INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2017

Subject SA4 – Pensions and other Benefits Specialist Applications

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.

Luke Hatter
Chair of the Board of Examiners
July 2017

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

1. The aim of the Pensions and other Benefits Specialist Applications subject is to instil in successful candidates the ability to apply knowledge of the United Kingdom pensions and employee benefit environment and the principles of actuarial practice to providers of pensions and employee benefits in the United Kingdom.

2. This subject examines the ability of candidates to apply actuarial practice and concepts, together with specific knowledge of the UK pensions and employee benefit environment to potentially complex problems, integrating their analysis into a coherent whole, and evaluating and interpreting results to draw explicit conclusions.

3. The Examiners therefore look for candidates to demonstrate their understanding of the syllabus but in particular they need to demonstrate ability in applying their knowledge and core actuarial skills to the specific situations that the Examiners have raised, having read the question carefully. Consistently, many of the unsuccessful candidates provide answers that are not sufficiently specific to the subject matter of the question, reproduce core reading that does not directly relate to the question context, or focus on one specific point without covering a sufficient range of points to answer the question. This does not enable the candidates to achieve the required marks. The Examiners encourage future candidates to remind themselves of what they learned in the Core Actuarial subjects, and to use past paper questions to practice applying these skills to the specific scenarios tested.

4. Good candidates demonstrate that they have structured their solutions well – this is a big advantage in making points clearly and without repetition. There is a significant incidence of points being repeated in slightly different ways, restricting the scope for candidates to score marks. Good structure enables candidates to use the latter parts of questions to generate ideas for answers to the early parts (or use their solutions to earlier parts of questions to create a structure for latter parts). Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available. The questions are set so that it should take approximately twice as long to answer a 10 mark question as a 5 mark one. Answers should therefore be similarly proportionate.

5. In addition, candidates should carefully consider the instruction – for example an instruction to list points should be answered with a list without attaching discussion. Similarly, a question asking for a discussion cannot be answered with a list of undeveloped points.

6. Finally, it is very helpful to the Examiners if candidates clearly identify points made; if they are set out clearly, well-spaced and easily legible. Whilst there is no loss of marks for not doing so, doing so does make it easier to identify scoring opportunities.

7. Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.

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

1. The overall standard of scripts was similar to the previous session, with candidates over recent years maintaining a very consistent level of performance.

2. The step up from the earlier subjects to a smaller number of more involved questions is relatively difficult for some candidates who find the application aspects of the course harder to score well on. This is an area that SA4 candidates consistently need to work harder on in preparation. By taking a methodical approach to answers, step by step, however, there are opportunities to score well. It is important that candidates make sure they provide a full answer to all questions. Breaking the question down into smaller parts helps to make sure that a suitable breadth of answer is supplied. It is critical that candidates check that their answers specifically refer to the details of the question, using all of the information in the question pre-ambles. It is not the intention of the examiners to include information in the questions that is not relevant to the answers.

3. Candidates should take note of the command verbs used to guide the depth given in their answers (a list of what is expected for each verb is available on the IFoA website). Candidates should also note the number of marks available for each question as a guide of how many points they need to cover.

4. Taking care in these points of technique will help students score better.

5. More detailed feedback is provided on each question below.

C. Pass Mark

The Pass Mark for this exam was 55.

Solutions

Q1 (i) *Any reasonable assumptions and calculation method should be given credit.*

- Assumptions can be realistic, don't have to be prudent [½]
- Assume the member's salary increases by 3% per annum [½]
- Assume the member stays working full time throughout the period [½]
- Assume the member doesn't have any non-pensionable leave [½]
- Assume there are no changes to contribution rates [½]
- Assume investment returns of 5% per annum [½]
- …net of any investment charges met from the member's fund [½]
- Any justification for above assumptions [½]

- Assume contributions are paid continuously [½]
    - In reality they are more likely to be paid monthly, but continuous payment is a reasonable proxy for this [½]
- Assume salary increases are awarded continuously [½]
    - In reality they are likely to be awarded annually but consistency with the contributions being paid continuously simplifies the calculation and we are only estimating the fund [½]
- Total contribution rate is 4% + 4% = 8% of pensionable earnings [½]
- Estimated fund at retirement = 0.08 * 30,000 * 1.05^{40} * $\bar{a}_{\overline{40|}}$ with a net discount rate of (1.05/1.03) – 1 = 1.94% p.a. [1]
- $\bar{a}_{\overline{40|}} = \dfrac{1-\left(\dfrac{1}{1.0194}\right)^{40}}{\ln(1.0194)} = 27.9$ [½]
- Estimated fund at retirement = £471,400 [½]

