

INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2019 Examinations

Subject CP3 – Communications Practice

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.

Mike Hammer
Chair of the Board of Examiners
July 2019

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

Subject CP3 consists of two parts as follows:

1. Written communication (90 marks)

Produce a written piece of communication that explains a scenario typically faced by an actuary in their day to day work. This communication will be aimed at a non-actuary, although the target audience's level of financial knowledge and understanding will vary from question to question.

The communication needs to be of a standard that it would be acceptable as a first draft. It is important that the recipient would both understand the communication and be satisfied with the response. The marking schedules include details of the marks awarded for including the necessary content. To the extent that it makes the communication unclear or confusing for the audience, marks may also be lost for including irrelevant content or details that candidates have specifically been asked to exclude from their solution.

2. Reflective questions (10 marks)

A set of questions designed to allow students to consider the approach that they took in their communication and justify certain decisions. For example, students may be asked what information they felt was relevant for this audience, or which terms they specifically excluded because they would constitute jargon.

Students are provided with some background reading a few days before the exam (the Scenario Material) to allow them to familiarise themselves with the scenario without being under exam conditions. Students are expected to read the information provided, but are not required to do any further reading or research around the scenario.

B. Comments on student performance in this diet of the examination

Students were asked to draft a paper for the Trustees of a pension scheme explaining an error in the valuation results that had been previously presented. Well-drafted responses contained the following characteristics:

- An apology for the error, and no attempt to make excuses or tone down the significance of that error.
- A clear explanation of the error and its impact without going into too much technical detail around the coding of the valuation model.
- A table presenting the corrected valuation results in the same format as the previous valuation report.

The Trustees, who have responsibility for performance and administration of the pension scheme, will have some financial knowledge, but more specialist actuarial concepts should be explained. The extracts from the valuation report in the scenario material should give a reasonable indication of the level of understanding that can be assumed. For example, the term 'liabilities' is used without explanation, but while an analysis of surplus is presented in the valuation report, the concept is explained rather than using the term 'analysis of surplus'.

Students generally scored well on the basic drafting skills, such as addressing the paper correctly and splitting it into an appropriate number of sections. A number of students lost marks for including irrelevant content. For example, a full restatement and explanation of the analysis of surplus is not needed because it does not aid the trustees understanding of the error and its impact.

Students who scored poorly on the visual aids section generally tried to include a graph to present the valuation results rather than a table. Where data needs to be presented in a CP3 exam, students should consider carefully in what format the audience would most easily understand this. Trustees are used to seeing a valuation results table, and any other form of presentation is going to make it harder for them to assess the impact of the error quickly. This issue was also reflected in discussing the approach to visual aids in question two, with students making statements such as 'I included a graph to add variety', seemingly implying that the purpose of the paper was to entertain the trustees, rather than soberly outline an error and its ramifications.

The length of students' answers was generally appropriate, and any indication on length given in the question should be taken as an approximate guide rather than a rigid instruction. There is no need for students to include a word count on their scripts. The quality of the explanation of the error varied a lot between different scripts. Enough detail should be included to ensure that the Trustees are confident that they understand the source of the error. This will enable them to have confidence that it has been appropriately addressed.

Students are often using their own names when signing off the paper. While this will never lead to the loss of marks, it is easier to ensure that scripts remain anonymous through the marking process if the names provided in the question are used.

C. Pass Mark

The Pass Mark for this exam was 58.

Example Solution

Below is an example solution which would be considered a pass by the examiners. Note however, that this is not intended to be a perfect solution.

1 Introduction

This paper has been prepared by Chris Actuary and is addressed to the Trustees of the Dunforth Pension Scheme ('the Scheme'). It is intended to give the background to an error that has been found in the valuation of the Scheme as at 31 October 2018. Below is a description of the error, together with a summary of the revised valuation results.

It should be noted that the correction has increased the deficit in the Scheme, which in turn has increased the contributions that are required from the sponsoring employer to eliminate this deficit. Further details are in section three below.

This issue will be discussed further at the next Trustee meeting, where the Scheme's actuary, Ruth Postlethwaite, will be happy to answer any questions and address any concerns.

