



Institute  
and Faculty  
of Actuaries

# EXAMINERS' REPORT

CP1 - Actuarial Practice

Core Practices

Paper One

April 2023

## **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.

For some candidates, this may be their first attempt at answering an examination using open books and online. The Examiners expect all candidates to have a good level of knowledge and understanding of the topics and therefore candidates should not be overly dependent on open book materials. In our experience, candidates that spend too long researching answers in their materials will not be successful either because of time management issues or because they do not properly answer the questions.

Many candidates rely on past exam papers and examiner reports. Great caution must be exercised in doing so because each exam question is unique. As with all professional examinations, it is insufficient to repeat points of principle, formula or other text book works. The examinations are designed to test "higher order" thinking including candidates' ability to apply their knowledge to the facts presented in detail, synthesise and analyse their findings, and present conclusions or advice. Successful candidates concentrate on answering the questions asked rather than repeating their knowledge without application.

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.

Sarah Hutchinson  
Chair of the Board of Examiners  
July 2023

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

The aim of the Actuarial Practice subject is to use the technical and business skills learnt in the Actuarial Statistics, Actuarial Mathematics, Actuarial Modelling and Business subjects, combining them with new material on how the skills are applied to solve real world problems.

The subject provides the essential knowledge of risk management techniques and processes required by all actuaries and is an essential introduction to Enterprise Risk Management, subject SP9 and the Chartered Enterprise Risk Actuary qualification. The subject also underpins the SP and SA subjects, covering essential background material that is common to a number of specialisms.

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.

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. 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.

Well prepared candidates demonstrate that they have spent time in the exam on understanding the breadth of the question asked and on planning their answers - planning 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.

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

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.

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

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

Overall candidates scored the same average mark for Paper 1 and Paper 2 for this session. Paper 1 was much better answered than in previous sessions. It is also worth noting that the stronger candidates used the information provided in the questions to tailor their answers to the question and scored better."

**C. Pass Mark**

The Pass Mark for this exam was 62  
1360 presented themselves and 612 passed.

**Solutions for Subject CP1-1 - April 2023****Q1**

In pricing the company will normally express expenses in a way that matches (in amount and timing) the cost incurred by the company	[½]
Except that marketability / competitiveness may drive an alternative, e.g. may express some per policy expenses as % of premium	[1]
So, in normal circumstances:	
Commissions paid for sales of the home insurance protection product will typically be expressed as a percentage of premium so can assume the same percentage in the model	[1]
Or a fixed amount could be charged for sales made on a fees basis	[½]
If the product is sold direct e.g., via a website (e.g. Go Compare for Home insurance products), the loadings may be lower	[½]
Investment expenses are normally expressed as a percentage of funds under management, allowed for directly by a deduction in the assumed investment return	[1]
As it is a home insurance product which by their nature are short term products (e.g. 1 year unless there are claims), there could be frequent disinvestments, the expense of which can be allowed by a bid-offer spread	[1]
Also as it is a home insurance product there may be no or low investment expenses because the insurance company will put premiums into short term low risk investments and therefore this may not be relevant assumption	[1]
Most office administration expenses are independent of the size of contract e.g., collecting the contributions, policy set up or renewal.	[1]
In that case, need to express as a monetary amount per policy, with allowance for future expense inflation if collected on a regular basis	[½]
Some costs could be expressed as a percentage of initial sum insured - for example any initial underwriting costs	[1]
Claim expenses may vary dependent of claim size	[½]
smaller claims that need little investigation can be expressed as an amount per claim.	[1]
For larger claims, will need more investigation	[½]
e.g., survey damage, so apply higher amount.	[½]
However, estimates would need to be made on what the claim expenses by size and number could be.	[1]
Overheads spread over all policies as a fixed monetary amount per policy	[½]
or as a percent loading on already-allocated direct costs.	[½]

[Marks available 14½, maximum 5]

**[Total 5]**

*This question was answered less well than expected with candidates tending to write more about how expenses could be categorised rather than how they would be expressed.*

**Q2**

(i)