[Max 6]

(ii) *Expected benefits at retirement*

- Will depend on whether assumptions from part (i) are borne out [½]
- For example the fund could be lower if the member doesn't contribute for the whole 40 year period [½]
- Or the fund could be higher if investment returns are better than assumed [½]
- How much the estimated fund at retirement from part (i) will provide in retirement depends on how the member intends to use his fund [½]
- For example, a joint annuity which increases in retirement may provide an annual pension of £471,400/35 = £13,500 p.a. [½]
- A single life annuity would provide a higher annual pension, perhaps £471,400/30 = £15,700 p.a. [½]
- Depends on annuity rates at conversion [½]
- An annuity which does not increase in retirement would provide a higher initial pension [½]
- An impaired life annuity would give a higher annual payment [½]
- However, it is likely that the member would first take a tax-free lump sum of 25% i.e. £117,850 [½]

- This would reduce the resulting pension income by 25% [½]
- Alternatively the member might choose to access his pension through taking lump sums [½]
- After taking a 25% tax-free lump sum, £353,550 would remain [½]
- The member could choose to withdraw this as a single lump sum [½]
- …although this would incur a high tax charge [½]
- Or he could choose to withdraw it over a few years to avoid high tax charges [½]
- Or to keep it invested throughout retirement and withdraw sums as needed with the aim of it lasting throughout his retirement. [½]
- If he were to live for 25 years from retirement this would provide an average of £353,55/25 = £14,142 per annum on average [½]
- …but any investment returns achieved in retirement would increase this. [½]
- At age 65 the member would be receiving an estimated salary of 30,000 * 1.03^{40} = £97,981 [½]
- …which means, whatever the income chosen from his DC, this alone looks inadequate [½]
- This shows a replacement ratio of 15% [½]
- Whereas a level of at least 50% may be a more appropriate target [½]

Other retirement provision

- It is impossible to assess whether the retirement income estimated above is adequate or not without considering what other retirement income the member has [½]
- It is unlikely that he has other significant occupation pension provision, given that he has 40 years' service [½]
- However, he may have contributed to a personal pension [½]
- Again, this seems unlikely as the member would more likely have been inclined to pay any additional contributions to his occupational pension [½]
- At present SPA is set to be at least 68 for this member and probably higher [½]

- If an 8% contribution provides a replacement ratio of around 15%, for every extra 1% contribution the member could make to the scheme the replacement ratio could increase by around 2% [½]

- The New State Pension is about £8,100pa for the 2016/17 tax year which is about 27% of the member's income [½]

- The 27% replacement ratio may be retained at retirement as the NSP increases currently with the triple lock mechanism … [½]

- … although there is debate as to whether to remove the triple look and therefore this replacement ratio may reduce. [½]

- Overall a replacement ratio of up to 50% may be possible which may be adequate in some circumstances. [½]

- The member may continue working, perhaps part time, after retirement which would reduce the amount he requires from his pension savings [½]

- If the member is married or in a civil partnership, he should consider what income his partner has [½]

- A partner with little or no income of their own will increase the member's need for retirement income; conversely a partner with substantial pension savings will reduce the member's need for income [½]

Any other relevant factors

- What replacement ratio is targeted [½]

- Need to consider how taxation affects net replacement ratio [½]

- What are the member's regular outgoings? [½]

- How does he expect this to change in retirement? [½]

- For example pension contributions and NI contributions cease … [½]

- … but there could be an increase in outgoings for leisure activities and health costs [½]

- Although generally it can be assumed that less income is required in retirement than when working as net outgoings reduce [½]

- Does the member have any outstanding debts that need to be settled on retirement e.g. mortgage? [½]

- Whether he decides to buy an annuity or take his fund as cash lump sums will depend on: [½]

    - The member's attitude to risk [½]

    - And if he has the expertise to be able to manage his fund throughout retirement [½]