2 Description of the error

When completing our final checks on the valuation of the Scheme, we identified an error in the way the data on marital status had been used in the calculations. This error underestimated the proportion of members who are likely to have a spouse, and overestimated the number of single members. When a member dies leaving a spouse a proportion of their pension will continue to be paid to that spouse until their death. This means that the Scheme pays more pension payments in respect of married members than single members on average. If the number of married members is understated, and the number of single members is overstated, then the scheme's liabilities will be understated, because the number of expected pension payments will have been underestimated.

In 2015 a survey was issued to pensioners asking for their marital status. A significant number responded, and this data was recorded to increase the accuracy of future valuations. Where we have data for a particular pensioner, our standard approach is to use it in the valuation. However, we do not have information on the marital status of all pensioners or for any deferred members. Where we do not know the marital status we make an assumption about the proportion of these members that are married. We calculate this assumption from the data that we collected from the survey. If 70% of the survey respondents were married then we will assume that 70% of those for whom we do not know the marital status are married.

Unfortunately an error in the valuation software meant that some pensioners who did not respond to the survey were classified as single. This has two key implications:

1. For the members who were wrongly classified as single, the calculated value of their benefits was too low. This is because some of these members will be married and the

liability associated with married members is higher than the corresponding liability for single members due to the additional spouse’s benefit payable.

2. Where we do not know the marital status an assumption is made based on the survey results. This assumption – and therefore the liability in respect of these members – was too low. This is because there were too many people classified as single in our calculation, and so the ratio of married to single members, was too low.

This error was also present in the 2015 Valuation, however, in this paper we have concentrated on the 2018 impact only. This error has now been corrected, and the results of the valuation have been recalculated.

3 Updated valuation results

Before the correction of the error the proportion of members without a known marital status who were assumed to leave a spouse on their death was 67%. Following the correction, this assumption is now 80%. The table below shows the corrected valuation results.

| \$'million | 31 October 2018 Corrected | 31 October 2018 As shown in valuation report | 31 October 2015 |
|-----------------------|------------------------------|--|-----------------|
| Deferred pensioners | 570 | 549 | 503 |
| Pensioners in payment | 626 | 603 | 516 |
| Total liability | 1,196 | 1,152 | 1,019 |
| Assets | 916 | 916 | 831 |
| Surplus / (Deficit) | (280) | (236) | (188) |
| Funding level | 77% | 80% | 82% |

The correction has increased the deficit by \$44 million and reduced the funding level by 3%. As a result of the increase in deficit, higher contributions will be required by the sponsoring employer to ensure the deficit is paid off within ten years. We calculate that the new contributions will need to be \$34 million per annum. This is an increase in annual contributions of \$5 million compared to the figures quoted previously.

4 Accuracy of the Valuation

We would like to apologise that this error went unspotted for so long, and to reassure the Trustees of the accuracy of the valuation results that have now been presented. Following the discovery of the error we have checked the calculations thoroughly, and calculated the results again by an independent method. We have also reviewed our checking procedures to ensure that mistakes of this nature will be addressed before the results are issued. If you have any further questions we would be happy to discuss them in the trustee meeting.

5 Summary

An error has been discovered in the valuation of the Dunforth Pension Scheme. The proportion of members who are expected to have a surviving spouse entitled to spouses’ benefits was understated, and therefore the liabilities were understated. The deficit as at 31

March 2018 was recalculated at \$280 million. To eliminate the deficit over a period of ten years, the annual contributions have now risen to \$34 million.

Signed
Chris Actuary

Mark Scheme

Q1

Format of answer

Paper format

| | |
|---|---------|
| Clearly addressed to the Trustees | [1] |
| Suitable title for paper – clear reference to the fact that there has been a correction | [1] |
| Date, author (either Kate or Chris is acceptable), addressed in appropriate places | [1] |
| | [Max 3] |

Planning and presentation (Up to 12 marks)

Grouping of ideas

- Document is grouped into an appropriate number of sections (excluding introduction and summary). Award 2 marks if 3–6 sections, 1 mark if 2 or 7 sections, otherwise 0 marks. [2]

Logical order of points

- Logical order between sections. When awarding marks here, consider the overall heading and purpose of the section rather than the content within it. If read once and clear then 2 marks, if needed to re-read parts then 1 mark, otherwise 0 marks. [2]
- Logical order of points within each section. When awarding marks here consider the order of points within each section. If read once and clear then 3 marks, if one section needed to be re-read then 2–1 marks, otherwise 0 marks. [3]
- Points within each section are directly relevant to the heading. [1]

