

INSTITUTE AND FACULTY OF ACTUARIES

Curriculum 2019

Subject CP1 – Actuarial Practice

Specimen Examination Solutions

Paper 2

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. Where appropriate the examiners would award credit for well-reasoned points, linked to the scenarios, but which are not in the solutions.

B. Comments on the Specimen 2019 CP1 paper

- The two case studies in this paper have been developed for this exam and are not based on past CP1 exam questions.
- As outlined in the Specimen 2019 Paper 2 exam question students need to link the information provided in the background information. Limited credit would have been given to generic answers that did not refer back to the information provided.

C. Pass Mark

The Pass Mark for this exam was 60.

Assignment 1

1.

Company's own past data

XYZ Insurance's historical mortality data is likely to be a primary source of data used in determining assumptions about future mortality experience for each of the company's business lines. 1/2

The company should be asked to provide a number of years of past mortality data. 1/2

A decision will need to be made on the number of years of past data to be used in the analysis. 1/2

The balance between the number of past years used in the analysis against the credibility of the data from previous years for projecting future mortality assumptions. 1/2

Potentially the most recent year's data will be most relevant for projecting future year's mortality. 1/2

Older data may also carry a greater risk of data error, possibly to the extent that it outweighs the usefulness of having more data. 1/2

Mortality experience will potentially differ between specific subgroups of policyholders. 1/2

Therefore it is important that the past data used in the analysis is relevant to the groups of individuals about whom assumptions are to be made. 1/2

Historical mortality data should therefore be split into relatively homogeneous groups, for example, by type of product, age and gender in a mortality investigation. 1/2

Heterogeneity in the data groups used in the analysis could potentially distort the results and could lead to the company setting provisions that are too big or too small. 1/2

However where data is too scarce, splitting data into homogenous groups may result in data groups that are too small to enable any credible analysis to be carried out. 1/2

Therefore the balance between splitting the data into homogeneous groups and having sufficient data in each group to enable a credible analysis to be carried out should be considered. 1/2

It may need to be accepted that data may need to be combined into groups which are less homogeneous, but which are large enough to be credible. 1/2

Particular consideration needs to be given to the features of the business sold by XYZ, and the Term Assurance and Annuity business will be analysed separately.

- Term Assurance Business
 - The main risk for term assurance products is policyholders dying earlier than expected (based on mortality assumptions). 1/2
 - XYZ's experience analysis shows that for the Limited underwriting term assurance it is currently underestimating mortality rates (expected deaths in last two years 25% less than actual). 1/2
 - Which means that XYZ may need to adjust its mortality rates for the Limited underwriting term assurance if the number of Limited underwriting term assurances members is significantly high enough to justify changing the assumption. 1/2
 - XYZ's experience analysis shows the mortality assumptions used for the lifestyle term assurance produce more accurately reflect experience than for the limited underwriting term assurance (although actual deaths still higher than expected deaths). 1/2
 - This shows the advantage of good underwriting. 1/2
 - The analysis of mortality for the term assurance business should be split into significant heterogeneous groups to further identify any trends. 1/2
 - For example split by age, sex (if permitted under gender equality laws), occupation, postcode, smoker status and type of underwriting. 1/2

- Annuity Business
 - For annuities, the biggest risk is increased longevity meaning annuitants live longer than expected (based on mortality assumptions). This would mean the annuity was paid for a longer period of time. 1/2
 - For XYZ's annuitants, actual number of deaths is higher than expected deaths. 1/2
 - This releases a surplus from the reserves as annuities are being paid for less time than XYZ expected for those members that died. 1/2
 - Annuity business should also be split by age, sex (if permitted under gender equality laws), occupation, postcode, and smoker status. 1/2

Consideration should be made about the conditions that will apply in the future period to which the projections will relate and how those conditions will lead to differences from the past data that is being used. 1/2

When projecting future assumptions using past data it is important to recognise that without adjustment past data may give false results where experience in the past data is not replicated in the future. 1/2

To ensure that past data is appropriate for projecting forward future mortality assumptions, adjustments may need to past data with respect to dealing with issues such as:

- abnormal fluctuations 1/2
- changes in the experience with time 1/2
- random fluctuations 1/2
- changes in the way in which the data was recorded 1/2
- potential errors in the data 1/2
- changes in the mix of homogeneous groups within the past data 1/2

- changes in the mix of homogenous groups to which the assumptions apply $\frac{1}{2}$
- changes in the composition of the business mix $\frac{1}{2}$

Consideration will also need to be made if there has been any changes in the way that data has been recorded as this could potentially cause distortions. $\frac{1}{2}$

Often the adjustments made to the past data is done in a subjective manner to allow for differences in the characteristics of the individuals concerned. $\frac{1}{2}$

Expert input would normally be sought in determining any adjustments made to past data. $\frac{1}{2}$

In setting mortality assumptions consideration will need to be made in respect of the base mortality for each line of business in future, and the extent of any future improvements in mortality. $\frac{1}{2}$

Mortality data is likely to be affected by medical advances. Past data should be considered with this in mind. $\frac{1}{2}$

This is likely to result in significant emphasis being placed on the most recent data with consideration of past trends and their underlying reasons being important in determining the extent of future change. $\frac{1}{2}$

