INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2016

Subject ST4 – Pensions and other Benefits Specialist Technical

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.

F Layton
Chair of the Board of Examiners
July 2016

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

1. The aim of the Pensions and Other Benefits Specialist Technical subject is to instil in successful candidates the ability to apply, in simple situations, the mathematical and economic techniques and the principles of actuarial planning and control needed for the operation on sound financial lines of providers of pensions or other employee benefits.

2. This subject examines the ability of candidates to apply core actuarial techniques and concepts, together with specific knowledge of pensions and other benefit arrangements to simple, but practical situations.

3. The Examiners therefore look for candidates to apply their knowledge of the core reading to the specific situation that the Examiners asked, having read the question carefully. Too many candidates write around the subject matter of the question in more general fashion, or focus on one aspect of the issue at great length, in either case gaining few of the marks available.

4. Good candidates demonstrate that they have used the planning time well - an attempt to get a logical flow is a big advantage in making points clearly and without repetition. This also 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.

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

1. The overall standard of scripts was broadly as expected, with a pass rate very similar to the previous sitting.

2. It is very important that candidates consider all aspects of the question, and read the preamble fully. There is never superfluous information in the question, and by using all of the information available, candidates can ensure they give a full answer. Giving just a little more to clearly show depth can turn a close fail into a pass. 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, as mentioned in the general comments above. 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.

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

C. Comparative pass rates for the past 3 years for this diet of examination

Year	*%*
April 2016	42
September 2015	43
April 2015	39
September 2014	43
April 2014	40
September 2013	41

Reasons for any significant change in pass rates in current diet to those in the past:

The pass rate for this examination diet is slightly lower than the September 2015 rate, but not materially different. Variation in the pass rate between sessions is expected as different cohorts of students sit the examination .

D. Pass Mark

The Pass Mark for this exam was 60%.

Solutions

Q1 (i) provide benefits to some or all of the population
educate or require education about the importance of providing for the future
regulate to encourage or compel benefit provision by or on behalf of some of the population
regulate bodies providing benefits, and those bodies with custody of funds, in an attempt to ensure security for promises made, or expectations created
provide a suitable vehicle
tax concessions

(ii) increased life expectancy
more flexibility in choice
generally more flexibility in financial opportunities now
people have different needs to meet
retirement patterns are changing

annuities are expensive
especially inflation-linked
not everybody is married
so no need to provide spouse's benefits
spouse may have own pension
macro-economic effect – with a reason
could force the annuity market to become more competitive
could be popular with voters so good politically
could improve income tax receipts (particularly in short term)

(iii)

	Advantages	*Disadvantages*
Employer	Can help with moving older staff on (early retirement) Reduces costs if people retire earlier if cheaper replacement Happier employees	Staff that you want to stay may retire early Staff may continue past 65 More administration and communications cost
Employee	More flexibility when to retire Could get higher benefit Can stay in pension scheme longer Greater choice Can better meet needs	Annuity prices could rise or fall if less demand Take on more risk if don't buy annuity May need financial advice Which could be expensive
Annuity provider	Might be big rush of annuity purchases now A lot of annuities could be flat so easier to reserve for	Will probably sell fewer policies May have to be more competitive – reducing profits Selection risk

(iv) Brief explanation of lifestyling
Do they just keep current lifestyling fund?
or others targeting cash
or fixed annuities
or drawdown
or stop offering lifestyling fund completely
What about different retirement ages?

Communication with members will be very important
need to find out retirement plans
which could be many years away
perhaps just gather information at 10 years from earliest retirement age i.e. 45
asking what retirement age is being targeted and
whether will take annuity / cash / drawdown
revisit once within 10 years of chosen retirement date
suggest members take financial advice
provide projections on different scenarios to help planning
and review these on occasions

depending on retirement outcome chosen then investments will be different if
members still want inflation-linked annuity at 65 then can keep same fund
different retirement age will just mean switch in assets starts different time
fixed annuity would mean moving to fixed interest bonds rather than inflation bonds
cash would mean a switch to cash like investments
drawdown could suggest mixture of assets…
including continuing to hold growth assets such as equities

it may be appropriate to suggest members take advice on retirement options and investment approach
projections of different scenarios could help

most members will probably not change

could be a large number of withdrawals as members take advantage of new rights
so liquidity could be an issue

additional costs to insurer of changing systems
extra communication/administration costs
particularly if separate lifestyling funds developed
transition issue for those close to retirement

