INSTITUTE AND FACULTY OF ACTUARIES

EXAMINERS' REPORT

April 2021

Subject CP1 - Actuarial Practice
Core Practices
Paper One

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.

Paul Nicholas
Chair of the Board of Examiners
July 2021

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

1. The aim of the Actuarial Practice subject is that upon successful completion, the candidate should understand strategic concepts in the management of the business activities of financial institutions and programmes, including the processes for management of the various types of risk faced, and be able to analyse the issues and formulate, justify and present plausible and appropriate solutions to business problems.

2. This subject examines applications in practical situations of the core actuarial techniques and concepts. To perform well in this subject requires good general business awareness and the ability to use common sense in the situations posed, as much as learning the content of the core reading. The candidates who perform best learn, understand and apply the principles rather than memorising the core reading.

3. The examiners set questions that look for candidates to apply the principles specific to the situation set out in the questions, having read the question carefully. Many candidates gain few marks by writing around the subject matter of the question in a more general fashion. Detailed specialist knowledge is not required and nor is very detailed development of particular points.

4. Good candidates demonstrate that they have used the planning time well to understand the breadth of the question and to structure their answer - this is a big advantage in making points clearly and without repetition. This also enables candidates to use the later parts of questions to generate ideas for answers to the earlier parts.

5. Time management is important so that candidates give answers to all questions that are roughly proportionate to the number of marks available.

6. The comments that follow the questions concentrate on areas where candidates could have improved their performance. Candidates approaching the subject for the first time are advised to use these points to aid their revision.

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

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

Paper 1 scored higher than Paper 2 with the average scores being circa 5% different between the papers. Paper 1 was generally answered well with no question giving most candidates concerns although candidates struggled with higher order skills questions with stronger candidates clearly structuring their answers in a coherent way giving evidence that they planned their answers.

C. Pass Mark

The pass mark for this exam was 55.
1,117 candidates presented themselves and 500 passed.

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Solutions for Subject CP1 Paper 1 – April 2021

Q1

Health insurance (medical, dental etc.) [½]

- The individual can access medical and dental care for a known cost when required [½]
- It manages medical and dental costs that fall to the State (tax payers), relatives or medical facilities if the individual has inadequate financial resources when medical and dental care are required [½]
- The individual will be more financially able to support themselves if they are able to work and not completely erode savings if they can obtain the medical or dental care to recover [½]

Income protection/Disability insurance [½]

- To ensure that an individual and their dependents have financial resources following illness or injury to be able to provide for themselves [½]
- To avoid the financial burden of an individual's illness or injury falling to the State (and tax payers) or relatives [½]

Unemployment insurance [½]

- To ensure that an individual and their dependents have financial resources following unemployment to be able to provide for themselves [½]
- To avoid the financial burden of an individual's unemployment falling to the State (and tax payers) or relatives [½]

Pensions (in deferment) [½]

- To ensure that an individual and their dependents have financial resources during retirement to be able to provide for themselves [½]
- For the State (and tax payers) to mitigate the social pressure of individuals needing to work at advanced age when they may not be physically or mentally able [½]
- To reduce the financial burden of those unable or unwilling to work of advanced years falling to the State (and taxpayers) or relatives [½]

Purchase of a life annuity with pension fund [½]

- To ensure that an individual provides themselves with an income for life during retirement [½]
- To ensure that their pension fund does not run out during their life [½]
- To reduce the financial burden arising to the State (and taxpayers) or relatives as a result of individuals squandering their pension fund [½]

Liability insurance (e.g. employer, public) [1]

- To ensure that a third party and/or the State is able to be financially compensated when an individual causes them a loss [½]
- Motor insurance [½]
- To ensure that a third party and/or the State is able to be financially compensated when an individual's motor vehicle causes them a loss [½]

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<u>Long-term care insurance</u> [½]
- To ensure that an individual has access to the care they require in their later years without this cost falling to the State (and taxpayers) or relatives [½]

<u>Mortgage term/endowment assurance</u> [½]
- Ensures that house does not need to be sold (to meet outstanding mortgage) if mortgage holder dies [½]

<u>Travel insurance</u> [½]
- Ensures medical care can be received abroad, otherwise cost to state (in home country) [1]