Data protection laws will often require that personal data requested should only be necessary to produce the quotation and process the competition entry	[1]
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The insurance company could be subject to significant penalties as well as reputational damage if it does not follow relevant data protection laws	[1½]
Some of the data submitted by the individual may be classified as sensitive personal data, e.g. medical/illnesses	[1]
which is generally subject to stricter regulations	[½]
than ordinary personal data, e.g. This is especially true of the illnesses	[½]
Individuals may need to be told how their data will be processed,	[½]
including any future promotions,	[½]
and for how long it will be stored., e.g. once the car has been won, the data may need to be deleted;	[½]
once the quote has been processed, the health data may need to be deleted.	[½]
Individuals may need to be told at outset any other purposes that the company is collecting the data for.	[½]
The company may require consent from the individual to use the data for any other purposes than the individual was told at the outset of the policy for other purposes,	[½]
such as subscribing to future email newsletters/ other reasonable example	[½]
The questions asked must otherwise conform to relevant regulations/laws, e.g. anti gender discrimination	[1]
	[Marks available 9, maximum 3]

(ii)

A data governance policy is a documented set of guidelines for ensuring the proper management of an organisation's data. It will set out guidelines with regards to:

The specific roles and responsibilities of individuals in the organisation with regards to data. Policy may require the appointment of a Data Officer to take on this role	[1]
How an organisation will capture, analyse, and process data - this will be covered by suitable legislation	[1]
Issues with respect to data security and privacy	[½]
The controls that will be put in place to ensure the required data standards are Applied	[½]
And how the adequacy of the controls will be monitored on an ongoing basis with respect to data usability, accessibility, integrity, and security	[1]
The policy should be made easily available to individuals	[½]
e.g., on the company's website, and reviewed on a regular basis.	[½]
It must also consider any regulatory requirements	[½]
How the data will be stored and for what purposes will it be used	[1]
	[Marks available 6½, maximum 3]
	<b>[Total 6]</b>

*Part (i) This question was answered well with most candidates picking up the majority of the marks*

*Part (ii) This question was also answered well with most candidates picking up the majority of the marks - however some candidates went into more detail than required.*

**Q3**

Holds provisions anyway:

The company may have chosen to hold provisions despite any regulatory requirement to do so [½]

It may follow overseas regulations which require provisions to be held (e.g. part of a multinational group) [½]

It may effectively be holding provisions by having a matching investment strategy /ALM approach [½]

Holds enough capital/free assets:

The company may hold capital which it uses (among other things) to pay claims  
Or the company may be able to raise further capital [1]

Regulations may require the company to hold high levels of capital/solvency margins rather than provisions [1]

Holds back enough cashflow/assets i.e. has not distributed surplus from premiums received so far:

The company may have retained enough surplus/profits from past premiums to be able to pay claims. [1]

Contract design could mean large premiums upfront (e.g. single premium). [½]

Or pricing contains sufficient prudence, possibly a function of good initial underwriting. [½]

The return on the company's assets has been very positive. [½]

Claims paid from new policy premiums:

If no assets/capital have been held back, the office may be paying claims from premiums being received on new policies. [1]

Few claims have arisen:

Low levels of claims may have arisen so far (relative to capital, retained premiums etc, depending on the company's strategy). [1]

This may be by design of the contract e.g. life policies often have level premiums which initially exceed the long term average payout e.g. annuities have much lower claims initially compared with single premium paid. [1]

Or the claims experience may have been light. [1]

Or claims may have been arising but just not become payable yet e.g. a lot of claims may have been incurred, [½]

but not yet notified to the insurer or a lot of claims may have been notified to the insurer but not yet paid. [1]

Or claims are being met by a reinsurer. [1]

Active claims underwriting e.g. exclusions and litigation to reduce claims payable. [1]

*(Marks were capped on this section to a maximum 3 marks)*

[Marks available 14, maximum 6]

**[Total 6]**

*This question was answered well, with many students obtaining more than 60% of the available marks. Better prepared candidates gave a wider breadth in their answer rather than focusing on one specific point.*

#### Q4

##### Data:

- The main thing that the government will need to ensure is that has accurate data for both before and after the pandemic [½]
- And will also need to be able to split out the data between deaths that have occurred due to the pandemic and deaths that have occurred because of other causes [1]
- This may be challenging because it may not have been recorded by the admin systems when the deaths have been recorded [½]
- Also is the information from the data credible, where has the source come from and can it be verified? [1]
- Is it clear that the death was due to pandemic or just happened during pandemic? Depends on the accuracy of death certificates. May need to collect all death certificates. [1]
- Also, it is possible that deaths caused by the pandemic could take a number of years to emerge [1]
- Is the data split sufficiently (retaining credibility) to see trends that could be affecting the results - e.g. is it impacting specific ages, locations, genders [1½]
- This is important because the liabilities at each group will be different for the scheme [½]
- Can information on socio economic groups be considered/looked at separately? [1]
- Have there been any issues on access to healthcare? [½]
- And is the data split out on date of death, such that they can see impact longer term? [1]
- Ensure sufficient homogenous groups are available to make sensible analysis [½]

