INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

September 2020 Examinations

Subject SA4 - Pensions and other Benefits Specialist Advanced

Introduction

The Examiners' Report is written by the Chief 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
December 2020

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 pensions and employee benefit environment and the principles of actuarial practice to providers of pensions and employee benefits both in the United Kingdom and the rest of the world.

2. This subject examines the ability of candidates to apply actuarial practice and concepts to potentially complex problems, integrating their analysis into a coherent whole, and evaluating and interpreting results to draw explicit conclusions.

3. From 2019 the requirement for detailed knowledge of the UK's legislative and regulatory frameworks has been moved to the UK Practice Modules (UKPM). The Specialist Advanced subjects will still require knowledge of the principles of the UK market and regulatory regimes but there has been a re-balancing to include comparison between different jurisdictions and expansion in non-UK-specific topics.

4. 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.

5. 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.

6. 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.

7. 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.

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

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

The better candidates were those who read the questions carefully, tailored their answers to the questions and thought about what was actually being asked, rather than just writing about what they know on a particular subject (which was an issue at the last sitting).

The paper also required candidates to think beyond the obvious answers in a number of places, and the better candidates were able to bring in ideas from other areas of the course to score higher marks in these parts. A number of weaker candidates just didn't write enough points to ever be able to score highly.

The application aspects of the course are 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.

The importance of structure in the exams should not be underestimated because this will lead to much more efficient work post exams. It is harder to get good marks in the absence of a good structure because it means that logical points are more likely to be missed. Sometimes points are just repeated further through the answer meaning that the response was more likely to look of sufficient length than it really was for the marks available.

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.

C. Pass Mark

The pass mark for this exam was 55.
217 candidates presented themselves and 87 passed.

(i)

Longevity adjustment factors [1]
Retirement age is increased for future service in light of increasing longevity [½]
mitigating the financial cost to the employer of increasing life expectancy [½]
possibly linked to changes in State Pension Age [½]
Simplified/Core DB schemes [1]
A 'core' level of DB benefits is offered [½]
other benefits discretionary [½]
such as indexation [½]
and spouse's benefits [½]
therefore subject to less regulation. [½]
Conversion of benefits [1]
defined level of benefit is promised to the member [½]
converted to a DC fund of equivalent value when the member leaves the scheme [½]
Guarantees and risk-sharing through insurance [1]
e.g. guarantees on the return on the fund [½]
or guaranteed annuity rates [½]
member is not subject to the downside risk but takes a share in the upside risk [½]
standard DC arrangement where the member shoulders all of the downside and upside risk [½]
sponsor may want to limit choices of funds [½]
so not too risky, or too prudent [½]
Cash balance or career average scheme [1]
Cash balance – a defined lump sum is provided at retirement [½]
Post-retirement risks are transferred to member from sponsor [½]
Career average – final benefit based on career earnings (usually revalued) [½]
So some salary risk passed to member [½]
DC scheme with DB underpin [1]
The more generous the underpin the more likely to bite so more risk with sponsor [½]
Basing on underpin on current benefits is generous and unlikely to meet sponsor's objectives [½]

[Marks available 17, maximum 12]

(ii)

The employer pays a fixed rate of contributions into the fund [1]
The CDC can be designed to provide benefits in the form of individual funds at retirement [½]
possibly with a conversion at retirement to pay benefits direct from the scheme [½]
or to provide target benefits that are paid from retirement [½]
Benefits paid to members on retirement are dependent on the funding level of the scheme [½]
This funding level is assessed regularly [½]
which decides on level of pension payable in the next year [½]

contributions are invested collectively [½]
and benefits are effectively smoothed over generations [½]
so investments can take a longer term view [½]
and therefore more risk [½]

with a larger collective fund diversification risk is likely to be reduced [½]
and there may be access to investment options not available to smaller funds [½]

if pensions are paid from scheme they may be subject to variation [1]
with a minimum level payable and the balance being discretionary. [½]
The risk is shared collectively by the members rather than individually [½]
so scheme can follow more risk-seeking investment strategy over long-term [½]
compared to individual funds where members traditionally opt to switch into low-risk, low-yielding assets in the years before retirement. [½]
Differences to standard DC