<u>Funeral insurance</u> [½]
- To ensure that an individual has a dignified funeral after their death without this cost falling to the State (and taxpayers) or relatives. [½]

<u>Property insurance</u> [½]
- Where state would otherwise intervene e.g. flood prone areas [½]

<u>Professional indemnity insurance</u> [½]
- To ensure that customers/stakeholders that are caused a financial loss by an individual through the professional work they have undertaken can be financially recompensed. [½]

<u>Legal protection</u> [½]
- To ensure that an individual can afford to take legal action to remedy a financial loss they have suffered. [½]
- To ensure that an individual can afford legal advice and afford to defend themselves when legal action is taken against them. [½]

[Marks available 19½, maximum 5]

This question was answered very well with most candidates scoring all of the available marks. No marks were awarded where product types were given with no reasoning. Some candidates went into far too much detail for the marks available.

Q2

(i)

<u>Higher claims frequency or severity than expected:</u> [1]
- Concentration of risk e.g. spate of burglaries in same area [½]
- Catastrophe e.g. flooding [½]
- Random variation [½]
- Adverse change in economic conditions meaning policyholders more likely to claim [½]
- Adverse change in regulations, legislation, or tax which mean claims costs are higher than expected [½]
- Increase in 'claims culture' e.g. policyholders more willing to claim for smaller amounts, whereas they weren't before [½]

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- Poor underwriting/claims control (but needs to be justified as to why impact in last 12 months e.g. competitors change their u/w approach, e.g. higher claims lead to stretched resources) [½]

<u>Higher expenses than expected:</u> [½]
- If more claims, then more claims underwriting expenses incurred [½]
- General inflationary pressures [½]
- Higher cost of sales e.g. commission rates [½]

<u>Lower revenue than expected:</u> [½]
- Less policies sold, because product is not competitively priced [½]
- New entrants into the home insurance market or fierce competition, driving down prices [½]
- More policy lapses during the year [½]
- Less renewals during the year [½]

Regulatory fine [½]
Errors in pricing i.e. the premium rates are too low [½]
Adverse mix of business (where cross subsidies exist) [½]
Reserve/capital strengthening [½]
Lack of reinsurance in place to cover large claims over the year or failure of reinsurer [½]
[Marks available 11½, maximum 4]

(ii)
<u>Likely feasible within month</u>
Increase level of debt e.g. bank loan [½]
May already have contingent capital lined up for such an event [½]
Additional money from parent company (if there is one) [½]
Increase premiums but may have knock-on impact on competitiveness [½]
Defer distributions of the surplus or not pay dividends to shareholders, to retain the capital in the company [½]
Defer payment of debt e.g. coupons [½]
Defer any planned investment [½]
Revise fund structures [½]

<u>May be difficult to get all the proceeds within 1 month</u> [½]
Raise capital from shareholders [½]
Reinsurance arrangement that increases reserves [½]

<u>Unlikely to get all the proceeds within 1 month *(Max total of 1 mark for any suggestions in this section)*</u>
Sell off part of the business to fund the increase in reserves [½]
Securitisation of future profits [½]
[Marks available 6½, maximum 3]
[Total 7]

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Part (i) was generally well answered with most candidates scoring well.

Part (ii) was less well answered with few mentioning time constraint and some candidates going into far too much detail on one idea rather than coming up with a breadth of ideas the question was looking for.

Q3
(i)
Liabilities of an insurance company cannot be known with certainty and provisions will need to be set aside for the future. These liabilities may be for many years in the future. This is very different from other financial companies [2]
Judgement will be needed to calculate provisions and there will also be professional guidance and regulation [1½]
There will be unique ways of defining profit to be allowed for e.g. embedded value, regulatory surplus [½]
Specific underwriting/insurance cycles will also need to be allowed for [½]
Future business will also be influenced by uncertainties [½]
[Marks available 5, maximum 3]

(ii)(a)
A lower ratio would be considered better as less of the premium income is being used to cover the claims and expenses [1]
However, this takes no account of investment income which could be significant, so care needed when using this ratio [1]
Also need to consider the possibility of delays to claim reporting and settlement, and how these might affect the ratio [½]
Useful to compare trends over the years [½]

(b)
Shows how much of the business is being reinsured by the company [½]
Which in turn shows how much risk the business is taking and how it is being mitigated by the insurance company via reinsurance [1]
May indicate financial strength of company, or how mature the company is e.g. more reinsurance may be used for a new start up [1]
This is useful but needs to be considered in conjunction with the cost of the reinsurance and what other actions the company are putting in place [½]
Comparting against previous years and the company strategy is useful [½]
Need to consider what risks are being reinsured so a good way of generating questions for the management of the company [½]
[Marks available 7, maximum 4]
[Total 7]

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Part (i) was not answered as well as examiners expected with candidates not really focusing on what separated the two types of company.