##### Other Sources of Data:

- As well as looking at its own data it could consider looking at other data, e.g. ONS or equivalent data [1]
- Other sources could be more useful e.g. public sector could be large and representative of general population by age class etc. [1]
- Other data might be showing a different experience to the public sectors liabilities and the government might want to understand why [½]
- Could work with insurance companies and reinsurance companies to consider whether that has been different [1]
- Any other suitable parties (e.g. CMI, medical experts) that could review [½]
- Overseas data could be used to check findings, but only with special care to ensure relevance [1]
- Any legislation/regs/data protection issues to consider [½]

##### Other Considerations/Analysis of Results:

- The timeframe that the pandemic went on, and the impact of any actions from the Government will be important [1]

##### So splitting into timeframes when things happened would be useful:

- Lockdowns
- Vaccinations [1]
- It may not be absolutely clear when the pandemic started and when it finished, making it difficult to identify deaths from the pandemic and those that are not. [1]

If vaccinations had a material impact then need to consider longer term medical implications (e.g. will they need to continue to fund or would the benefit drop off without boosters)	[1]
The government will need to compare the mortality experience of the scheme during the years of the pandemic versus pre/post pandemic experience, ideally splitting out the deaths related to the pandemic and the non-pandemic related deaths	[1]
This is important to see if the experience of the scheme has been affected just by the pandemic or other issues	[1]
Looking at the age of the members of that have died would be useful to understand whether the experience is caused by extra deaths or whether they would have occurred anyway (e.g. have they been brought forward)	[1]
So would future mortality be expected to be lower in future years	[½]
Are there other factors that have impacted the longevity in the year other than pandemic - e.g. waiting times for other diseases, time for consultation and treatment delayed that could see ongoing impacts	[1]
Consider locational impacts e.g. rural areas may have less contact between lives than cities	[1]
Need to consider if the government has sufficient expertise to review all of the information	[1]
If pandemic is over then they may not need to do too much analysis on the longer term liabilities.	[1]
But the longer term impacts may be unknown e.g. long covid	[1]
	[Marks available 28, maximum 7]
	<b>[Total 7]</b>

*This question was generally well answered with the best prepared candidates clearly having had time spent on planning their answer. Those candidates that focused their answers on the question being answered scored well, whereas some candidates digressed into areas that didn't answer the question. Those candidates that just wrote down knowledge based answers did not apply to the situation and didn't score well.*

*It is worth noting that there is a lot of marks available for this question, enabling candidates to score well.*

## Q5

(i)	
Close the scheme to new joiners	[1]
Restrict new joiners e.g. waiting period/tighten eligibility	[½]
Reduce future benefits e.g. change inflation increases to no increases, increase retirement age ( <i>other relevant examples</i> )	[1]
Close the scheme to any future accrual	[1]
Reduce future benefit accrual for existing (or possibly just new) members	[½]
De-risk the accrued liabilities of the scheme if attractive terms can be found e.g.:	
Buyout with an insurance company, longevity swap	[1½]
Increase any member contributions	[1]

Review expense levels/re-tender admin/advice or outsource to cheaper level [½]  
 Review investment strategy/manager - could improve both investment return and expenses of investing [1]

[Marks available 8, maximum 3]

(ii)

Cost and benefits of each option

Closing the Scheme:

What would the impact be on the employees that are still in the scheme / their beneficiaries? [½]

What alternative provisions would be in place - e.g. is there a DC scheme in place that employees could contribute to? [1]

Would employees leave the company creating a skill gap issue? [½]

Particularly important if there are skills that are expensive to recruit [½]

Would the scheme need to serve notice and if so what time frames would there need to be in place before this could happen. [1]

Would there need to be any compensation paid - e.g. additional years, one off payments? [1]

Any legislation requirements that would need to be considered? [½]

Had any promises been made to members/employees/regulators when Company A purchased Company B that need to be considered? [1]

