INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2020 Examinations

Subject SP4 – Pensions and Other Benefits Specialist Principles

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
July 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 Principles subject is to instill 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. 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 their 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. Candidates who give well-reasoned points, not in the marking schedule, are awarded marks for doing so.

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

In comparison to the most recent diet of the SP4 examination, a smaller proportion of candidates passed. Due to COVID19 this examination was taken online, so the performance in this examination may not be directly comparable with previous examination diets.

This was a well-balanced exam paper and the better prepared candidates passed. The open book nature of the exam appears to have allowed well prepared candidates to gain some additional marks; there were many candidates who passed with marks well in excess of the pass mark. Conversely the less well prepared candidates appeared not to have benefited. Compared to previous diets, candidate performance showed a much greater spread of marks.

It is very important that candidates consider all aspects of the question, and read the preamble fully. 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.

The questions that were least well answered in this paper were higher order questions Q6(i), examining modeling, and Q7(ii) and Q7(iii), examining the pension environment and managing scheme risks. Candidates generally lacked the depth of response required to score highly in these questions.

Candidates are reminded to pay attention to the command verbs and practice these types of questions as part of their preparation. A list of what is expected for each command verb is available on the IFoA website.

The examination paper was written assuming that candidates would take the examination in normal circumstances – in an examination centre in a closed book environment. Due to the COVID19 pandemic this paper was delivered online and candidates were permitted to refer to their own notes and course material. As such the performance of a minimally competent candidate was boosted and resulted in a higher pass mark than if the examination had been sat in an examination centre.

C. Pass Mark

The Pass Mark for this exam was 62.

177 candidates presented themselves and 46 passed.

Solutions

Q1

Purpose of the valuation [½]
E.g. funding valuation should be prudent (or other relevant example) [½]
Any allowance for prudence could mean understating or overstating the assumption relative to the best estimate [½]
Where cashflows more important consideration, realistic assumptions more appropriate [½]
Objectives of the various parties [½]
Parties interested in safeguarding the beneficiaries' rights will have a preference for prudent assumptions [½]
Parties that provide those contributions will perhaps prefer not to pay more than is strictly necessary and so have a preference for more realistic assumptions [½]
Financial significance of individual assumptions [½]
Investment return / longevity likely to have more impact on valuation [½]
…compared to some demographic assumptions such as proportion married [½]
Consistency between assumptions [½]
Key assumptions such as discount rate and inflation - difference between the values typically has a more significant impact than absolute values [½]
…also important to consider the extent to which other assumptions are prudent, in order to achieve an appropriate overall prudence in the valuation basis [½]
Consistency of assumptions for valuing the liabilities with those for valuing the assets / against funding and valuation method [½]
External factors (e.g. competitors) [½]
legislation or regulation – assumptions may be prescribed [½]
Market conditions [½]
Scheme-specific features e.g. maturity [½]
degree of accuracy in setting assumptions may be more of an issue for mature schemes [½]
…or size of scheme [½]
e.g. more prudence required when not enough data on scheme-specific experience [½]
Allowance for any options / guarantees [½]
Sponsor covenant – including sponsor views and plans [½]
e.g. stronger covenant, may justify lower prudence [½]
level of investment risk being adopted [½]
e.g. if more risky assets invested in, may be appropriate to take more prudent view of future returns [½]
Historic information on the extent of variation in the assumption relative to the best estimate [½]

[Total 7]

This question was looking for a breadth of knowledge regarding assumption setting. It was generally answered well. Candidates who didn't score as well tended to provide a lot of detail regarding the assumptions themselves (including lists of assumptions which were not necessary) and not provide the required breadth of issues to be considered.

Q2

Age:

Minimum or maximum age for eligibility to accrue / receive benefits [½]
Helps to reduce cost of provision [½]
Maximum age commonly used to avoid relatively high cost of administration from short service [½]
…and reduce risks of individual selection [½]
May need to ensure it meets the requirements of age discrimination legislation [½]
Eligibility may be to access certain levels of contribution rates based on age, or to begin to receive any benefits at all [½]

Period of employment:

Requirement to complete a minimum period of service [½]
Also helps to avoid administrative costs of short service [½]
Could backdate contributions on joining for those that meet the minimum service requirement [½]
Could adjust the length of the minimum period to meet cost restrictions [½]
Could aid in retention of staff, thereby reducing recruitment costs [½]

Type of work:

Resources can be diverted towards certain employees [½]
…such as management or executives [½]
…or those most in need of the benefits [½]
Discrimination could be in level or form of benefits depending on the type of work performed by employees and eligibility restrictions [½]
If lower paid employees are eligible there is less cost per employee [½]
Could be used as part of rewarding staff who achieve their goals [½]
Could result in indirect discrimination, such as by gender if a certain type of work is predominantly being done by a particular gender [½]
…which could lead to industrial action against the company [½]

Hours worked:

Benefits may only be provided to full time employees [½]
…or those who work a certain number of hours [½]
…in some countries, it may be illegal to discriminate in this way [½]
Could result in indirect discrimination, such as by gender if part time hours are predominantly being done by a particular gender [½]
Could be seen as discriminating between individuals [½]
But avoids provision of benefits that are excessive in value compared to hours worked [½]

[Total 10]

This was a straightforward question regarding eligibility criteria and candidates were expected to provide detail for each of the four areas.

Most candidates were able to provide 4 examples and briefly describe them, few were able to give the depth required to score well.

Q3

(i)
Target a total level of benefit by allowing for State benefits in setting their own level of benefit provision [1]

(ii)
Reduced rate of accrual [½]
Deduction from pensionable earnings [½]
Bridging / temporary pension (where retirement age differs from state retirement age) [½]
Deduct a proxy for the State benefit that accrues during membership of the scheme from scheme benefits [½]

(iii)
Funding implications [½]
…higher benefits potentially due to be paid [½]
…potential lump sum due to current pensioners in respect of back payments to correct their pensions for the new conditions if implementation delayed [½]
…and if 3% pension increase is higher than inflation increase [½]
…risk implications, such as longevity risk may be increased [½]
…so need to consider risk mitigation, e.g. longevity bonds [½]
…no/minimal impact if inflation greater than 3% [½]
Need to allow for in next funding valuation [½]
…potentially need to bring forward [½]
…higher benefits leading to deterioration in funding position [½]
…higher contributions needed from Sponsor / members [½]
…Sponsor may wish to reduce benefits to mitigate some of the impact [½]
…may need to consider sponsor covenant in light of this [½]
Investment implications [½]
Need for more liquid assets as potential higher amount of benefits to be paid [½]
More fixed investments may be required [½]
Less inflation linkage to pensions [½]
Decision of whether to delay the implementation needs to be considered, in light of its implications [½]
…such as on cost, administration and communication [½]
Need to review option terms, such as cash commutation [½]
Need to review insurance contracts which are based on paying out inflation linked benefits. [½]
Administration complexities [½]
…adjusting benefits to be paid going forward [½]
…as well calculating back payments to adjust pension increases for current pensioners [½]
Managers will need to get specialist advice [½]
…actuarial and legal [½]
Communication may be needed to members [½]

[Total 10]

Parts (i) and (ii) were straightforward bookwork questions and most candidates scored well.

To score well in part (iii) candidates needed to apply their knowledge of pension scheme financing. Most candidates were able to give a good response but few were able to give the breadth required to score full marks. Many candidates overlooked the decision regarding immediate or deferred implementation of the change.

Q4

(i)
Continuation as a closed scheme without any further accrual of benefits [½]
Transfer of the liabilities to another pension scheme with the same sponsor [½]
Transfer of the liabilities to another pension arrangement the member holds (e.g. individual DC scheme, another DB scheme) [½]
Transfer the capital value of the funds to the beneficiary to extinguish the liability [½]
Transfer of the funds to an insurance company to invest and provide a benefit [½]
Transfer of the liabilities to an insurance company to guarantee the benefits (e.g. deferred or immediate annuities) [½]
Transfer of the liabilities to central discontinuance fund, operated on a national or perhaps industry wide basis [½]

(ii)
Advantages:
Removal of company's covenant risk to members [½]
…insurer's covenant risk may be low as insurers may be required to have reserves / a compensation scheme may exist for the insurance industry [½]
Removal of longevity, investment and inflation risks to scheme [½]
...but depends on the extent to which benefits are linked to inflation [½]
Expenses for ongoing administration reduced / removed [½]
…as well as governance requirements for managers [½]
Insurance rates may be competitive as it is a large scheme [½]
Scheme no longer impacts of company balance sheet [½]