Part (ii) was also not answered as well as examiners expected with most candidates delving too deep on one or two idea rather than looking at first order implications. There was also a lot of repetition to (i) which received no credit.

Q4

(i)

Set surrender value to recover:

- Expenses which have been incurred and actual costs of processing the surrender [1]
- Expected profit on the contract. Insurer can choose to recover either all or a proportion of the expected profit [1]
- Penalty charge for breaking the contract [½]
- Cost of any life cover provided up to the point of surrender [½]

The approach may also be because:

- the company wants to give less to surrendering policyholders in order to give more to maturities [½]
- the company wants to discourage surrenders [½]
- of aligning to market practice [½]

[Marks available 4½, maximum 2]

(ii)

Reasons:

- Better immediate use for the money due to change in circumstances or needs of policyholder, including no longer able to afford premium [1]
- Policy may have been missold, or lacked advice [½]
- Worried about future prospects of life insurance company [½]
- Wrong investment philosophy or ESG credentials [½]
- May get less upon insolvency [½]
- Possible tax advantages of early surrender [½]
- Poor customer service experienced [½]

[Marks available 4 maximum 2]

(iii)

Issues:

- Market practice [½]
- Size of with-profits life assurance business, both in absolute and relative terms [1]
- Solvency levels [½]
- Review actual experience vs expected: [½]
- Expenses, both set-up and ongoing [½]
- Maturity payments [½]
- Profit margins [½]
- Amount of surrenders [½]
- Treating Customers Fairly [½]

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- Policyholders' Reasonable Expectations [½]
- Regulator's feedback on surrender values [½]
- Liquidity of asset portfolio backing the policy [½]
- Ensure consistency of surrender values with the premiums paid [½]
- Consistent treatment between surrendering and continuing policyholders [½]
- Any changes required to its systems as a result [½]
- Any communications required [½]

[Marks available 8½, maximum 4]

[Total 8]

Part (i) was generally answered well

Part (ii) was answered well, although some candidates made lots of examples on the same point.

Part (iii) was answered well with the stronger candidates focusing on a range of ideas that the question required, whereas some candidates focused on one or two ideas.

Q5

(i)

- Error in the formula (or algorithm) [½]
- Data provided by the pension scheme or their advisors used to parameterise the model could be wrong [½]
- Leading to potential losses on each trade and therefore impacting the pensions schemes funding position, rather than the expected profits that was planned [1]
- These are issues when a large number of trades could be completed very quickly [½]
- Algorithm may not operate properly in adverse conditions e.g. equities crash [½]
- In a volatile market, the algorithm could stop trading an asset, reducing liquidity of the asset and increasing the volatility [1]
- In very turbulent conditions, trading in individual stocks, or even entire markets,
- may be suspended before an algorithmic trade can be completed [½]
- The negative impact it could have on the pension scheme funding position [1]
- Extreme volatility due to a large number of trades done at erroneous prices, again impacting the volatility of the funding position of the scheme [1]
- A meltdown in one market could impact other markets and assets classes [½]
- Operational risks, e.g. system failures, cyber attacks, lack of expertise, slow management responses to changing circumstances, or other reasonable example) Note this mark is for a specific example, not just mention of operational risk [½]
- The system could be more expensive than expected. [½]
- Investments could end up being made in assets outside of the investment mandate/stated approach (e.g. tobacco companies, weapon manufacturers etc) [½]

[Marks available 8½, maximum 3]