Members' contributions are invested in to individual members' pots [½]
Members' decide how the contributions are invested [½]
Benefits at retirement are dependent on individual's pot of money [½]
No option to convert fund to pension within the scheme [½]
although drawdown may be available [½]
can take fund and buy annuity with insurance company [½]
complexity of CDC scheme may is likely to result in higher fees [½]

[Marks available 13½, maximum 8]

(iii)
Member:
Salary might increase slower than inflation [1]
Which can often be the case in later years of employment [½]
Employer might restrict salary increase because of the link [½]
Employer
If salaries increase faster than inflation then final pension will be higher [½]
Will have to fund for future salary increases [½]
could be seen as unfair to members without salary link [½]
Members could select against employer and withdraw if they think salary increases will be lower [½]

[Marks available 4, maximum 3]

(iv)
Enhanced TV exercise [½]
members offered TVs to encourage them to transfer out [½]
need to follow guidance [½]
removes risk completely from the scheme [½]
risk of mis-selling if ETVs are poor value for money [½]
enhancements could give rise to a deficit [½]
selection risk if e.g. members in poor health more likely to take up option [½]
cost of running exercise [½]
but should hopefully be savings compared to solvency and possibly funding [½]
Pension Increase Exchange [½]
A larger non-increasing pension is offered instead of increasing pension [½]
only non-statutory increases can be exchanged [½]

removes inflation risk… [½]
…and longevity risk [½]
risk of mis-selling e.g. if inflation is higher than assumed in the exchange [½]
selection risk if members in poor health take up the option [½]
cost of running exercise [½]
but should hopefully be savings compared to solvency and possibly funding [½]
Full commutation exercise [½]
Members with small pensions are offered a lump sum in exchange [½]
removes liability completely in respect of members taking up the option [½]
due to small size of pensions, unlikely to have a material impact as a whole [½]
selection risk if members in poor health more likely to take up the offer [½]
Annuities [½]
Individual members' pensions are secured with an insurance company at retirement [½]
removes liability completely from the scheme [½]
may be cheap if annuities are good value for money [½]
expensive if insurers load profits and expenses into annuity prices [½]

Buyout/buy-in [½]
Either the whole scheme or a section of the scheme is secured with an insurance company [½]
removes significant portion of the liabilities from the scheme [½]
expensive if insurers load profits and expenses [½]
some benefits might be difficult/prohibitively expensive to insure (e.g. deferred benefits) [½]
Significant reduction in investment, longevity, inflation risk [½]
…but scheme is subject to risk of insurer default [½]
May not match liabilities exactly [½]
Buy-in similar to buyout but policy is in scheme's name [½]

Investment strategy [½]
scheme can invest in more matching assets [½]
such as bonds [½]
reduces interest rate risk in the scheme [½]
…and inflation risk if suitable inflation-linked assets exist [½]
reduced investment return, so any deficits are "locked in"… [½]
…and funding levels may fall if discount rates are lowered as a result [½]

Longevity bonds and swaps [½]
Scheme invests in a longevity bond/swap and makes a series of fixed payments to the bond/swap provider [½]
removes current longevity risk and the risk of future improvements to longevity [½]
for a medium-sized scheme a swap may not be available [½]
the hedge is not perfect under a longevity bond as the payments are usually linked to an index and not the actual scheme membership [½]

Transfer to a non-insurance consolidator [½]

The whole scheme is transferred to the consolidator organisation [½]
Could be expensive due to the consolidator's profitability requirements but may be less expensive than buyout [½]
the protection of members' benefits may not be as strong as with an insurance company [½]
as the consolidator may not be subject to the same reserving and regulatory requirements [½]
Credit highest scoring five methods only, limit credit for each method to 2 marks.

[Marks available 27, maximum 10]

(v)
Bond yields could have increased leading to higher discount rates [½]
Inflation could have reduced, leading to higher net discount rates… [½]
…or long-term inflation stabilised, leading to lower inflation risk premiums [½]
Insurers could be investing in different long-term assets [½]
e.g. infrastructure/property etc [½]
Competition could be high, keeping costs down [½]
…for example new players in the market actively seeking business [½]
Competitive re-insurance terms could be available [½]
Mortality terms could have changed leading to reduced costs [½]
e.g. slowing improvements… [½]
or a pandemic [½]
changes in legislation [½]

[Marks available 6, maximum 4]

(vi)
Assumptions:

- No member movements / cashflows other than pensions paid [½]
- Pension payments occur midway in period [½]
- All pension increases in deferment and in payment with inflation [½]
- 1% change in the net post retirement discount rate leads to a 16% change in liabilities for non-pensioners and a 14% change in pensioners [½]
- 3% of total liabilities for expenses on wind up (or any sensible figure) [½]
- Demographic assumptions unchanged (e.g. in light of Covid-19) [½]

Roll forward to 1 January 2020
Deferreds: $75\ x\ 1.0325 = 77.4$ [1]
Pensioners: $250\ x\ 1.0325 - 25\ x\ 1.0325^{0.5} = 232.7$ [1]

Change of basis to 1 January 2020
At 1 January 2019, gilt yield is 2% and inflation expectation is 2.25%
So at 1 January 2020, gilt yield is 1.8% and inflation expectation is 2.55% [1]
Discount rate pre retirement = 1.4% [½]
Discount rate post retirement (non pensioners) = 1.4% [½]
Discount rate post retirement (pensioners) = 2.2% [½]
Deferreds: $77.4\ x\ \left(\frac{1.0325}{1.014}\right)^{12} x\ \left(\frac{1.0255}{1.0225}\right)^{12}\ x\ 1.16^{3.25-1.4+2.55-2.25} = 137.0$ [1½]
Pensioners: $232.7\ x\ 1.14^{3.25-2.2+2.55-2.25} = 277.7$ [1]
Total: 414.7m [½]

Adding expense allowance of 3% of liabilities = 12.4 (or no expenses with justification) [1]
Total: £427.1m (½)
Therefore cost to employer is £250m – £427.1m = £177.1m [1]

[Total 13]

[Total 50]

(i)	Many candidates scored well on this part of the question, in particular where a variety of approaches were discussed (rather than focusing on just a few). Some missed marks talking a lot about CDC here rather than waiting for part (ii) and noting that CDC schemes share risks between members rather than with the sponsor.
(ii)	Again this part was generally well answered, although some candidates didn't notice the question asked them to highlight the difference to a traditional DC scheme and just talked about the features of CDC or compared to a DB scheme as well.
(iii)	Most candidates commented on the fact that salary increases may be expected to increase at a higher rate than inflation. However, responses which explored other practicalities were generally higher scoring.
(iv)	Generally well answered, with many candidates mentioning the more traditional ways to reduce/remove risks.
(v)	Many candidates missed out on marks on this question where they did not expand sufficiently on the point they were making in their response (e.g. competition or mortality improvements etc)
(vi)	Some candidates struggled with the roll forward and change of basis calculation. A surprisingly low number of candidates mentioned expenses when estimating the cost of securing benefits with an insurance company, but the better candidates took the time to set out their calculation step by step, including any assumptions being made. Quite a few candidates also forgot to deduct he asset value when calculating the cost to the employer.

Q2

(i) (a)

New regulations have come into force making TVs more attractive [½]
possibly making them more generous or tax efficient [½]
or additional freedoms possible with TV [½]
members have been talking to each other and encouraging TV requests [½]

a financial adviser could have been promoting themselves locally [½]
the sponsor could have started providing cheap/free advice [½]
could have been a national awareness campaign [½]
or a scheme specific awareness campaign [½]
possible worries about sponsor's solvency [½]
could have becomes standard practice to provide TVs on retirement quotes [½]
ETV exercise may have been carried out [½]
(b)
If TVs have been provided as standard possibly most people aren't interested [½]
cost of any statutory advice may be prohibitive [½]
or advice not available if it is required [½]
TVs may not be good value for money [½]
so advisers are not recommending that they are taken [½]
TVs could be being reduced so reducing take up [½]
Greater concerns over the risks of transferring out [½]

[Marks available 9, maximum 6]

(ii)
CETVS usually calculated using best estimate assumptions [1]
whereas the funding basis normally set prudently [½]
main difference usually in discount rates [1]
however TV basis may not take account of options if they have lower value [½]
such as pension exchanged for cash [½]
benefits valued may be different [½]
for example, for active members no allowance for future salary increases are taken account of [½]
which are probably higher than any revaluation assumed [½]
also, for active members, contingent (e.g. death) benefits may be lower under the CETV basis [½]
discretionary benefits may be allowed for in funding basis but not TV [½]

[Marks available 6, maximum 5]

(iii)