Disadvantages:
Risk of insurer default [½]
…impacting security of member's benefits [½]
Cost of annuities [½]
...includes profit margins and contingencies of insurer [½]
…may include premium allowing for data uncertainties [½]
Company may need to contribute to the scheme to pay for annuities [½]
…which has an opportunity cost [½]
… so has potential one off impact on company balance sheet [½]
Costs will be higher if there are a large number of deferred members [½]
… as the cashflows for a deferred member are more unpredictable than a pensioner [½]
Market may not have the capacity to offer annuities as the scheme is large [½]

Need for liquid assets to pay for annuities [½]
…restricts investment strategy [½]
Upside risks passed to insurer (investment, longevity and inflation) [½]
Benefits may not be exactly matched [½]
…premium may be higher as need to cover at least the benefits under the scheme [½]
…member may get more/less benefits than that under current scheme – less if company unable to meet full insurance cost [½]
…unable to provide any (further) discretionary benefits [½]
Managers/company lose communication link with members [½]

[Total 13]

Part (i) was bookwork and most candidates scored full marks.

Part (ii) required the candidate to apply their knowledge to provide a breadth of advantages and disadvantages of annuity purchase. This question was generally answered well.

Q5

(i)
Value of liabilities at the end of the year [½]
Value of liabilities accruing over the year [½]
Increase in the past service liabilities at the start of the year [½]
The actuarial method used [½]
The elements of the basis / assumptions used [½]
Asset value / allocation at the end of the year [½]
Investment return achieved on the assets over the year [½]
Surplus/deficit at the end of the year [½]
Change in the surplus/deficit over the year [½]
Pension cost over the year in respect of any directors [½]

(ii)
Calculation for each age band the number of withdrawals divided by number exposed to the risk of withdrawal [½]
Consider splitting data into further groups if sufficient data, such as by category (staff, works, executives) [½]
Results compared with the assumption adopted [½]
Alternatively calculate expected number of withdrawals based on assumption adopted [½]
…compare with actual number of withdrawals over period in question [½]
The analysis could allow for voluntary and involuntary withdrawal experience and assumptions [½]

(iii)
Results should not be used blindly / consider the results in the context of identifying trends and for long term planning rather than updating assumptions based on one off results [½]
Period under investigation may not be typical and/or representative of future experience [½]

e.g. abnormal events [½]
… or significant random fluctuations [½]
Changes in the way the data was recorded / data errors / data not credible [½]
Insufficient data to split into homogenous groups for analysis [½]
Changes in the balance of any homogenous groups underlying the data [½]
e.g. if data was split by occupation type / sex [½]
Experience could be affected by economic cycles [½]
…e.g. less withdrawals during a recession [½]

(iv)
Refund of surplus from the scheme to the company [½]
Company can use within the business for expansion etc [½]
…depends on size of surplus against company [½]
…and size of surplus compared to scheme [½]
Reducing contributions for future service [½]
…both for employees and the company [½]
…especially if active membership is falling [½]
…and if contributions paid were shown to be higher than cost in the analysis of surplus performed [½]
Reducing contributions for deficit repair [½]
…if these were set at the previous funding valuation [½]
…but risk of deficit in future [½]
Increase benefits within the scheme [½]
e.g. higher pension increases / reducing retirement age / discretionary increases [½]
…depends on expected cost of providing such benefit [½]
Retain surplus in the scheme to protect against adverse experience [½]
Use surplus to strengthen the funding approach e.g. target self sufficiency [½]
Use surplus to de-risk [½]
…e.g. directly invest in a larger proportion of matching assets [½]
…or purchase annuities [½]
…or fund an incentive exercise e.g. enhanced transfer value exercise [½]
Difficulties
Legislation may restrict uses [½]
May require/enforce benefit increases [½]
…including a priority for such increases [½]
Scheme rules may have provision for what can be done with surpluses [½]
Scheme managers may have power/decision making on this [½]
Source of surplus may impact its use [½]
e.g. if due to pension increases lower than expected, may be fairer to provide benefit increase to current pensioners [½]
Surplus is on accounting basis but scheme may be in deficit on other bases [½]
e.g. funding or solvency particularly as the accounting assumptions may be best estimate whereas funding is likely to be carried out on a prudent basis. [½]
…and so managers could argue there isn't a surplus which can be used [½]
Scheme managers may require contributions for paying benefits [½]
…and want any deficit to be repaired as soon as possible [½]
…but depends on strength of covenant [½]
…and surplus/deficit on funding position [½]
Mismatching reserve may be desirable if strategy is risky [½]
…or a cushion could be held to mitigate against volatility of returns [½]

Potential tax implications for refund of surplus [½]
..which could outweigh any potential uses of it within the business [½]
Potential impact on industrial relations [½]
…if surplus not used within the scheme [½]

[Total 18]

Part (i) was bookwork and most candidates scored well.
Part (ii) was relatively straightforward but a significant proportion of candidates failed to score any marks. Few candidates were able to provide the depth required to score full marks.
Parts (iii) and (iv) were generally well answered.