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(ii)
<u>Professional/Ethical</u>
Most major actuarial organisations will commonly have a code of professional conduct, which will outline the ethical and professional standards that all actuaries that are members of that organisation must comply with [½]
The general aim of these frameworks is to promote the role, reputation and recognition of actuaries [½]
An example of this is the Institute and Faculty of Actuaries' requirements in relation to professional conduct set out in their Actuaries' Code [½]
Where principles based the basic principles of professionalism will determine the suitability of solutions to the problems raised. The ethical and professional standards are essential background to the consideration of the solution to any actuarial problem [½]

Examples: *Give marks only if the issue has some discussion included with it*
- Conflicts of interest / Impartiality
- Competence
- Compliance (with regulations, laws, guidance)
- Communications
- Integrity/Honesty
- Speaking Up [3½]

<u>Technical</u>
In addition to ethical and professional standards there may also be technical standards that actuaries must comply with [½]
The aim of technical standards is generally to ensure that users of actuarial are able to place a high degree of reliance on the advice provided by the actuary [½]
Examples of possible aspects of work that technical standards may cover for the pension scheme could:
- appropriateness of the data and models [½]
- transparency of assumptions used in valuing the pensions scheme assets and liabilities [½]
- completeness and comprehensibility of the pension scheme valuation [½]
- communication of the results from the pensions scheme valuation [½]
- communication of the importance of particular assumptions [½]
- communication of any areas uncertainty inherent in the results of the pension scheme valuation [½]
- compliance with relevant legislation or regulations applying to pension scheme valuation [½]
- communication of any divergence from technical standards [½]
- With reasons given for divergence [½]
- Approach to long term advice for the scheme [½]
- Sensitivity Analysis [½]
- Transparency of limitations of work completed that could impact the results of the work being produced [1]

[Marks available 13, maximum 6]
[Total 9]

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Part (i) was well answered by most candidates

Part (ii) was well answered by the candidates that knew this part of the course, although felt in places that a "list" was being given rather than answering the command verb being asked for.

Q6

(i)

Enterprise risk management involves considering the risks of the enterprise as a whole, rather than considering individual business units in isolation [½]
The group should establish a group risk management function at the enterprise level (if one does not exist already) [½]
The group can then impose similar risk assessment procedures on the various business units within the group [½]
This will give insight into the undiversified risk exposures, and the individual undiversified capital requirements for each individual business unit [½]
Each business unit would receive capital in proportion to the risks taken, and where the greatest returns are available [½]
Group risk management can then combine the individual capital requirements for each business unit into the overall capital requirements model at the group level [½]
Consideration will be given about the extent to which the risks within individual business units are related, and the extent to which there is any benefits for diversification or pooling of risks between individual business units [½]

Example diversifications for this group are:

- term assurance mortality risk versus annuity longevity risk
- insurers being in different areas of the world
- the diversification that comes from the GI risks being unique [1]

[½ for each example, max 2]

The overall diversified capital requirements for the group could reduce significantly if there is significant diversification of risks across the group [½]
The overall group may have a particular risk appetite for each business unit. For example it could require each business unit to hold a particular buffer in excess of the business units calculated capital requirement (e.g. 120% of calculated capital requirement) [½]
An alternative "top down" approach could be used, where the group allocates its total capital down to business units without reference to the risks taken across the group. But the "bottom up" ERM approach described earlier should enable the group to allocate capital across the group more efficiently [1]

[Marks available 6½, maximum 5]

(ii)

Firstly would need to consider the <u>standalone opportunity</u>: [½]

- What level of profits would the company expect – NPV/IRR/Payback [1]
- How much capital/risk budget is required [½]
- Does it have experience of this type of risk, or lack data [½]
- Could it utilise experience from the other business units [½]

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- Are there suitable mitigating options available - e.g. reinsurance [½]
- As a 16 yr commitment, what are the risks that Olympic organisers change; what options are there for insurer to withdraw [½]
- Does it give an opportunity to be Olympic Games provider of choice, or provide other similar benefit e.g. sponsorship/reputational [½]

<u>Comparing to other business units</u>

- Does it give a better return for the capital that could be deployed [1]
- Does it meet the aims/brand of the wider company [1]
- Is another business unit in a better place to do the insurance [1]
- Does it give diversification benefits against the risks of the whole company [1]

[Marks available 8.5, maximum 5]

[Total 10]

Part (i) had mixed answers, those candidates that just used knowledge based answers missed easy marks by not tailoring to the question being asked – e.g. examples of diversification.