What do other competitors do - are they all closed pension schemes or would be they be at a competitive disadvantage by closing the scheme? [1]

Communication with members. Would different members need different communication - e.g. will vulnerable members need to be contacted differently? [1]

Would there be any reputational damage if Company A did this? [½]

Surplus and deficit issues and how addressed [½]

Accounting and tax treatment, and impact [½]

Removing the Scheme for the Balance Sheet:

How well funded is the scheme, would it require one off payments in which to offload the scheme? [1]

Is the data in a good place or will there be costs in ensuring all information is available? [½]

Linked to this are there any discretionary benefits that need to be legally agreed - e.g. are discretionary increases regularly offered? [1]

How would the company remove the scheme - would they go to an insurance company, consolidation vehicle or any government fund? [1]

and would there be any legislation issues to consider? [½]

or security to the members for each option [½]

Could consider offering members a lump sum payment to give up their benefits but similar considerations to above would need to be thought about? [1]

Would they company need to pay for advice on the options above? [½]

and generally they would need legal, actuarial advice on all options [½]

How attractive are the costs/terms for removing the liability, which could depend on:

What are the economic conditions?

What level of competition is there amongst insurance companies if an insurance company was used. [1½]

Admin/advice costs of closedown. Will lose economies of scale possibilities from merging both schemes of the company	[1]
When is best time e.g. liquidating assets/get best price	[½]
Reputational/legal risk arising from default of counterparty	[½]
	[Marks available 19 ½, maximum 7]
	<b>[Total 10]</b>

*Part (i) This was answered well, with most candidates scoring highly - although it is worth noting that some candidates wrote a lot for 3 marks.*

*Part (ii) This was answered generally well, with the stronger candidates developing their ideas/points more to pick up more of the marks available.*

## Q6

(i)

The same basic steps would apply to all investment assessments:

Initial screening of the investment to identify how much capital required and when. [1]

If the investment is permitted under the investment mandate, falls within a range of criteria [1]

e.g. exceeds minimum return threshold, ethical screening, etc [1]

An investment opportunity failing the screening criteria may still proceed to the next step if there are some other overriding reasons, for example, to maintain a relationship to gain access of other future investment opportunities [½]

The initial screening result will be ranked against other investment opportunities at that point in time to decide whether assessment would proceed to the next stage [1½]

This stage an investment analysis would review the prospectus in a further level of detail that will seek to assess the suitability of the investment to the scheme relative to or in preference to existing investments. [1]

The assessment would look to identify additional features beyond those assessed in the initial screening. [½]

It will also assess the amount of time, cost and effort involved in further assessment steps, for example, [½]

is a suitable financial model available, work involved in financial evaluation, estimated cost of legal analysis and work, etc. [1]

Second stage review of investment opportunity. This stage will involve a detailed analysis of the investment opportunity, risk assessment, financial analysis, financial modelling and legal work [2½]

*[Note ½ mark for each of the points made - e.g. financial analysis scores ½ mark]*

If significant issues are identified during the second stage review sufficient to reject the proposal, then the second stage review may be stopped part way through [½]

The outcome from the second stage will be taken through the governance for a decision. The levels of governance that must be gone through depending on how the investment proposal fits with delegated investment decision authority [1]

Other considerations:

*(½ mark each, maximum 1)*

Matching against liabilities [½]

Diversification/concentration	[½]
Marketability/liquidity	[½]
Tax	[½]
Regulations	[½]
	[Marks available 14 ½, maximum 5]

(ii)	
The valuation method will depend on the objectives and purpose	[½]
The valuation methods that can be used depend on the available information on the commercial mortgages. This can depend on the stage of investment assessment of the opportunity	[1]
Also depends on whether tradeable, exchange traded or a secondary market, if so market value may be a possible valuation method	[1½]

Otherwise there are various valuation methods:	
A commercial valuation product could be purchased is available for the asset class	[½]
An existing valuation model could be reused, possibly after modification; or	[½]
A new valuation model could be developed	[½]

The merits of each of these valuation model approaches will depend on the following:	
The level of accuracy required	[½]
Data available on the commercial mortgages	[½]
Data available to parameterise the valuation model	[½]
The 'in-house' expertise available	[½]
The number of times the model is to be used	[½]
The desired flexibility of the model	[½]
The cost / speed of each option	[½]