- If the member has no dependants he will not need to provide a dependant's pension [½]
- …and if taking his fund as lump sums he could plan to use it all up [½]
- The investment options taken will affect the fund he has at retirement [½]
- The member's life expectancy will determine what level of annuity he can buy or how long his fund will last [½]
- So if the member is in ill health his fund will be more adequate than if he is in good health [½]

[Max 13]

(iii) *Changes to the benefit design*

- Increase Company contribution rates [½]
- Or minimum member contribution rates [½]
- …This would certainly increase members' funds [½]
- ...But would be expensive for the Company [½]
- Match employee contributions over the minimum 4% with Company contributions. [½]
- …This would encourage employees to pay higher contributions so not all of the increase would have to come from the Company [½]
- Move to an age-related structure with higher contributions for older employees [½]
- …This would mirror the cost of accrual in defined benefit scheme [½]
- …And provide better outcomes for members who join the scheme at older ages in particular [½]
- Provide investment return guarantees [½]
- …so members would not suffer from any adverse investment experience [½]
- But there may be selection risk [½]
- Ensure the default funds are appropriate for members and are reviewed regularly [½]
- Regularly review charges to potentially improve net returns [½]
- Company could pay all expenses [½]
- …to help ensure that members with less financial knowledge achieve adequate returns on their funds [½]

- Provide DB benefits for members [½]
- Or adopt a risk-sharing approach [½ mark for an example]
- …although this would provide more certainty for members the Company is unlikely to take on the risks involved. [½]
- Default lifestyling fund to reduce investment risk [½]
- Later default retirement age which may encourage members to retire later [½]
- …so members have longer to save [½]
- …and a shorter retirement to provide for [½]

Ways to encourage or support members to take actions to improve their retirement outcomes

- Educate members to ensure they understand the decisions they are taking [½]
- …and the importance of paying into the Scheme [½]
- For example through workshops or interactive websites [½]
- Provide retirement illustrations to ensure members are aware of what their projected benefits are [½]
- …and can take action sufficiently early to rectify any shortfalls [½]
- Provide planning tools so that members can see the effect paying extra contributions would have on their benefits at retirement [½]
- With projections in real rather than nominal terms to aid appreciation of value [½]
- Ensure members receive comprehensive impartial financial advice prior to retirement to help them make appropriate choices [½]
- And company can meet cost of this advice [½]
- Engaging with members well in advance of retirement and frequently re-engaging can help ensure members make the right investment choices depending on whether they are targeting an annuity or flexible income [½]

[Max 8]

(iv)

- Member is likely to choose whatever they believe will provide the best outcome for themselves and dependants [1]
- Attitude to risk [½]

- A risk-averse member is more likely to stay in the scheme where they know they will be provided for life [½]
- Life expectancy [½]
- A member in ill health may choose to transfer to take all their benefits in a short space of time [½]
- Or to be able to pass the majority of their fund to a dependant rather than them receiving a dependant's pension [½]
- Whether the member has any dependants [½]
- A member with dependants may prefer the security of a guaranteed spouse's pension [½]
- But could get potentially higher single life pension by transferring [½]
- Any specific expenditure the member has planned [½]
- For example if they plan to buy a holiday home for their retirement they may transfer to obtain a higher lump sum [½]
- Other income the member has [½]
- For example if they have a significant DC pot elsewhere they are more likely to stay in the DB scheme as their DC pot will give them flexibility [½]
- Financial sophistication [½]
- A member with little financial knowledge may feel daunted by managing their own retirement income [½]
- The size of the member's benefits [½]
- How generous the Scheme's transfer value basis is [½]
- Are transfer values being reduced or enhanced [½]
- A member with a small benefit value may be more inclined to take it all as a lump sum [½]
- Or members with significant loans may also prefer cash [½]
- The way the option to transfer is described in communication materials [½]
- How the advice or guidance the member receives is presented [½]
- The range of products available in the DC environment [½]
- …and whether there is one to suit the individual's requirements for income [½]
- The relative tax efficiency or inefficiency (with explanation) [½]

- The strength of the Company's finances [½]
- The funding level of the scheme [½]
- Financial conditions could make TV look very high/attractive [½]
- Press coverage could be encouraging people to take TVs [½]
- All of their colleagues/friends are doing it [½]
- The cost of advice could be prohibitive [½]

[Max 7]

(v)