Part (ii) was not answered as well as expected with the stronger candidates focusing on the two areas – i.e. standalone opportunity and comparing to other business units and then focusing on specific areas.

Q7

(i)

<u>Mortality/longevity</u>

The benefit scheme has 3 sets of members where the mortality has a material impact on uncertainty – i.e. how long will they be paying the members for [1]

For the 100 pensioners over 80, they have large pensions so may be able to afford better healthcare leading to more uncertainty for these members [½]

The 1000 pensioners are average, and therefore less exposed to the uncertainty for any one individual [½]

The deferred members are even younger and therefore creates an even longer period of which mortality is uncertain [1]

Particularly important if there are improvements to mortality over time (e.g. via medical advances) [½]

The pre retirement mortality rate will determine how many deferred members end up getting benefits at all [½]

<u>Inflation</u>

The 100 pensioners over 80 with large pensions have their benefits linked to inflation which is not known with certainty [1]

Are the other members affected by inflation [½]

<u>Options</u>

There are 1000 deferred members who are due to retire in the next 5 years, but this is not certain and some members may transfer their benefits to another scheme [½]

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Or indeed some of the members may retire early or late [½]
An individual withdrawing very early (e.g. within a few years of joining the scheme) could end up with significantly reduced benefits or even nothing at all [½]
Commutation of future benefits is another uncertainty [½]

<u>Regulation</u> [½]
e.g. changing the retirement date would impact when the 1000 deferred members would be paid [½]
e.g. could insist on the inflation rate changing or indeed all members have to be increased with inflation [½]
e.g. could the regulation change who could be paid on members death *(or any other regulatory example)* [½]

What happens on death of the member:
Does the pension have to be continued for a period of time (e.g. guaranteed for 5 years) [½]
Does a pension get paid to the members spouse – this will add some additional consideration on what benefits get paid – e.g. is the member married/etc [1]
The solvency level/sponsor strength - discretionary benefits increase if large surplus; guaranteed benefits decrease if large deficit [1]
Investment risks, including insufficient liquid assets in the scheme to pay the benefits, but in a DB scheme these are only to the secondary extent that the viability of the scheme is put in doubt. [1]
How any discretion is exercised (by trustees, scheme manager) [½]
Level of new entrants to scheme (if any allowed) [½]
[Marks available 14, maximum 6]

(ii)
As above there is uncertainty on what and when the benefits are to be paid, which could make the deficit volatile, especially if reviews at annual valuations allow for changes to assumptions that make the deficit worse [1]
How have the investments performed and expected to perform over the time, i.e. are they expecting to reduce the deficit over time and at what speed [1]
Could the investment strategy be changed over time that would impact the contribution rates [½]
How would the contributions be invested [½]
How inflation would affect the required contribution [½]
Linked to the above, how quickly would the contributions need to be paid – if quickly over 2 years then they are likely to be less exposed to the volatility mentioned above, but over 10 years then very exposes to what the trustees do with the money [2]
Linked to this is likelihood of the sponsor being around in the next 3-5 years [1]
Would there be a member exercise programme from the Trustees enabling the members to leave at lower than the expected reserve required, reducing the deficit now but more importantly reducing the unknowns over time [1]
Could regulations changing meaning that contributions would need to be paid in quicker [1]
Or could regulations just make everything more uncertain [1]
How volatile are the profits of the company and could the contributions be linked to this over time [½]
Is the running of the scheme likely to get cheaper (as members die) or more expensive over time, noting the impact is likely to be small given the size of the deficit [1]

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Could the company outsource any of the advisors to the trustees to reduce the cost of running the scheme and hence the contributions needed [½]

[Marks available 11½, maximum 6]

[Total 12]

Part (i) was well answered but weaker candidates only produced a standard list. There was some confusion on what deferred members v active members meant meaning easy marks were not picked up.

Part (ii) was not answered as well as expected with some candidates just repeating the same points as in part (i). Stronger candidate ensured they added to the points being made, going into a bit more detail to get the marks on offer.