> Parts (i) and (ii) were generally well answered. In part (iii) many candidates did not make sufficient points to score well, with some not stating the advantages and disadvantages for the annuity holder. Only the better candidates answered part (iv) with sufficient breadth of points to score well; some tended to expand in too much detail on a few points.

Q2 (i) **Trustees**

Aim would be to remove interest rate
and inflation rate risk
the value placed on the assets and liabilities should move up and down together
the shape of liability cash flows can be predicted with some degree of accuracy
so a mixture of corporate bonds and governments would be suitable for matching these cash flows ...
... as pension in payments are bond like in nature
currency of bonds should match liability cash flows
could include the use of index linked bonds if available to match real liabilities
but will need to consider term of bonds vs liabilities
swaps or derivatives may also be used to improve this match
the scheme would still be exposed to the longevity risk
longevity fluctuations could invalidate cash flow projections
corporate bonds still carry a credit risk with a probability of default
this risk can vary greatly from bond to bond (i.e. AAA-rated to junk)
possible lack of diversification
bonds may not be good match for any active salary-related benefits
bonds may be a good match to annuity prices if company buys out pensions at retirement
cost is likely to increase as expected returns may be less than if equities are held
consider any immediate affordability issues and sponsor covenant
as risk reduced, in the longer term future deficits are less likely which reduces the reliance on the employer
lack of diversification

Employer

The employer's aim is to increase return
and possibly to match real liabilities
but there will be increased risk
as equities are more volatile
other riskier assets could also include "junk" bonds which will provide higher return
but have much higher default risk
pensions are long term liability the average duration could be over 20 years
some liabilities could be more than 50 years away
over long periods equities should provide higher return
cost is likely to decrease as expected returns may be higher
contribution volatility is likely to increase as liabilities are broadly not matched
possible lack of diversification
possible reduced income stream to meet benefit payments so need to consider liquidity, marketability and volatility as may need to sell assets
lack of diversification

(ii) In short term the likely impact on funding position depends on current investment strategy
and how funding assumptions are determined
both of the changes to the investment strategy may require a change to the investment return assumptions used to value the liabilities
unlikely to affect solvency position

In the medium to long term, the funding position will be affected by the actual return achieved on the assets
and also on the contribution paid into the scheme
cost if changing investments and advice

Move to bonds

The funding position may initially worsen
if a lower investment return assumption is used in the calculation of the liabilities
This may not be the case if the assumptions do not currently allow for the extra return achieved by equities
a worse funding position could increase contributions to the scheme
which would improve funding in the long term
the funding position should be more stable as assets better matched to liabilities
the adjustment for prudence may be reduced to reflect the lower investment risk
and so the worsening of the funding position may not be as large as otherwise

Move to equities

Short term could improve funding position
if extra return allowed for in assumptions
long term equities should provide higher return
so funding position should improve
but equity returns volatile
so funding would be expected to fluctuate

(iii) **Move to bonds**

Appropriate bonds for the liabilities might not be available
i.e. duration, nature or currency
bond cash flows are also 'lumpy' in nature
so will only partially match the liability cashflows
swaps / derivatives can overcome some of this problem
but could be expensive and introduce counterparty risks
there will be reinvestment risk
investment strategy could be broad match or a full cash flow match
full match could be very complexity

Move to equities

Should be simpler than bonds
Need to decide which equities to move into
i.e. index, local, overseas

General
whether to invest passively or actively
Transaction costs of selling current assets and purchasing new ones should be considered
also need to consider the timing of such a switch
and administration involved
need to consider any legislation or scheme documentation restrictions
any requirement to disclose or communicate this change?
or any updates required to scheme documentation?
Agreement may be difficult between trustees and employer
Who has ultimate power?