Analysis of surplus is usually done using the previous valuation basis [1]
There is no assumption for the level of TVs in the funding basis so more or less than expected is not a reason [½]
TVs could generally have been lower than funding reserves at the last valuation [½]
but if yields have fallen over time then TVs will have increased in value in comparison [½]
this would mean that TVs early in the 3 year period would have resulted in a profit [½]
whilst later TVs could have resulted in a loss [½]

There could have been an enhanced TV exercise [½]
so losses could have been made on all TVs [½]
although you would expect this to be shown separately in the analysis [½]

Although TVs in general are lower than the funding basis this won't be true for all members [½]
in particular older members could have TVs greater than their funding reserve [½]
if TVs have started being put on retirement quotes as standard during last 3 years then this could have resulted in more older members taking TVs [1]
TV basis could have been updated sometime after valuation date so first year was using old basis [½]
Or TVs could have been reduced for a while after the valuation [½]
And then not reduced, or reduced less, after a period [½]

[Marks available 8 ½, maximum 6]

(iv)

The Trustees will need to consider any regulation or guidance on reducing TVs [1]
And seek legal and actuarial advice [½]

The greater the degree to which the scheme is underfunded, the more necessary it may be to reduce TVs… [½]
…in order to protect remaining members [½]
The stronger the employers' covenant, the less that trustees may feel it necessary to reduce TVs. [½]
…because there is a greater chance that the employer will make good any shortfall [½]
The sooner that any shortfall in the scheme's funding level is to be paid off under a Recovery Plan, the less necessary it may be to reduce transfer values. [½]
If there are contingent assets in place to be paid to the pension scheme in the event of employer insolvency, it may not be necessary to reduce transfer values. [½]
Reducing TVs reduces the immediate cost to the scheme… [½]
, the trustees will want to be satisfied that this is necessary to protect interests of other members [½]
…and not just to reduce employer costs. [½]
The sponsor may feel reducing TVs gives a damaging impression of the state of its business… [½]
… and may therefore prefer to make further contributions to enable transfer values to be paid in full. [½]
It is unlikely that any remaining member would lose out as a result of a TV being paid in full unless an employer became insolvent [½]
Even where the sponsor becomes insolvent, central discontinuance funds, (such as the Pension Protection Fund in the UK) could provide a level of protection to most scheme members. [½]
although depends upon solvency level of scheme [½]
The materiality of TVs will also be a relevant factor for the trustees… [½]
…If transfer activity is very low and the size of the TV insignificant compared to the size of the scheme assets, the trustees may feel that a reduction in TVs is not warranted. [½]
If a reduced transfer value is offered, it is less likely to be accepted [½]
There may be a cost of producing a report to enable them to reduce TVs [½]

[Marks available 10½, maximum 8]

(v)
What allowance should be made? [½]
What level would be prudent? [½]
Generally prudent to exclude allowance and funding basis should be prudent [½]
Is there any guarantee that a profit would be made anyway? [½]
On an individual basis there will be losses. [½]
Are those members more likely to take TVs? [½]
Especially with quotes being given to members at retirement [½]
Should seek actuarial advice [½]
Funding is long term and not unduly influenced by short-term experience especially if recent experience is atypical [½]
TV experience may not be material, given size of scheme [½]
…and the fact that the proportion of quotations leading to actual transfers has fallen [½]

[Marks available 5½, maximum 3]

[Total 28]

(i) The candidates scoring well in this part were able to generate enough points for the marks available.

(ii) Most candidates picked up on the prudent and best-estimate nature of assumptions setting but only the better answers included the other differences, e.g. allowance for options, salary, discretionary pension increases etc.

(iii) This part of the question was not generally answered that well. The better candidates were able to understand how such a pattern could arise and construct an answer accordingly. It appeared that some candidates had not read the question fully when talking about allowances for transfer values in their solution (e.g. suggesting the experience derived from differences between the expected and actual number of transfers because the funding basis already allowed for transfers). Other candidates missed the point that the analysis would likely have been done on last time's basis without recognising subsequent market movements in the expected values.

(iv) There were mixed responses to this part of the question. Some candidates did not provide sufficient marks in their responses to get full credit. The better candidates kept their answer relevant to the question being posed.

(v) Generally well answered although few candidates managed to get full marks.