Q8

(i)

The scheme could invest in pooled property investments focusing on residential property. This should give a wider spread of residential property investments (different areas and different types) and this diversification should lower the risk. The managers will have expertise in this area [1½]

Holdings may be more liquid/marketable [½]

This will be a quicker way to gain exposure [½]

However, there would be management charges to pay, or other ways of paying for the expertise [½]

There will be less control under this method. The focus on buying land, developing and renting the properties may not be as desired. Some investments may be in areas the scheme does not wish to invest in [1½]

These investments could be closed-ended or open-ended funds [½]

The scheme could invest in a property company focusing on residential investment. They will, however, have no control over the property company. Also, this investment will be influenced by stock market movements and sentiment [1½]

The scheme could lend a property developer, again with loss of control [1]

The scheme could invest in a company offering equity release / shared ownership mortgages. [½]

[Marks available 8, maximum 4]

(ii)

Benefits of direct rather than indirect investment

May have investment managers with expertise in residential property [½]

Control over the investment [½]

eg enables assets to be chosen which are the best match, choosing assets that meet the risk appetite of the scheme, Enables properties to be held / sold in a way to meet the cashflow needs of the scheme, or other reasonable eg [½]

May be cheaper than indirect [½]

The scheme is large enough; could still get some diversification [½]

Benefits of Residential investment

Property is a real asset and so is likely to be a suitable investment for the benefit scheme as it should provide a hedge against inflation [1]

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Residential property will provide diversification from the existing property portfolio. [½]
The scheme may have ESG or other credentials about investing in residential property [½]
The returns may link to different index e.g. salaries [1]
It may offer relatively high returns [½]
For example, the outlook for investing in offices may be poor, due to more working from home [½]
Investment in residential property may be encouraged by government. For example, there may be fewer planning issues or there may be tax incentives [1½]
The cash flows likely to be regular and will be expected to increase at regular intervals [1]
Residential property is still unmarketable but possibly less so that commercial property if able to sell part of the development (at later stage) [1]
[Marks available 10, maximum 5]

(iii)
There will be legal and regulatory risks at each stage of the investment e.g. limits on rents [1]
There will be taxation risks at each stage of the investment eg gains tax may be imposed on sale of residence [1]
There will also be political risks. Particularly relating to changes in attitudes towards residential investment. This can again affect all three stages [1]
Property is very unmarketable and it takes a long time between buying the property, development and finding the tenants before the income arrives. Also takes a long time to sell when cash is needs and dealing costs are high. Thus, it can lead to liquidity risk for a scheme that needs to make lot of payments [1]
Capital values of the land and building can be very volatile over the long-term [½]
Risk of too many properties concentrated in one area [½]

<u>Buying stage</u>
May be difficult to find land available in a suitable area at an appropriate price [1]
May need to rely on many experts to help which may give rise to operational or other risks [½]
May be difficult to get planning permission for the development required and this may take longer than expected if changes need to be made [1]

<u>Development stage</u>
The costs may be higher than initially planned and the development could take longer to complete than expected [1]
There may be delays due to poor weather conditions or natural disasters [½]
There may be construction problems or problems with contractors [½]
May need to obtain additional finance if costs overrun which may be difficult [½]

<u>Rental stage</u>
The properties may not be attractive to local residents (either due to location or type of property) [½]
The rent required may be higher than local residents can afford particularly if there has been a downturn in the economy since the initial planning stage [1]
Alternative recently built properties may be more attractive [½]
The potential tenants may be more interested in buying property than renting [½]
The costs of administrating the rentals and maintaining the properties may be higher than expected [½]

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Too many investors in the same sector, driving down rents as a result of competitive pressures [½]

[Marks available 13½, maximum 6]

[Total 15]

Part (i) was well answered. It is worth noting that if relevant points were made in (i) and (ii) they were cross credited to the relevant marks

Part (ii) was answered OK but not enough ideas were generated, but those candidates that gave good illustrations around the core points did well.

Part (iii) was answered less well, with only the stronger candidates scoring high marks and it was obvious that they had thought through the multi stage process for this investment type.