Q6

(i)
Projection of the liabilities
Should allow for unwinding of discount rate/ passage of time [½]
…accrual of benefits (if open to accrual) [½]
…adjusting for member movements [½]
…i.e. exits or entries from/into the scheme [½]
Can use cashflows as a proxy for impact of member movements [½]
…either actual or estimated timing/amount [½]
Allow for changes in assumptions over projection period [½]
…either manual input or move in line with market conditions [½]
…and how then can be adjusted if allowance for prudence changes [½]
…allowance for options and discretionary benefits which may change with market conditions [½]
Projection of the assets
Allowance for investment returns [½]
…either assumed or actual [½]
…if assumed then tracking relevant market data based on asset split [½]
…income and outgo over projection period [½]
…timing/amount and estimated/actual amount of cashflows [½]
…allowance for expenses if paid directly from the scheme [½]
Could instead allow actual asset value to be input if available [½]
Data required
Accurate or summarised funding valuation data [½]
…liabilities split by member status [½]
…weighted average ages / pension amounts / salary amounts [½]
…or individual estimated cashflows from funding valuation [½]
…but more data would increase complexity [½]
Asset value split by asset types may need to be input [½]
…as well as indices to track market movements [½]
…allowing for how investment strategy may change over time [½]
Assumptions

Allow for changes in financial and demographic assumptions [½]
Manual or set in line with market movements [½]
…allowing for possible changes in sponsor covenant / investment strategy [½]
…range would allow sensitivity of results [½]
…but would increase complexity of model [½]
…hence cost of producing model [½]
General points
Deterministic or stochastic projection model [½]
…deterministic cheaper to produce [½]
…only gives results on pre determined set of assumptions [½]
Stochastic more complex [½]
…explicitly allows for uncertainty as requires at least one of the assumptions to take the form of a probability distribution function [½]
…usually financials assumptions are set stochastically, with demographic assumptions set deterministically [½]
Expenses for setting up and running the model should be appropriate [½]
…including maintenance / training [½]
…and be commercially viable [½]
Professional standards / legislation should be adhered to [½]
The model would require a peer review [½]
Model should be practical, with clear inputs and outputs, that can be checked and adapted as required. [½]
Model results should be easily interpreted, verified, communicated [½]
The actuarial control cycle should be followed in the production [½]

(ii)
Funding projection model projects funding position, whereas state model would project benefits [½]
…as state pension is unfunded there is no notion of funded position [½]
…nor any need to project / allow for assets [½]
Funding projection model would be based on a present value calculation approach whereas State projections would determine cashflows [½]
State model would be used to determine what contributions / taxation is required to meet benefit payments [½]
Assumptions relevant to the country's population and appropriate for the State benefits and contribution / taxation structure would be used [½]
…instead of using assumptions relevant to scheme and sponsor specifics for the funding valuation [½]
State model would be modelled using population projection [½]
…rather than a particular scheme membership [½]
Funding projection model could be based on individual member liability projections [½]
…state model unlikely to be based on individual member projections [½]
…instead using overall population level [½]
….as individual population data is likely to be unavailable [½]
Projections under state model would allow for future citizens through birth / immigration [½]
…funding projection model may make an allowance for new entrants if the particular scheme is open to new entrants [½]
Under state model, there is no notion of fixed member as they can move between employment and unemployment back and forth [½]

[Total 17]

Part (i) was generally poorly answered. This was a higher order question and candidates needed to provide both depth and breadth in their response to score well. Many candidates failed to provide the necessary detail.

Part (ii) was generally well answered.