- Members need to fully understand the retirement choices they make [½]
- And it will be difficult for most members to fully appreciate the possible impact of their choices without professional help [½]
- Companies who lead exercises to encourage members to transfer are obliged to pay for members to receive financial advice [½]
- …but it does not seem that this is the case here; more that members are simply choosing to transfer to take advantage of DC flexibility [½]
- Members with benefits worth over £30,000 must receive financial advice before a DB to DC transfer and the trustees of the scheme will be obliged to check this [½]
- If members regret their choices they may later make complaints to the Company [½]
- And this may result in reputational damage if done publicly [½]
- If the Company is paternal it may feel it is important to ensure members have adequate income in retirement [½]
- If the Company provides adequate support more members may transfer [½]
- This is likely to reduce the liabilities in the Scheme as transfer values are likely to be lower than funding values and certainly buy-out cost [½]
- And will eliminate risk in respect of the transferred out liabilities [½]
- Although the Company is not obliged to facilitate or pay for advice for members it may therefore feel it is worthwhile to do so [½]
- There are many different types of support the Company could offer to help members make retirement decisions: [½]

  - Pay for independent financial advice for each member which would provide an individual recommendation [½]
  - Pay for guidance for each member which would include a conversation around the member's circumstances but not an individual recommendation [½]
  - Supply a list of approved financial advisers to help members find one [½]
  - Workshops for members nearing retirement [½]
  - Education materials such as written information or webpages on members' choices [½]
  - Helpline
  - Online tools
  - Regular benefit illustrations

- The Company needs to decide when members should start to receive support [½]

[Max 7]

(vi)

- The assumptions underlying CETVs will determine the size of the Scheme's actual payments in respect of many more members [½]
- An increasing demand for transfer requests at the point of retirement would provide good reason for the Trustees to review the suitability of the current CETV terms for this new purpose [½]
- Potentially they should review the basis more frequently than before [½]
- The expectation is that many of the additional transfer requests will be made close to retirement. Increasingly members may therefore compare transfer value and option terms [½]
- …and so it may be useful as part of such a review to consider whether consistency of these terms is appropriate or whether there are valid reasons for differences in the factors. [½]
- Members might also increasingly make comparisons relative to other schemes. [½]
- The Company (and members) may seek to influence setting the CETV basis, e.g. to make the transfer option more attractive. [½]
- Changes to a scheme's asset allocation (perhaps due to more DB to DC transfers) may lead to CETVs being higher or lower if assumptions are set with reference to the asset allocation [½]

- Consider if the Scheme's level of funding is sufficient to support the payment of full (100%) CETVs. [½]
  - If not the Trustees should consider reducing CETVs; or [½]
  - seeking additional Company funding. [½]
- Typically, a member transferring will lead to a funding gain on a buy-out basis [½]
- …and perhaps on a Technical Provisions basis, depending on the relative strength of the two bases at the point of retirement. [½]
- Effect on accounting figures should also be considered
- The overall impact on the Scheme's funding level will depend on the number of members who choose to transfer. [½]
- If the transfer value basis were strengthened (making transfer value payments higher), then transferring-out would be more appealing to some members. [½]
- However, any funding gain realised from each transfer would be reduced [½]
- …although the Scheme's buy-out position would still be expected to improve. [½]
- If the Scheme's transfer values are lower than the Technical Provisions at typical retirement ages, the Trustee could consider increasing CETVs at retirement without adversely impacting on the Technical Provisions funding level. [½]
- Consider if the Scheme's investments are sufficiently liquid to pay the CETVs. [½]
- The investment strategy should be considered as the liability profile will mature and changes [½]
- The unpredictability of future cashflows could be significantly greater after April 2015. Potential dependencies include: [½]
  - the proportion of members taking a DB to DC transfer [½]
  - the incidence of these transfer payments [½]
  - the assumptions used at any point in time to calculate the CETVs. [½]
- The change in a scheme's cashflow payments could lead to a change in their average duration [½]
  - This would have implications for hedging of liabilities and assumption setting. [½]

   - And discount rate [½]

- Should an allowance for transfers be made in Technical Provisions? [½]

   - Perhaps yes, to reflect reality and fund for a higher proportion to take CETVs at or near to retirement. [½]

   - For members near retirement, CETVs may be close to, or even higher than, Technical Provisions. [½]