A market fair value would need to allow for the cost of optionality within the commercial mortgages e.g. early repayment / other reasonable example	[1½]
Some types of options can be valued using closed form valuation method, whereas more complex options may require a stochastic valuation method	[1]
Important to be able to assess the credit / default risk within the commercial mortgages	[1]
e.g. which supermarkets, state of the market / economy / other reasonable example	[1]
This requires a valuation method that allows the cash flows to be stressed, either deterministically or stochastically	[1]
A discounted cashflow model could be suitable.	[1]
Will depend on cashflows being transparent for valuation; their amount, timing, and nature	[1]
A valuation method to determine capital requirements would need to be a valuation method that allows risk factors to be stressed and then provides a valuation suitable for the balance sheet.	[1]
This valuation method may need to combine features of a risk assessment valuation method and a market fair value method	[1]
Consider any relevant guidance (e.g. regulatory, accounting rules etc) in terms of the valuation approach which should be taken	[½]
Consider the purpose for which the portfolio is being held.	[½]

For example if it is to match liabilities then would want to ensure the valuation of assets and liabilities is done consistently [1]  
 [Marks available 19 ½, maximum 5]  
**[Total 10]**

*Part (i) This question was not answered as well as expected, with generally low level verbiage of specific points.*

*Part (ii) This question was answered less well than (i) – well prepared candidates considered issues surrounding the method of the valuation rather than just listing all the types of valuation.*

**Q7**

(i)

Interest rate - changes in interest rate could affect assets / liabilities /funding position [1]  
 Inflation - assets / liabilities / funding position may be linked to inflation [1]  
 Mortality/Longevity - members of benefit scheme may live shorter/longer than expected (i.e. death benefits cost ; pensions cost) [1]  
 Equity / property market movements - changes could affect assets /liabilities / funding position [1]  
 Credit risk (credit rating or credit spread changes) - changes could affect assets / liabilities / funding position [1]

[Marks available 5, maximum 3]

(ii)

A defined benefit scheme will use liability hedging to ensure that movements in the schemes liabilities will be offset by movements in the assets [1]  
 This will ensure that the scheme remains solvent i.e. can meet its liabilities when they fall due, ensuring members will receive their promised benefits [1]  
 To stabilise costs / risks to sponsor, and stabilises the scheme funding / surplus level [1]  
 Favourable terms available for the hedging [½]

[Marks available 3½, maximum 2]

(iii)

Regulation changes [½]  
 These could affect the benefits that need to be paid out. [½]  
 Guarantees could be introduced relating to future benefits and/or accrued benefits [1]  
 Regulation changes could relate to assets that must be held. [½]  
 New rules could be introduced relating to the proportion of assets which could be held in a particular assets type (these could be maximum or minimum amounts). [1]  
 Some assets could be disallowed. [½]  
 These changes would affect the investment return [½]  
 Regulation changes could relate to the provisions which need to be held. [½]  
 If these are increased the scheme will need to fund them. [½]  
 This will be more difficult if there is limited time available [½]  
 There will be risks if there are significant changes in the membership. [½]  
 This could be due to a large number of redundancies, or a takeover occurred. [½]  
 The hedging positions may no longer be appropriate [½]  
 There will also be risks relating to the business of the sponsor. [½]

If the strength of the business is reduced then the ability of the sponsor to support the scheme will be affected.	[1]
These risks could relate to the economy in general or the particular business of the sponsor	[½]
Other risks:	
Risk that the cost of running the scheme becomes too expensive.	[½]
Liquidity risks e.g. may have collateral calls that prove difficult to meet,	[½]
Even if the scheme has hedged its liabilities there is risk that the hedge is not perfect	[½]
or default of the hedging counterparty occurs.	[½]
Operational risks e.g. fraud.	[½]

[Marks available 12, maximum 5]

**[Total 10]**

*Part (i) This was answered well by most candidates.*

*Part (ii) This was answered reasonably well by prepared candidates.*

*Part (iii) This was answered reasonably well, however, only well prepared candidates went into enough depth in their points to pick up relevant marks (e.g. Regulation).*

## Q8

(i)

The company could have written more business which will increased the capital requirements of the business	[1]
The business mix could have changed	[½]
The company could have had to change its capital requirements	[½]
This could be driven by change of the model or assumptions that the company uses for capital	[1]
or could be driven by the regulator changing the requirements via rule changes (e.g. asset classes)	[1]
The business could have changed its investment strategy which is more capitally intensive - i.e. trading from AAA to BBB assets	[½]
There could have been adverse shocks	[½]