Q3

(i)

Old Scheme has surplus and new scheme has deficit so New Scheme more likely to have prudent assumptions [½]

NS larger than OS so experience less volatile leading possibly to less prudence in assumptions [½]

NS is open and OS is closed and mature so more prudent assumptions likely for OS [½]

The sponsor covenant will be more of an issue for a larger scheme and have a greater impact on the allowance for prudence in the assumptions [½]

The assumptions will reflect each scheme's investment strategy, benefits and member characteristics [½]

OS is closed and therefore more likely to have used the Attained Age Method whereas NS is open so likely to have used Projected Unit Method [½]

Financial

Discount rate for the old scheme the post retirement discount rate likely to be a lot more significant [½]

Possibly even single discount rate as scheme very mature [½]

old scheme much more likely to be invested in bonds [½]

new scheme more likely to have return seeking assets [½]

New scheme will need earnings assumption [½]

Old scheme may too if earnings link still in place [½]

which could be higher than new scheme given seniority [½]

and withdrawal assumptions [½]

and possibly allowance for new entrants [½]

Cash assumption could also be more significant in old scheme [½]

Closed for some time so high paid members might have benefits elsewhere [½]

so perhaps less likely to take cash [½]

especially if poor value and they take advice [½]

Demographic

Old scheme is smaller and for senior staff so individuals more likely to have significant effect on funding [½]

Therefore more likely to investigate appropriateness of assumptions [½]

Such as proportions married [½]

age difference of spouse [½]

Mortality assumptions might be different given the different make-up of the schemes [½]

Senior members may have much lighter mortality than manufacturing staff [½]

More allowance for future improvements in mortality in new scheme as younger [½]

[Marks available 13, maximum 9]

(ii)

Trustees for both schemes will need to consider responsibilities under Trust Deed & Rules[½]

And will wish to see legal and actuarial advice [½]

The balance of power between Trustees and sponsor may be different in the two schemes [½]
Difference in funding level likely to be largest concern [1]
especially for the Trustees of the old scheme [½]
and how priority levels in 2 schemes will be affected [½]
will the assets be ring-fenced to ensure security of members' benefits [½]
member consent may be required or certification on transfer without consent [½]
What will the make-up of the new Trustee board be? [½]
Need to be aware of any conflicts [½]
Were the two valuation bases consistent? [½]
Will need to agree a consistent basis to value schemes at transfer date [½]
and agree how differences in surplus/deficit will be addressed [½]
possibility management as part of merger e.g. small pots [½]

Sponsor will want to consider cost of merger [½]
and whether it is cost efficient in the long term [½]
might be better to buyout the old scheme [½]
Sponsor will have concerns that Trustee will want funding to bring both schemes to same funding level [½]
or at least to remove deficit in new scheme [½]
Which may be unaffordable [½]
Sponsor will want to consider accounting impact [½]
and take legal/actuarial advice [½]
Regulator involvement will need to be considered [½]

[Marks available 12, maximum 10]

(iii)
Obviously less of a concern as it is the smaller scheme that is in deficit [1]
A lot easier to bring funding up in small scheme [½]
i.e. £4m to 100% or £6m to 105% [½]
would also be easier for Trustees of new scheme to agree as so much smaller, even if deficit not fully funded [½]
If assets and liabilities are to be ring-fenced it will make no difference [½]

[Total 3]

[Total 22]

Seemed to be the most difficult of the questions and not as well answered as the first 2 questions.

(i) This question differentiated the answers with the better candidates being able to talk confidently about the differences in the schemes and how that would feed through to the assumptions. The weaker candidates focused more on the generalities of assumption setting, rather than tailoring to the question at hand, e.g. manufacturing, large scheme, open/closed with a separate old scheme with senior staff etc.

(ii) The better candidates looked at the three different parties and made points for each. A key issue would be the relative funding levels of the two schemes which could be determined from a simple comparison. However, some failed to suggest how the funding disparity might be addressed, either by top-up funding or ring-fencing, and the high cost of the funding option. Some candidates went into the specifics of how a merger would work in practice – for example details of the calculations of any payments, or consent issues for members, which wasn't really the purpose of the question.

(iii) Part (iii) of the question was reasonably well answered by candidates, recognising that the difference in funding level was less significant. However, very few scripts stated the likely cost to the employer to equalise the funding level or remove the deficit of the smaller scheme. Some candidates appeared to run out of time and did not answer this part.

END OF EXAMINERS' REPORT