   - Without a reasonable period of experience it is difficult to know how many members will transfer, when, or on what terms. As such, it is not prudent to make an allowance. [½]

   - And availability of transfer may alter views on cash commutation allowance [½]

- The risk of selection against the Scheme may be increased (e.g. by the transfer out of more members in poor health or unmarried members) [½]

- …but selection impacts could be favourable (e.g. by the transfer out of higher liability members). [½]

- Consider whether to permit member to transfer a partial transfer of their benefits and what restrictions might apply. [½]

- Consider if the retirement process works smoothly for members who wish to transfer. [½]

- Consider monitoring large transfers, notifiable event requirements, warnings to members with HMRC protections, related specific advice requirements and potential PPF impacts. [½]

- The size of the Scheme will reduce resulting in lower risk exposure for the Company. The Company should factor this into its overall risk management strategy. [½]

- Consider how the strategy for the end game may be impacted; e.g. should the timing for any final buying out of the liabilities be moved forward? [½]

- Consider the costs associated with processing the transfers … [½]

- … and the quality of the service provided including checks that the receiving scheme is legitimate [½]

[Max 14]
[Total Max 55]

Part (i) Candidates scored relatively as there were marks available for stating sensible assumptions but many candidates struggled to complete the calculations.

Part (ii)	Only the better candidates covered a sufficient range of points needed to score well on this question, with many focussing heavily on why the DC pot at retirement is uncertain. The better candidates were able to express what the expected fund at retirement might mean in terms of retirement income and compare this with projected income prior to retirement.
Part (iii)	Generally well answered.
Part (iv)	Generally well answered.
Part (v)	Some candidates provided excessive detail on financial advice, missing out on the wider points.
Part (vi)	Many candidates did not make sufficient points to score well. The better candidates made the link that higher CETVs will encourage take-up and achieve savings on a buy-out basis.

Q2

(i)

- Consult the trust deed and rules [½]
- Although it may not be specific about closed scheme situation [½]
- And other guidance/legislation [½]
- A key point will be under what circumstances the scheme will be finally wound up [½]
- Legal advice should be sought [½]
- Contact the Scheme Actuary and seek his/her advice [½]
- Consider funding strategy [½]
- Seek an up to date valuation of the Scheme [½]
- particularly considering discontinuance position [½]
- and impact of closure to new entrants [½]
- and impact of changes to investment strategy and covenant [½]
- to understand benefit security at the current time [½]
- Investigate the Company's ongoing commitment to the Scheme given decision to close [½]

- And its ability to make contributions to the Scheme [½]
- As the closure may signal that the Company is in financial difficulty [½]
- Although it is important to note that ongoing accrual is more of an issue for Company decisions with Trustees having more responsibility for security of accrued benefits [½]

- Investment strategy will need to be reassessed in view of the closure [½]
- The trustees will look to minimise the risk of deficits arising [½]
- Which would suggest a move towards less risky assets [½]
- With no future accrual, contributions will reduce and so more liquid, marketable and less volatile assets may need to be held [½]
- Could switch assets to match liability structure [½]
- Consider asking the Company for additional security [½]
- Such as contingent contributions from the Company if the Scheme's solvency position deteriorated [½]
- Or ratchet in recovery plan if assets fall [½]

- Consider whether to wind up the DB scheme [½]
- Another option will be to purchase annuities for pensioners [½]
- Or to obtain some insurance against members living longer than anticipated [½]
- Review any discretions [½]
- To ensure the Scheme can afford them over the long term [½]
- Review the factors used to calculate member options to ensure they remain appropriate [½]
- to ensure they strike a fair balance between the interests of different beneficiaries [½]
- For example review the calculation basis for transfer values (to stop those that transfer gaining an advantage over members remaining) [½]
- Provide Trustee communication to members [½]
- and tell tPR [½]

[Max 10]

(ii)