Q9

(i)

The characteristics of each of the class of employees would need to be considered [½]

The players should have accumulated a large amount of funds over their playing career and therefore are less likely to need to fall back on the scheme. Whereas the staff with lower income will probably want to fall back on the scheme in retirement [1]

The requirements for ill health benefits [½]

The requirements for discontinuance benefits [½]

The risk appetite of the club (sponsor) needs to be considered. The required balance between funding the scheme and maximising club profits. [1]

The cost of the benefits to be given in each category [1]

The capital and revenues available to fund the scheme [1]

Linked to this will be how much investment risk will need to considered over the lifetime of the policy. The players' benefits could be targeted with more discretionary components; managers and staff with more guarantees [1]

Need to consider the regulatory regime eg minimum age at which benefits can be taken; limitations on form of benefits that can be taken – e.g. benefits must be taken as a lump sum or as a regular income, or some mix of the two; or other specific e.g. [1]

Need to consider the tax regime. Will want to maximise available tax incentives e.g. players' benefits may break tax cap if set too high [1½]

Also need to consider what other clubs have offered, probably not as important due to the loyalty of all the employees of the club [1]

The scheme will need to consider if there are any administration issues for running the scheme, in particular due to the young ages of the players there is an expectation that will need to be administered for a long time [1]

<u>Level/Form of Benefits</u>

- The players would probably consider a lower % of salary due to the higher salary over time. The players could also work elsewhere after their retirement (either into mainstream work or via TV contracts or indeed turning into a manager/coach) and therefore would not be totally reliant on the fund [2]

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- If based on final salary, footballers salary may eventually fall with age, whereas staff salaries would likely increase until retirement [½]
- The managers are closer to a normal retirement age and therefore would require a higher level of benefits but this depends on how they got to this status, if they had been players before then the comments above are equally as relevant [2]
- The staff will have not has high an income as the players and managers and therefore this scheme is likely to be their only source of income in retirement and therefore would prefer a higher percentage [2]

Need to consider whether an inflation linked benefit is appropriate, this is likely to appeal to the staff more than the other two classes of employees [1]
The staff members are also more likely to be concerned around benefits for their partners/spouses [1]
Options and Guarantees are less important here but the staff would probably want a minimum amount to be paid out on early death [½]
The staff are also likely to want a payment/option on retirement, that is a lump sum [½]
The players may want any payment to be deferred until a more normal retirement age [½]
[Marks available 21, maximum 7]

(ii)
Expected future mortality is likely significantly different for each category of employee [1]
Because of different income or lifestyles that each category of member would have been exposed to over the years [1]
Category level assumptions are needed for accuracy (eg of the valuation calculations). A common assumption could in theory be used across the categories, but would need to be a weighted average of the mortality of each category. The weights/mix of categories are likely to change over time, so a common assumption will become inaccurate. [2½]
The players have the highest income but are likely to have had more interesting lifestyles – this could be a positive or negative. They are likely to have been healthier to stay in shape but this may have changed post retirement [1]
The mangers are in the middle and their characteristics will depend on what they did before coming a manager [1]
Manager is likely to have a stressful job and potentially higher mortality; the high income could be put to a use which improves or worsens mortality. [½]
The employees will have the lowest income, with mortality likely the closest to that of the general population. But they could have been exposed to the loyal players social experiences [1]
Also need to consider the impacts of mortality improvements – the players have substantially longer to live based on age and therefore there could be material changes in mortality in that longer timeframe [1]
The relative credibility of the groupings also needs to be considered eg only one manager, so biggest margin for error in mortality assumption [½]
Sometimes only parts of the mortality experience are heterogeneous (e.g. the experience during the initial select period for life assurance policyholders), and the remainder are homogeneous (e.g. the experience after the end of the select period for life assurance policyholders). In such cases the tables are separate (different) during the select period, but combined after the end of the select period. Similarly with the theory of mortality convergence. This could be the case when all of the employees get to older age (say 80) [1½]
[Marks available 11, maximum 5]

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(iii)
Expenses are long term due to the length of time the player's benefits could be in payment. So expenses should be tightly managed to ensure they are cost effective. They could be outsourced to expert providers whose expertise could make the costs more efficient, especially if they run other competitors benefit schemes. Similar benefits could be obtained by combining this scheme with schemes offering similar benefits [1½]
Care would need to be taken with any inflationary expenses; if outsourced this could be reviewed often to ensure good value for money [1]
Investment Expenses could be linked to the performance [1]
Investment expenses will also be determined by the types of assets that need to be managed and the approach taken, i.e. passive versus active [1]
The lower the risk the lower the fees for managing the fund should be [½]
Consideration for scale will need to be considered due to the lower number of possible members of the scheme and outsourcing seems the most logical way to avoid diseconomies of scale [1½]