(iv) Reduce investment (and longevity risks) e.g.
- annuity purchase
- longevity hedging
- a fully matched investment strategy immediately e.g. LDI

Liability management e.g.
- incentive exercises (ETVs, PIE)
- modifying benefits (switch to CARE, break salary increases)
- encouraging options on terms that lead to an increase in the scheme's funding level
- transfer scheme to another fund
- close scheme
- require consent for options

Alternative security provided by the sponsor e.g.
- Charges on assets
- Parent company guarantees
- ... etc.

More conservative approach to funding
- Stronger assumptions
- Higher employer (and member?) contributions
- Mismatch reserve as buffer against adverse experience

In parts (i) and (ii) many candidates stated all they knew about bonds and equities without answering the specific questions set in terms of the trustees' and employer's strategies. Whilst most candidates went into detail on transaction costs and timing of the switch of assets in part (iii), only the better candidates covered a sufficiently broad range of points.

Q3 (i) General issues which are relevant to all decisions (so should only score once)

member's underlying preference for cash or higher benefits (flexibility / his time value of money)
does the member have any immediate need for the cash / higher pension – e.g. to
pay off a mortgage or meet specific financial commitments?
health – if good and expects to live a long time, may prefer pension vs cash and inflation protection (or vice versa)
extent and nature of other wealth in terms of liquid assets and longer-term sources of income
possible loss of future discretionary increases
member should take financial advice
depends on member's other benefits
member should consider value for money of exchange terms depending on personal circumstances

Cash versus pension

What level of income could be achieved by taking cash and purchasing a pension elsewhere ("open market option")
or by reinvesting in some other vehicle?
consider yield / risk of other vehicle against certainty provided by pension
Any sensible numerical analysis of the value of cash vs pension.
are there any restrictions on the use of the cash?
can the member survive on the residual pension?
taxation – are cash and pension taxed at same rate?
if the member takes the cash he is effectively accepting investment and longevity risks
If member is concerned about solvency of pension scheme and sponsoring employer, taking cash is a way of diversifying wealth
need / desire to provide for dependants (pension is single life – unclear what would
happen if the member died shortly after the pension started)

Fixed vs inflation-linked pension

Outlook for future inflation compared to 3%
also need to consider possibility of short-period of high inflation
decision depends on the member's attitude to these risks
fixed pension means the member is accepting the inflation risk
is there any cap on the inflation increases?
although offset by 3% increases
this decision may be affected by whether other sources of income have inflation-protection
what are the terms?

Spouse's pension

Does member have a spouse?
Or other dependants that would be eligible?
Do they need pension, or have their own?
What is the definition of spouse?
Does it include common-law or same-sex?
Married at retirement or date of death?
Does spouse's pension get increase?
Could 10% of pension used to insure spouse's pension elsewhere?
Characteristics of spouse – age, gender, health

(ii) Main aim of sponsor is to manage inflation risk
Easier to buy out / secure pension with fixed increases rather than inflation-linked
3% may be what is assumed in funding so no valuation strains
Or could be less so profit would emerge
Cost could be reduced if terms are penal
3% may be easier to match for investment purposes
To offer members more choice

(iii) Transfer value
Commutation of whole pension
Conversion of increasing pension to flat-rate or other increase rate
Early retirement
Late retirement
Other commutation
Different shapes of pension e.g. "U-shaped"
Income drawdown

> Part (i) was generally well-attempted but few candidates covered a sufficiently broad range of points to score well, with some giving repetitive answers.
> Parts (ii) and (iii) were generally well answered.