- As a minimum, transfers will have to be on the cash equivalent transfer value basis [½]
- Which is set by the Trustees on a best estimate basis [½]
- However, employees are being asked to give up a benefit linked to future salary growth, and so may expect some enhancement over CETVs [½]
- In particular they may expect the salary link to be included [½]
- The Company may want to offer enhanced transfers [½]
- To encourage people to transfer [½]
- …to eliminate the risk for those who transfer [½]
- …at a cost that is likely much lower than buy-out [½]
- And to make it easier for it to sell the overall package to employees [½]
- Consider whether the enhancement should match the Technical Provision, accounting or solvency bases … [½]
- … and the impact on the scheme of using these bases .. [½]
- … and the cost / contributions implications for the company [½]
- Since employees will need financial advice to transfer, it may cause industrial relation problems if the employees do not perceive the transfer terms as fair. [½]
- On the other hand, if the transfer values paid are linked to salary, then this will give a windfall to employees who will leave service soon after. [½]
- Since employees can choose whether to take the transfer, there is a danger of selection. [½]
- The Company could look for ways to minimise any such windfalls [½]
  - for instance not crediting all of the enhancement at once, but spreading it over future service (if the rules of the Schemes permit this) [½]
  - or by paying no transfer enhancement but explicitly paying additional future DC contributions to those employees who transfer [½]
- The Company will also need to consider that the Trustees cannot authorise transfers which give active members more than the Scheme can afford [½]
- Unless company makes up difference [½]
- There may be a reduction to CETVs for underfunding in place – will the Company top up payments to waive this? [½]
- The Company will need to consider the impact of any enhancements on its accounts [½]

- Consider how to allow for options and discretionary benefits [½]

[Max 8]

(iii)

- Technical Provisions [½]
- The actuary's assessment, on scheme-specific funding assumptions determined by the trustees, of the amount required to meet the scheme's liabilities as they fall due [½]
- Best Estimate basis [½]
- Contains no margins for prudence; often used for cash equivalent transfer values [½]
- Company accounting basis [½]
- Carried out in line with the rules under the accounting standard adopted by the Company such as FRS17 [½]
- Solvency basis [½]
- Measured with reference to the buy-out cost of the scheme's liabilities. [½]
- In cases where the liabilities exceed the capacity in the buy-out market, the Scheme Actuary will need to make an appropriate estimate [½]

Credit was also given for discussion of Projected Unit/Attained Age method etc. [Max 3]

(iv)

- Which basis has the funding level been measured on? [½]
- Are discretionary increases funded for? [½]
- In assessing funding covenant is key – may recommend updated review [½]
- Consider any relevant scheme documentation (e.g. trust deed and rule), legislation and guidance [½]
- Consider what conditions where necessary to provide discretionary increases in the past and what precedent is being set for the future [½]
- Consider whether the Company could meet (some of) the cost of the discretionary increase directly by paying a lump sum into the scheme or whether the cost can be met from any surplus. [½]
- How large is the surplus? [½]

- How much will providing the discretionary increase cost? [½]
- Closure of the Scheme likely signals that the Company's eventual aim is to wind up the Scheme [½]
- So the trustees may not be willing to worsen the buy-out position so as not to reduce members security [½]
- However, a buy-out figure will only be an estimate of what insurance companies might charge if the scheme actually wound up [½]
- If the Scheme is eventually bought out the Company might be willing to pay to insure some increases on pre 97 benefits [½]
- In which case it may make sense to continue the practice of paying discretionary increases [½]
- The Trustees should consult with the Company over its plans for the Scheme [½]
- On the other hand, adopting too cautious an approach may not be in the interests of all beneficiaries [½]
- …for instance those who will not survive to an eventual distribution of surplus. [½]
- The Trustees will also consider the Company's ability to pay contributions if a deficit arises [½]
- Member communications also important [½]

[Max 5]

(v)

- As funding level was 105% on a prudent basis then the assertion could be true [1]
- The Company needs to pay for accrual of benefits before the Scheme is closed [½]
- The Funding level on a Technical Provisions basis might deteriorate for example if: [½]
- Future experience is worse than assumed: [½]
    - Mortality is less than assumed [½]
    - Pension increases are greater than assumed [½]
    - Investment returns are less than the assumed discount rate [½]
- Inter-valuation experience could also have been worse than expected [½]
- The Trustees are likely to review the strength of the Technical Provisions in light of the closure [½]