Actuarial, Legal and Accounting expenses may not be covered by outsourcing. If so, they could be managed by running a tender process regularly to ensure good value was continually achieved [1]
Experts in expense management could be used periodically to consider the costs and recommending courses of action as required [½]
[Marks available 8, maximum 5]

(iv)
As with any benefit scheme of this nature, the liabilities are generally long term in nature and therefore suitable assets need to be considered for this long term liability [1]
Matching is very important [½]
Then should maximise return, subject to risk appetite [1]
May want to have higher risks/mismatch to get a better return if enough free assets [½]
The balance between guaranteed/discretionary benefits needs to be considered
eg high free capital / low guarantees may consider higher volatility/equity assets
eg low free capital / high guarantees may consider low risk assets [1½]
Currency is likely to be unimportant unless any of the employees have moved abroad, or international players want paying in a certain currency [½]
Investments should be chosen to be in line with any stated strategy eg ESG credentials. Views of fans may similarly need to be taken into account. [½]
Suitable asset classes for the scheme would be (*note to markers - do not give credit for a type of investment unless there is some reasoning given about it*) :

<u>Government Bonds</u>
Delivers known income through coupons and can generally be long term in nature. However these are likely to give the lowest level of return so unless the scheme is very well funded it is unlikely that asset class on its own is likely to achieve the level of required income to meet the benefits promised by the scheme [2]

<u>Corporate Bonds</u>
Delivers income and can be long term in nature. Likely to give a higher yield/return than government bonds but is in return for higher risk. The bonds yield will depend on the level of default risk and therefore schemes with lower credit rating (BBB) will have higher yield than higher credit ratings (AAA) [2]

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Due to the duration that could be inforce in respect of the players there may not be bonds long enough to match the liabilities for these members and hence there could be a reinvestment risk unless they consider other assets [1½]

<u>Property/Mortgages</u>
If the rental yield/interest rates are suitable then they are a good source of income for long term liabilities. But create additional risk and expenses [1½]

<u>Collective/Pooled funds</u>
These could be suitable to create diversification if this is linked to a number of corporate bonds as required. This could be important given the size of the scheme
[1½]

<u>Overseas Bonds</u>
These are unlikely to be beneficial unless there is overseas liabilities, but if a currency hedge/derivative was used in conjunction then could achieve higher returns for similar levels of risk. However this is more complicated and costly compared to other asset classes available [1½]

Emerging markets unlikely to be beneficial [½]
Equities may be suitable for the really long nature of the scheme, and should broadly match inflation. But these assets are more volatile in terms of pricing and therefore care should be taken before investing in them [1½]
Consideration should also be given to using index-linked securities to match liabilities linked to a price index and/or benefits as a % of salary [1]
The expenses of managing and investing the assets should be considered [½]
Some cash may be needed for immediate liquidity [½]
[Marks available 19½, maximum 7]

(v)
To check the scheme remains solvent ie able to pay guaranteed benefits [1]
For this scheme:

- because the low number of members may make the experience unstable
- because the differing characteristics of members may make the experience unstable
- due to the possible impact on solvency if the club's popularity drops (eg ticket revenues start falling)
- likely to want to compare with any industry experience [2]

The actual experience of a provider should be monitored to check whether the method and assumptions adopted for financing the benefits continue to be appropriate and get updated
[½]
Need to monitor any trends in experience, particularly adverse trends, so as to take corrective actions [½]
To provide information to management and other key stakeholders [½]
It may be a regulatory requirement. [½]
[Marks available 5, maximum 3]
[Total 27]

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Part (i) was answered well – some candidates considered from DC perspective which didn't answer the question being asked.

Part (ii) was not answered well with only the stronger candidates gaining more than half marks by giving more detail than an overview introduction.

Part (iii) was not answered very well, with candidates talking about group expenses and/or how to conduct an expense analysis scored no marks because it did not answer the question being asked.

Part (iv) was answered well

Part (v) had mixed answers with only the stronger candidates referring to the specifics of the scheme

[Paper Total 100]

END OF EXAMINERS' REPORT

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