Appropriate short headings on each section

- Give a mark to each appropriate heading up to 2 marks in total. Long headings or headings that don't succinctly describe what follows don't get a mark. [2]

Sentences kept brief

- Award 2 marks if there are no overly long sentences. Award 1 mark if there is one overly long sentence. If more than one overly long sentence, award 0 marks. The principle is that a sentence containing more than one message or too many sub-clauses is too long, or, if spoken, needs repeated breaks to articulate. [2]

[Max 12]

Format of visual aids (Up to 5 marks)

- Table of results laid out in same format as in valuation report – 5 marks. Alternative presentation of valuation results which still makes them clear. (This should be a table, or possibly a graph that includes data labels with the key figures, but a graph with no data labels is not acceptable.) – 2 marks. Confusing presentation – 0 marks. [5]

[Total 20]

Language used

Overall language

- Language used is simple and will be easily understood by the trustees. Award: 5 marks if the document is understandable as a whole, 4–3 marks if up to two points need to be redrafted, 2–1 marks if three to four points or one section needs to be redrafted, 0 marks if more than four points or more than one section needs to be redrafted [5]
 - Professional tone (avoid comments which “talk down” to the trustees, or comments aim to minimise the perception of the error). [1]
 - Avoid colloquialisms, informal and/or emotive language. [1]
- [Max 7]

Jargon and terminology (Up to 12 marks)

- Absence of technical terms. Award 4 marks if there are no terms present which are too technical for the recipient. Award 2 marks if there is one unexplained technical term. If there are two or more unexplained technical terms, award 0 marks. A list of jargon terms is supplied below which will include unnecessary technical terms where a simpler term exists, terms and/or abbreviations which may be acceptable but are unexplained. [4]
- Superfluous accuracy of numbers (such as too many decimal places) is avoided. Award 3 marks if all numbers quoted use an appropriate level of accuracy. Award 2–1 marks if up to two numbers quoted in the text or up to six numbers in a table have been quoted with excessive accuracy. If more numbers have been quoted with excessive accuracy award 0 marks. [3]
- Absence of irrelevant points of content. Award 5 marks if no irrelevancies, award 3 marks if one irrelevant point, 1 mark if two irrelevant points. If more than two irrelevant points award 0 marks.

Examples of irrelevant points include:

- Too much detail on the 2015 Valuation
- Too much detail on the movements between the 2015 valuation and the 2018 valuation
- Details about the coding (e.g. the codes used for different marital statuses)
- Advice outside of the scope of the error (e.g. other ways to improve the funding level)
- The impact of being married on mortality
- Details on the valuation assumptions or data (except the proportion married)
- The benefit structure of the pension scheme (except the spouse benefits) [5]

[Max 12]

Grammar, spelling and punctuation (Up to 3 marks)

- Award 3 marks if no significant grammatical, spelling or punctuation errors, 2 marks if one error, 1 mark if two errors. Award 0 marks if more than two errors. Each “error” should be significant enough to compromise the professionalism of the document or require sections to be redrafted. [3]

[Total 22]

Content

Marks shown are to be awarded for each item of content identified in the candidate's answer. To be credited with the mark(s) the point needs to be clear and understandable. However, points that require only minor adjustment should be credited.

Markers should use discretion when there is more than one mark for a point, awarding part marks to reflect the level of clarity. Markers should also use their discretion when considering clarity to ensure that, for example, candidates who cover most of the content items, but not very clearly, are still given some credit, rather than penalised for every point made. Half marks are acceptable.

Introduction

- Makes it transparent that there has been an error [3]
 - Correction has increased the liabilities (or deficit) [2]
 - ...and therefore increased the contributions required [2]
 - Will be discussed in detail at the trustee meeting [1]
- [Max 8]

Description of the error

- Clear that error is in the interpretation of the marital status data [2]
 - Clear explanation of relationship between marital status and liability (i.e. that on average more pension payments are likely to be paid to a married member than a single member because a pension will continue to be paid to the spouse on the married member's death. All else being equal, a married member will have a higher liability than a single member) [3]
 - Explanation of method of setting marital status:
 - Use known status based on 2015 survey where this is available [2]
 - Use the data from the 2015 survey (i.e. number of married vs number of single from the survey answers) to set assumption for the proportion of member we expect to be married. Use this assumption for those member for whom we do not know the marital status. [2]
 - Due to error, some pensioners classed as single where actually we do not know their marital status [1]
 - Two impacts of this:
 - Pensioners who were incorrectly classified as single have some probability of being married and therefore should have a higher liability. This is because a member with unknown marital status has a higher liability than a member with a known single marital status. [2]
 - The assumption for the proportion of member who are married where we do not know their marital status was incorrect, because it counted too many members as single when looking at the split between single and married members in the scheme. [2]
- [Max 14]