- Which may lead to a strengthening in the TPs [½]
- …given that closure of the Scheme may signal an eventual end for the Scheme [½]
- …if the financial strength of the Company is weakened as it can no longer afford to sustain DB accrual [½]
- This would reduce the funding level, so increase contribution requirements. [½]
- The Company must honor the current Schedule of Contributions until a new one is in place. [½]
- As long as the Scheme exists the Company is likely to have to pay PPF levies [½]
- ..and administration and adviser costs [½]
- Depending on how the Technical Provisions are set, they may not adequately represent the ultimate cost of meeting all benefits from the Scheme [½]
- For example if the Company's aim is eventually to buy-out additional contributions will be required [½]
- Company appears to be suggesting a self-sufficiency funding basis [½]
- Which would require a more matched investment strategy [½]
- And therefore a lower discount rate [½]
- And an expense allowance [½]

[Max 7]

(vi)

- The Trustees should first look to quantify the longevity risk faced by the Scheme. [½]
- This may involve stochastic modelling [½]
- There is no opportunity to share the risk with members as all benefits are already accrued [½]
- The Trustees might look to take out a longevity hedging contract [½]
- This would involve a fixed pattern of payments being made from the Scheme [½]
- …in exchange for receiving a series of cashflows which are linked to the longevity [½]

- These may either reflect the actual mortality experience of the Scheme, particularly if the Scheme is very large [½]
- Or it may be based on a mortality index which would be set with reference to the mortality of a larger group [½]
- Or perhaps the CMIB tables [½]
- If it is based on a population other than the Scheme's members a residual risk will remain to the extent that the mortality experience of the members does not reflect the mortality index [½]
- The contract might only cover the pensioners of the scheme whose expectation of life would be more certain [½]
- Or, given the Scheme is closed to future accrual, it might cover all members although the continuing salary link would make this more difficult [½]
- To write a contract of insurance requires a primary insurance UK licence, and most reinsurers do not at present have such a licence [½]
- Hence, traditionally, longevity swaps were written through an intermediary, such as an insurer or investment bank [½]
- This will increase cost of the hedge as the intermediary will pass on the full cost of its reinsurance to the Scheme [½]
- …plus its own fee for: structuring the transaction, ongoing operational support and for the capital it has to hold for its own credit risk exposure to the reinsurer [½]
- Alternatively the Scheme could set up its own insurance company to allow access to the reinsurance market [½]
- Although there would be set up and management costs involved [½]
- The Trustees could choose to insure members' benefits with an insurance company in return for a premium [½]
- Either by a buy-in where the Scheme receives payments from the insurer and the Scheme then pays the members' benefits [½]
- …or by a buy-out where the insurer pays the members directly [½]
- The insurance could cover pensioners and/or deferred pensioners [½]
- But the insurer is unlikely to be willing to cover the members who have a retained link to final pensionable salary. [½]
- As the Scheme is only 105% funded on a Technical Provisions basis there is likely to be a large shortfall on a buy-out cost [½]

- As insurers' pricing tends to be significantly more expensive than Technical Provisions bases [½]
- So in practice, a buy-in may be the only practical solution as a buy-out would create inequalities between those who are and those who are not insured [½]
- The process of arranging a buy-in or longevity hedge could take quite some time [½]
- Consider running an incentive exercise [½]
- …such as pension increase exchange or enhanced transfer value exercises [½]
- …but this might not be deemed appropriate for the Trustees to initiate. [½]
- Review option terms to ensure longevity risk is reflected appropriately e.g. commutation, early and late retirement [½]
- Review funding to ensure longevity risk is reflected appropriately … [½]
- … perhaps with allowance for member characteristics e.g. postcode, occupation etc… [½]
- and consider holding a funding reserve to reflect the longevity risk [½]
- … although this may require higher employer contributions which may not be affordable or acceptable to the employer [½]

[Max 12]
[Total Max 45]

Part (i)	Most candidates scored relatively well.
Part (ii)	Some candidates spent too much time outlining the requirements of setting CETV assumptions and did not bring in the specifics of this question around salary link, therefore missing a lot of the marks on offer here.
Part (iii)	Answered reasonably well by most candidates.
Part (iv)	Relatively well answered, although many answers lacked breadth and concentrated heavily on the size of the surplus compared with the cost of discretionary increases.
Part (v)	Most candidates made relevant points, but not a sufficient number of points to score highly.

Part (vi)	Most candidates were able to come up with the main methods of mitigating the longevity risk but not the detail about set up, fees, etc. of longevity contracts. Some candidates concentrated too heavily on incentive exercises, missing the wider range of answers.

END OF EXAMINERS' REPORT