this is unlikely to be sufficiently detailed or relevant for this purpose, particularly given this is a small country. [1]

Volumes of business will be uncertain. It will be difficult to predict how many people will own pubs, and hence require this type of insurance. Competition from other insurers will also be a very relevant factor here. [1]

It will be difficult to predict the mix of business – *eg* by type of pub or location – the insurer will be undertaking. [½]

The insurer will have little experience in knowing what underwriting and rating factors to ask for and use (and to what extent), which may leave it open to undesirable risks and anti-selection. [1]

As there have not been any similar products in the market it will be difficult to establish clear and appropriate policy conditions (including exclusions). This may result in payment of claims that are not intended (or may lead to low sales volumes). [1]

Claim sizes at any one time could be very variable – for example, some liability claims (*eg* as a result of a serious injury) could be large. [½]

Also, claims may be very volatile over time – for example, there may be the occasional serious fire leading to total damage to the property (and many liability claims). [½]

The volatility and variability of claims is made worse because the country is small, and so experience will be limited. [½]

There will be uncertainty over the public's attitude to claiming. For example, there may be an increasing number of members of the public suing the pubs for accidents occurring on the premises, leading to an increase in liability claims. [1]

Crime rates will be uncertain. This will, for example, affect claims for arson and theft. [½]

The attitude of landlords to claiming is uncertain. For example, fraudulent claims may be an issue (*eg* a new pub fails to make money, and so the landlord makes false or exaggerated insurance claims to make up the loss). [1]

The impact of legislation may be uncertain. The government is likely to enforce controls on these new pubs (*eg* restrictions on opening hours), which are likely to change as the situation develops. [1]

Uncertainty over economic conditions is another source of risk. This may affect sales volumes (and renewals), as people are less likely to want to run pubs (and afford insurance premiums) in times of economic depression. [½]

Possible accumulations of risk may arise, *eg* if the pubs insured are all in a similar location (it is a small country). [½]

Reinsurance may not be available or may not be offered at a suitable price (*eg* liability cover may be scarce or expensive). [½]

[Maximum 9]

(ii) ***Restrictions and exclusions***

The insurer might decide not to cover certain properties, if these represent an unacceptable level of risk for the insurer. [½]

For example:

- buildings with flammable materials, *eg* pubs with thatched roofs [½]
- buildings in high-risk locations, such as on river banks (flooding risks). [½]

The following exclusions might also apply:

- any deliberate loss, such as arson initiated by the landlord
- situations where the policyholder has not taken reasonable steps to prevent the loss (*eg* a break-in where security measures have not been activated)
- liability which is the fault of a third party
- loss arising as a result of war, terrorism and similar risks
- loss arising from illegal or criminal activity
- loss or theft where the police have not been informed
- loss or theft of cash (and other items that would be difficult to verify)
- costs below a specified excess level or above a specified policy limit. [½ each]

[Maximum 4]

4.3 This is a short-tail class consisting of property damage claims (*eg* for lost luggage) and medical expense claims.

The claims are mainly small in size, although some medical expense claims can be substantial.

Property damage claims tend to be linked to price inflation. Medical expense claims are linked to the increase in medical costs over time (which tends to be higher than price inflation).

The majority of property damage claims are likely to be settled in the domestic currency after the policyholder returns from the destination, but some property damage claims and the medical expense claims will need to be settled in an overseas currency.

Note that travel insurance is not an unusual product in practice. However, since the Core Reading does not discuss this class of business in detail, this is an ideal opportunity to practice the skills discussed in this chapter.