Updated results

- Restatement of assumption for percentage married [2]
- Updated table of results [1]
- Clear statement of change in deficit before and after error – [1]
- And of the change in funding level [1]

- Clear statement of updated contributions – [1]
 - And change in contributions from previously stated [1]
 - Statement confirming that there is no need to correct the contributions paid since the 2015 Valuation. [1]
- [Max 8]

Accuracy of the valuation

- Apology for the error that appears sincere – i.e. does not try to justify it [2]
 - Reassurance on the accuracy of the valuation results including a clear statement about why the trustees should now trust them. [2]
 - Statement about updated checking procedures to ensure similar errors do not happen again. [2]
- [Max 6]

Summary

- Reconfirmation of the error [2]
 - Briefly restate the key updated results – deficit and contributions needed [2]
- [Max 4]

[Total 40]

Meeting of objectives

The trustees are likely to be satisfied with the answer.

For guidelines see below.

[Max 8]

Q2

a) Correct tone

- Transparent that there was an error [1]
 - No excuses [½]
 - Clear title saying either error or correction [½]
 - Clear description of error [½]
 - Clearly outline effect of error on the results and highlight the difference between these results and those presented previously [1]
 - Apologise for the error in a contrite way [1]
 - Statements to reassure the trustees as to the accuracy of the figures now presented [1]
 - Happy to discuss any concerns [½]
- [Max 6]

b) Jargon (Two examples required, 1 mark each)

Markers should look for valid examples of jargon (see jargon list) and award half a mark for the jargon and half a mark for the explanation of why it is jargon for that audience. Note that to gain a mark the jargon should have been excluded because it was jargon, rather than because it was irrelevant. For example, 'first principles' should be excluded as jargon, and rather a student might write 'we have independently calculated the results'. However, 'mortality improvement factor' may be jargon for the audience, but is irrelevant to the paper that the student is drafting, and therefore is not an acceptable answer for this question.

[Max 2]

- c) Visual Aids
- | | |
|---|-----|
| Presented figures in same format as valuation report... | [1] |
| ...to make the figures as comparable as possible | [½] |
| Did not use charts because they would have added unnecessary complication | [½] |
- [Max 2]

[Total 10]

Jargon List

Usually Jargon:

- Algorithm
- Mapping
- Coding
- Modelling / model
- First principles
- Reran (as in a model)
- Revaluation
- Analysis of surplus

May be Jargon:

- Valuation system
- The deferreds
- Material error
- Data audit

Not Jargon:

- Assets
- Liability
- Surplus /Deficit
- Members
- Proportion
- Deferred pension

Guidelines for Meeting of Objectives

Trustees are satisfied

The trustees will be completely satisfied with the response to the question and the responder has made a good impression on the trustees.

The communicated answer is clear and easy to read, the response flows through to a conclusion. It looks good, it is well set out, and it has the right tone of voice. It satisfactorily and completely answers the question. The responder has made a good impression on the trustees. [6-8]

The trustees are left with some question marks over the responder, and therefore over aspects of the answer given.

The trustees have been given an answer that is partially understandable although the response does not quite flow freely through to a conclusion. Some information in the argument is obviously missing and/or there are one or two visual mistakes and anomalies in the look of the response. Some technical terms may have been used that are not entirely clear. The

trustees are left with some question marks over the responder, and perhaps therefore over aspects of the answer given. [3-5]

The trustees are left with a poor impression of the responder, is confused by the answer and/or does not trust the answer.

The answer will leave the trustees confused. The communication is poorly written or possibly too technical. There are some obvious mistakes in the arguments, tables or charts do not make sense and/or are not properly labelled. The answer does not flow, but rather jumps around. The layout is not consistent throughout the communication. There may be spelling mistakes or the trustees have not been properly addressed. The tone of voice is wrong, perhaps too informal. The trustees have been left with a poor impression of the responder and therefore do not trust the answer. [0-2]

[Paper Total 100]

END OF EXAMINERS' REPORT