Q7

(i)
Effective date of benefit statements [½]
Details of benefit entitlement
Personal information, including [½]
e.g. name / address / date of birth / social number (marker note - credit given to maximum of two relevant examples at half a mark each) [½]
Scheme membership information [½]
e.g. date joined scheme / date joined company / normal retirement date / normal retirement age (marker note -– credit given to maximum of two relevant examples at half a mark each) [½]
Pension calculation information, including [½]
…pensionable salary at effective date [½]
…pensionable service to effective date, including any part time allowance [½]
…accrual rate [½]
Details of any pension/service transferred in from another pension scheme [½]
Indicative pension figures, including [½]
…accrued pension as at effective date [½]
…projected pension at normal retirement date / early retirement date [½]
…projected cash lump sum at normal retirement date [½]
…indicative transfer value [½]
…potential spouse/child benefits on death after retirement / in service [½]
Details of key assumptions used in projecting benefits to normal / early retirement date [½]
Details of any caveats / limitations in the projections [½]
Contribution obligations
Contributions paid into the scheme by the member over the year [½]
…including any additional voluntary contributions [½]
Investment strategy
Details of the asset allocation of the scheme [½]
…highlighting that assets are invested as whole, not for individuals [½]
Additional guidance
Planned changes to scheme, management or company [½]
Risk warnings, e.g statement that benefits may be reduced if there are insufficient funds [½]
Information about how to spot pension scams [½]
Level of reduction applied to transfer value (if reduced due to underfunding) [½]
Financial advice references [½]
Contact details for the administrator / managers [½]

(ii)
Increased costs (admin, actuarial) due to calculation of transfer values for the statements
Greater engagement from members [½]
…members requesting further transfer value quotations [½]
…or more information about the indicative quotation [½]
…leading to increase in administration [½]
…potentially increasing cost of administration [½]
Reputational risk if an expectation is created and transfer values are different to the indicative values in the statements [½]
Members may compare transfer values with each other [½]
…could lead to complaints if they are perceived as unfair [½]
If transfer values are reduced due to underfunding, disclosure may lead to member pressure for better funding [½]
Increase in members taking transfer values [½]
…need for more liquid assets held by the scheme [½]
…thereby reducing investment returns achieved on the scheme's assets [½]
…increasing the surplus / reducing the deficit in the scheme [½]
…on funding and solvency bases [½]
…as long as transfer value assumptions are weaker than funding / solvency bases [½]
…although the funding level would not always improve, for example it may worsen if the scheme is in deficit and the transfer value is not reduced to allow for this [½]
…managers may want to review transfer value basis [½]
…removal of risks in respect of these members [½]
…such as investment, longevity and inflation risks [½]
…but members may need to leave pension scheme to take up transfer value [½]
…thereby reducing active membership [½]
…potentially reducing workforce depending on age of member if approaching retirement age [½]
…leading to a reduction in the ability of the employer to use the scheme as a tool for manpower planning [½]

(iii)
All members will expect an increase in their transfer value due to an extra year of benefit accrual [½]
…and increase in age [½]
Older members
May think they have lost their fund value [½]
…or believe scheme is less secure [½]
…or not invested well [½]
…especially if they misunderstand their benefits [½]
…so less likely to transfer out their benefits [½]
May believe new transfer value is incorrect [½]
…resulting in queries to the administrator / managers [½]
…including potential complaints [½]
Older members worried as less time to make up difference [½]
Younger members will see higher transfer values so less of a concern for them [½]
…but older members may find it unfair that younger members have higher transfer values [½]
…which may impact working relationships between younger and older members [½]

Younger members more likely to transfer out [½]

Option for managers to address concerns
Communication to all active members [½]
…explaining the change in transfer value basis [½]
…and their rationale for doing so [½]
…likely that change was made as transfer values were unfair for younger members previously and change made was to address this [½]
…offering contact details for any questions [½]
…reassuring that new transfer value allows for extra year of accrued pension [½]
…and there is no error in the calculation [½]
Separate helpline open for transfer value queries from members [½]
Suggesting members use an independent financial advisor if they are thinking of taking the transfer value [½]
The managers could guarantee that the transfer value will be set as a minimum to that of the previous quotation for a transitional period of time [½]
…but this will increase cost and could set a precedent [½]
…which could negate the reason for reviewing the transfer value basis [½]

[Total 25]

[Paper Total 100]

Most candidates were able to generate a number of points for part (i) but few candidates gave enough points to score maximum marks. Some candidates wasted time by listing the type of information that might be provided to members to inform them of the funding position of the scheme; rather than of their own benefit entitlement.

7(ii) and 7(iii) both required a breadth and depth of response. Many candidates were able to talk about the issues at a high level but failed to go into enough depth to score well. Candidates are reminded to pay attention to both the command verbs and marks available to guide them in how detailed to make their response.

END OF EXAMINERS' REPORT