Q4 (i) Reasons may be specific to our company's experience
Or due to the overall experience of the insurer
Previous loss leading rates may have now expired
There may have been a large number of recent claims leading to the premium rate being increased.
e.g. people fell ill more
Current provider may no longer be competitive.
Total salaries have increased
Number of members increased
Changing age profile of membership
Changing sex profile of membership
Change in insurance pricing structure
e.g. due to increased regulation
or less competition in market

Changed market conditions have made insuring income replacement benefit a lot more expensive
e.g. lower bond yields
Insuring actuarial liability – if that has increased then premiums will go up
So if assumptions for calculating AL have changed then could cause increase
NRA could have increased
Tax increases
Impaired lives could be living longer

(ii)

	Advantage	*Disadvantage*
Insurer	Reduces risk So reduces premium/reserves needed So could sell more Higher risk members (older) will have large offset	Younger members with largest potential sum insured will have small offset More complexity Less profit
Scheme	Lower premiums IHER has no impact on funding position	No release when member claims So could reduce funding level if allowed for Will need to provide more data Increases risk More volatile premiums

(iii) Market review – may be possible to find cheaper insurer
negotiate with the current insurer to reduce premiums
e.g. profit-sharing
Tighten up (or enforce more strongly) ill-health definition to reduce claims
Reduce benefits, for example
Base on accrued pension, rather than prospective
Or fixed %ge, say 50% of current salary
Or other change (max 2 ways to reduce benefits counted)
Reduce retirement age on which prospective pension is based
Examine self-insuring
but self insurance increases risk to the employer
Have members meet part of the cost
Medically underwritten

Part (i) – generally well answered.
Part (ii) – generally well answered, although some candidates mixed up the advantages and disadvantages.
Part (iii) – generally well answered.

Q5 (i) A self-sufficiency basis adopts very prudent assumptions
to give the scheme a very good chance of meeting its liabilities on an ongoing basis, assuming a de-risked investment strategy
and no further help from the employer

(ii) **Trustees**

Buyout best option
as all liabilities will be fully secured
And scheme can be wound up
So Trustees responsibility will end
And members will have highly secure benefits
As long as insurer remains solvent
Link to members will be lost
all members can be considered equally and benefits reduced as appropriate

Self-sufficiency still really good
But always risk that further funds will be required
And the scheme still needs to be run
with regular meetings, valuations etc.
so still reliant to a degree on solvent employer
may ultimately be additional cost when scheme winds up / buys out
may be difficult treat cohorts of members equitably
as any experience gain or loss may lead to discretionary or reduced benefits

Employer

Buyout basis will be very expensive, perhaps prohibitively so
Removes all liabilities from employer
Including future costs of running scheme
Self-sufficiency should mean no further funding required
But this is not guaranteed
And out of employer's control
And will still have running costs
May be HR issues if benefits reduced
Employer loses ability to use scheme to aid business e.g. manpower planning

Member

Theoretically security should be higher with buyout
Assuming insurer stronger than current employer
The size of the benefit may differ …
if benefits are reduced on buyout …
or good experience leads to a self-sufficiency surplus which is distributed to members through discretionary benefits
The benefits available may differ …
as different options may be available on different terms …
for example a CETV will remain available under the self-sufficiency approach
or cash commutation availability and terms under both options.

link to employer / trustees will be lost on buyout

(iii) Buyout will use more prudent assumptions
as one-off and can never ask for more money
SS in theory shouldn't ask for more money but it is possible if required
So buyout needs to price this in
Buyout costs will also include insurer's profit
Expenses
And solvency margin / cost of capital
Buyout may assume members commute no pension for cash
Or it is on cost neutral basis
Buyout will probably include costs of winding-up
Similarly, for other factors e.g. early / late retirement
Supply/demand will affect price
Data accuracy

(iv) Experience is not as expected
e.g. members live longer than expected
more members are married
take less cash if cash is cheaper
Assets not perfectly matched
So lose out when change in interest rates / yields
Reinvestment risk for gilts / bonds
Or default risk too
Legislation/tax changes to increase cost of benefits
Operation issues
Scheme may eventually be bought out with insurer
When just pensioners remain
Or running costs become prohibitive

Parts (i) and (ii) – generally well answered. Part (iii) – some candidates went into the detail of the individual assumptions used, missing the wider range of points. Part (iv) – answers for some candidates were very brief. Some candidates went into the experience of each assumption which was not required.

END OF EXAMINERS' REPORT