[Marks available 5, maximum 2]

(ii)

The regulator will be concerned about the risks the business is taking, whether that be investment, underwriting or other risks	[1]
and will want the company to hold sufficient buffer capital	[½]
This is particularly important if the company wants to write new business	[½]
Because it will need to have sufficient capital to cover the new business strain	[½]
It will be concerned about whether the company understands the risks it is taking on, and in particular if it has changed investment strategy/assumptions has it got mitigations in place	[1]
It will want to ensure that the SCR isn't eaten into at which point it will discuss remedies with the company, or avoid company becoming insolvent, causing	

systemic risk to market [1]  
 Company may be big in the country, making it difficult for the regulator to find a  
 rescue solution in the event of any solvency issues [½]

[Marks available 5, maximum 3]

(iii)

The insurance company will need the internal model to reflect the company's  
 specific risk or business characteristics [1]

Indeed the internal model may allow for risks that are not covered in the current  
 model [½]

The assumptions could be more realistic, and the company may have better, more  
 appropriate experience which can help assess both the assumptions and the relative  
 stresses for its capital model [1]

Clearly if the advisor is correct then there will be a significant reduction in capital  
 (£0.3b) which could be used to fund new business [1]

The internal model will have less approximations - especially in modelling risk [1]

E.g. can incorporate uncertainty / correlation between risk scenarios [½]

The required capital may end up increasing [½]

The internal model could be used for other purposes [1]

The calculation under the internal model will be more complex and time consuming  
 to calculate for the company [1]

The company will need to explain in detail to the regulator why their model is  
 valid and it is expected that the regulator will compare the results of the internal  
 model to the standard regulatory model [1]

All of this could be very costly to the insurance company. There will be  
 significant expertise and resources needed to develop and maintain the model,  
 which will be costly over both the short and long term [2]

It could be a potential barrier to future acquisitions by the insurance company [½]

May give the public less confidence in the results [½]

[Marks available 11½, maximum 4]

(iv)

General track record, reputation, established or not, fit and proper persons, financial  
 strength, any professional guidelines or codes of conduct subject to [1]

Any complaints or disputes registered with the adviser [½]

What experience does the advisor have in modelling - and does it have suitably  
 qualified staff, resources to complete the assignment properly within required  
 timescale [1]

Does the advisor have the experience in discussing and getting approved internal  
 models with the regulators [1]

Does the advisor understand the specifics of the business that the company writes [1]

And in particular around the stresses that may be required to the base assumptions [1]

How many companies has it worked on [½]

How does advisor approach key risks/ESG? [½]

Any conflicts of interest? [½]

Alignment to the values, culture of company [½]

[Marks available 7½, maximum 3]

**[Total 12]**

*Part (i) This question was answered well - however candidates sometimes mixed up the company specific and market issues.*

*Part (ii) This question was answered reasonably well - however candidates that only focused on the company scored less well than candidates that focused on the wider impacts.*

*Part (iii) This question was answered well but not quite as well as the examiners expected.*

*Part (iv) This question was answered well by those candidates who looked for proxies for the character, expertise and resources of the advisor to perform the specified work, rather than just discussing the general contract and commercial points.*

## Q9

(i)

There has been a market shock, and this is likely to affect all assets [½]

The property investment has fallen significantly more than the average for the assets held. This could be for many reasons [½]

There may have been a flight to quality which has increased the value of government bonds. This may also have affected corporate bonds but perhaps to a lesser degree as the default risk on these bonds may have increased [1½]

Infrastructure may have been relatively stable, but this would depend on the infrastructure held [½]

Equities may have fallen in value. However, if equities held are more defensive then the value may have fallen by less than for average equities [1]

The market shock may have particularly affected property. This may be due to a reduction in demand and / or an increase in supply [1]

There could have been a reduction in demand for office, retail or industrial property [½]

There may be less demand for office space due to more employees working from home or a change in technology leading to fewer staff being needed. Demand would also be affected if companies were relocating to another country [1½]

There may be less demand for retail space if there was an increase in online shopping. Also, if shops were going out of business for other reasons, perhaps due to economic downturn [1]

Less demand in leisure sector on restaurants, pubs, hotels parks etc [½]

There could be less demand for industrial space if there was a downturn in the economy. This could also be affected by relocation to other countries, possibly reacting to structural changes like Brexit or tariffs [1½]

Property would also be affected if there was an increase in supply. This may be due to institutions selling property or there could have been oversupply building up before the market shock as there will be a time lag with property development [1]

The fund could have been particularly badly affected if their property portfolio was not well diversified. The proportion of the portfolio invested in property may be overly concentrated on a particular sector which has been particularly impacted by the market shock [1]

Property values may have fallen significantly due to change in the regulatory or tax regime [½]  
 There may be lower credit availability following market shock. [½]  
 Various economic shifts e.g. interest rate rises, costs of financing, unemployment/inflation rising, any reasonable example [1½]  
 [Marks available 14½, maximum 7]

(ii)  
 If the fund did not hold any retail investments, then adding a shopping centre to its property portfolio would increase its diversification [½]  
 However, the shopping centre will be in one location and so this would reduce diversification within the retail property portfolio [1]  
 The shopping centre may be available at a relatively good price. [½]  
 This may be due to the market shock and so may be expected to provide a good return [½]  
 The level of income may be relatively high which may suit the fund. [½]  
 Real returns are expected from rents. [½]  
 The return on the shopping centre may be secure, particularly if the company's renting out premises in the shopping centre are tied in for long leases [½]  
 If the property is in a good location which will be attractive to shoppers then the shopping centre will potentially attract really good companies. [1]  
 Has there been any reduction in demand? [½]  
 This could be related to an increase in online shopping. [½]  
 Is this likely to continue? [½]  
 Are retail units closing down? [½]  
 If the long-term future looks secure this may be a good opportunity. [½]  
 Also transport links, shopping trends e.g. more local / green. [½]  
 Tenant quality and what do they sell e.g. high margin or pound shops [1]  
 How prime is the centre [½]  
 e.g. Age and condition, condition expenses / maintenance needed [1]  
 The investment will be large and very illiquid which could be an issue for the fund [1]  
 The size of the fund is important - if the fund is very large investing in one shopping centre may be reasonable. If the fund is very small there is a risk that investing in the shopping centre may lead to too much concentration risk [1]  
 Difficult to determine value/return as unique/niche [½]

[Marks available 13, maximum 6]

**[Total 13]**

*Part (i) This question was not answered well with some simple marks being missed by many candidates. Stronger candidates focused on the immediate possible financial effects of the shock both on the property and other investments.*

*Part (ii) This question was answered better than part (i) with stronger candidates answers looking at the longer term benefits and risks of this specific type of asset.*

## Q10

(i)

There will be a need to estimate how long a life will live, as this will determine how long payments are to be made and therefore their cost.	[1]
Different factors affect longevity e.g. age, sex, location	[1]
In this case, various health conditions will also be important drivers as impaired lives are sold to	[1]
By grouping, the number of lives with the similar characteristic will increase. If the size of the group becomes big enough, then as a result of the Central Limit Theorem (law of large numbers), the profit per policy will be a random variable that follows the normal distribution with a known mean and standard deviation. With enough homogeneous groups overall, the company can use this result to set premium rates which ensure that the probability of a loss on a portfolio of policies is at an acceptable level	[1]
Being able to demonstrate, with statistical significance, that different groups exhibit different longevity may be a requirement (e.g. by regulator) of using the relevant grouping factor to set premium rates	[1]
The groupings also help to ensure that similar policies are treated fairly in the rating process	[1]
The likelihood of anti-selection by policyholders will be reduced. If the company does not use homogeneous groups when pricing annuities there is risk that it could under or over price certain risk, and competitors could end up attracting the best risks	[1½]
	[Marks available 7½, maximum 5]

(ii)

(a)

To avoid spending retirement funds too quickly or too slowly, given an uncertain remaining lifespan. The idea is to maintain an acceptable standard of living for the remaining lifetime	[1½]
The individual may have liabilities which are well matched by an annuity e.g. annual nursing home fees	[1]
There may be regulatory/legal requirements to buy an annuity	[½]
The annuity may simply represent great value for money and / or have tax advantages	[½]
Allows the individual to convert the capital they have accumulated up to retirement when working into a regular income which they will need in retirement, with appropriate options e.g. increases, spouse benefits, guarantee periods	[1½]
Super healthy individuals may be able to select against insurer (e.g. no underwriting)	[1]
	[Marks available 6, maximum 3]

(iii)

Lives with very large funds are likely to be treated individually	[1]
Individual treatment can be very costly, which might make annuity premiums too costly	[1]
as the annuity market is extremely competitive and works on fairly thin profit margin	[1]
Individually treated lives should present enough risk of mispricing to justify the increased expenditure	[1]
Impaired lives, with unusual medical conditions, are also likely to be treated individually.	[1]
Where they do not fit into the broad homogeneous groups outlined above	[½]

[Marks available 5½, maximum 2]

(iv)

By definition of its name, it is a convenient and cheap way to code lives into different homogeneous groups based on their address. [½]

It gives an immediate indication of one of the principal factors that affect mortality, namely geographical areas / climate. [1]

This would indicate proximity to healthcare for example: [½]

Usually groups of houses are of broadly similar style / value, so we also get an indication of another principal factor - housing [1]

By associating with other available data, it can also imply - to some degree of certainty - other principal factors typically: [½]

Social class [½]

Income/wealth / education/occupation band [½]

[Note give a maximum of 1 mark for 2 of the above - i.e. social class/income/wealth/education/occupation]

In theory, the postal code helps us with a lot of homogeneous grouping factors [½]

The usefulness in practice depends on how indicative the postal code is of the true underlying longevity characteristics of the annuitant. In particular: [½]

Someone giving their postal code may not mean they always live there [1]

e.g. may have more than one address and chooses the postcode likely to give highest annuity [1]

May deliberately live somewhere different prior to buying annuity to get best rate [½]

The wealthiest annuitants, who represent the biggest risk to the company, are the most likely to take these actions [½]

The house someone lives in may not be their own [½]

May be a relative of the homeowner who has come to live in the house [½]

They may have been able to afford quite a different house in their own right [1]

They may have moved to a relative's house particularly because they are retiring [1]

There might be a mix of individuals with very different health / housing in some post codes meaning the post code may not be very good indicator of the health of individuals in that post code [½]

Factors will change over time within a postcode e.g. gentrification [½]

Other companies may not use postcode as a rating factor [½]

So a degree of anti-selection will impact the usefulness [½]

i.e. people shopping around will choose providers not using a postcode where it gives better rate [1]

[Marks available 14½, maximum 6]

(v)

Class selection [½]

I.e. each of the homogeneous groups used in pricing will be expected to exhibit different mortality [½]

As a whole, the annuitants will have lighter mortality because the impaired lives have been separated out [1]

Time selection [½]

The usual pattern is for mortality rates to become lighter (improve) over time, due to medical advances [1]

Adverse selection (or anti-selection) [½]

Characterised by the way in which the select groups are formed rather than by the characteristics of those groups	[½]
May involve self-selection, which acts to disrupt (act against) a controlled selection process which is being imposed on the lives	[½]
E.g. if this company has insufficient rating factors compared with competitors then it will attract substandard lives	[½]
E.g. in deciding whether or not to purchase an immediate annuity with pension funds, those who decide to purchase an annuity usually experience lighter mortality than those who decide not to do so	[½]
Spurious selection:	[½]
When homogeneous groups are formed we usually assume that the factors used to define each group are the cause of the differences in mortality observed between the groups	[½]
However, there may be other differences in composition between the groups, and it is these differences that are the true cause of the observed mortality differences.	[½]
Ascribing mortality differences to groups formed by factors which are not the true causes of these differences is termed spurious selection	[1]
E.g. the postcode for an annuitant may not actually correctly reflect their life expectancy	[½]
Temporary initial selection may also be present because some lives may be underwritten, or as a result of self-selection.	[1]
Starting from that point in time, the lives may exhibit a different level of mortality from the other lives, but the difference is temporary.	[1]

[Marks available 11, maximum 5]

**[Total 21]**

*Part (i) This question was not answered as well as expected with many candidates just repeating knowledge base points rather than tailoring the solution to the question being asked.*

*Part (ii) This question was not answered as well as expected, most got the fundamental points but then didn't give enough depth to score all of the markers available.*

*Part (iii) This question was not answered well, but in some cases candidates went into far much detail for the 2 marks on offer.*

*Part (iv) This question was not answered well, with few candidates focusing on the question being asked and just listing other possible rating factors rather than considering postal code.*

*Part (v) This was generally well answered when the questions was understood.*

**[Paper Total 100]**

**END OF EXAMINERS' REPORT**



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