Although trends from past data may not be representative of what happens in the future. For example past data may not be that relevant for determining future mortality improvements where considerably more is likely to be spent on medical improvements in the future compared to what has been spent in the past. $\frac{1}{2}$

Again when considering assumptions for future mortality trends consideration should be made to the potential issues for each type of business:

Lifestyle term assurance Business

- If falling improvement rates are as a result of lack of investment in medical advances, but the opposition has promised to significantly increase investment if elected, the fall in improvements could be seen as a blip rather than a trend. $\frac{1}{2}$
- If it's a blip, the mortality assumption for this product wouldn't need to change $\frac{1}{2}$
- If it's a trend, reducing improvement rates will reduce expected life time meaning term assurance rates would have to increase as more likely a policyholder will die and a benefit will have to be paid. $\frac{1}{2}$
- Making smoking illegal would increase life expectancy meaning term assurance rates would fall. $\frac{1}{2}$
- This would apply to smokers (obviously) and to non-smokers (no longer affected by secondary smoke). $\frac{1}{2}$

Annuity Business

- Making smoking illegal will increase life expectancy $\frac{1}{2}$

- Smoker status should be a rating factor for annuities so will only be the cost of annuities for smokers that will be affected (may be a small impact on non-smoker annuities due to removal of secondary smoke impact). $\frac{1}{2}$
- Current annuitants will be expected to live longer – the policy is already on the books and is likely to be a lifetime policy therefore reserving will have to increase to allow for increased longevity. $\frac{1}{2}$
- A mortality study using the companies experience should be done (provided there are enough policyholders) to help produce more realistic mortality rates than using the whole country survey. $\frac{1}{2}$
- Spouse’s mortality rates could also be affected in the same way. $\frac{1}{2}$

National Data

Consideration needs to be made about the relevance of the mortality experience for the whole country compared to the mortality experience of XYZ’s business lines. $\frac{1}{2}$

One disadvantage of national data is that it includes all lives, and not just the restricted population that take out insurance contracts. $\frac{1}{2}$

National data is therefore likely to include lower socio-economic groups. $\frac{1}{2}$

These citizens are not likely to have taken out insurance policies due to cost $\frac{1}{2}$

Therefore mortality rates are likely to be higher for whole country rather than insured population $\frac{1}{2}$

Should also consider that the whole country mortality rates will be more applicable to the limited underwriting term assurance given it is less expensive and the underwriting process is quicker and less intrusive for potential policyholders. $\frac{1}{2}$

Consideration also needs to be made with respect to any adjustments that need to be made to national mortality data to reflect continuation of past historical trends. $\frac{1}{2}$

Consideration should be made with respect to whether there have been any changes in the statistics produced by the State or data recorded by companies may change.... $\frac{1}{2}$

.....such changes distort the past data and could lead to inappropriate assumptions unless these changes are recognised. $\frac{1}{2}$

The company would need to understand the driver’s for the change in the mortality improvement rates from the whole country and the extent to which these changes would apply to XYZ’s own business. $\frac{1}{2}$

Purpose

Need to understand the basis on which the company's reserves should be calculated. ½

For example should the company's reserves be determined on a best estimate basis or should reserves be determined allowing for a margin for prudence. ½

If a margin for prudence is to be added to the assumptions for each line of business then need to consider how this will work. For each line of business consideration will need to be made about whether prudence is an overstatement or an understatement of mortality. ½

For example it would be prudent to underestimate future mortality in determining the reserves for annuity business, but it would not be prudent to underestimate future mortality for term assurance business. ½

The company would need to consider if there are any limitations on mortality assumptions defined in regulations or legislation. ½

Other Sources

Consider the availability and relevance of other external sources of data ½

For example, recent levels of mortality of insured lives from an industry body ½

Although the company will need to carefully consider how relevant the data from the industry body is, how up to date this data is, and also the extent of which this information is sufficiently broken down into homogeneous groups. ½

Other

The mortality data may be affected by economic changes. Again, explicit adjustment is difficult and so judgement and analysis of fluctuations and trends will be important. ½

Any relevant professional guidance about how assumptions should be determined for an annual valuation should be taken into account. ½

Sensitivity Testing

There is also a need to carry out sensitivity testing to check that if the data are grouped in a different way the same results are obtained. ½

[Maximum 13]

2

- The extent to which the mix of business will change in future in terms of the types of product sold, the volumes of business sold by product, target clients etc relative to the past. 1
 - The mortality rates should be produced a sufficiently granular level to allow changes in the mix of business. ½
- The extent to which the higher number of actual deaths relative to expectations that has been seen in the last two years will continue in the future. 1
 - An analysis should be done to assess the reason for the difference in actual deaths. For example is it due to a specific reason and is this level of mortality expected to continue in the future? ½
- The extent to which the mortality experience of the whole country will be replicated in XYZ's own business. 1
 - Greater weighting given to the insurer's own past mortality experience, relative to the mortality experience for the country as whole. ½
- The extent to which the recent slowing of the improvement rate in life expectancy is a temporary phenomenon or is likely to continue in the future. 1
 - Try to validate expected levels of improvement from external sources – e.g. reinsurer's data, data produced by relevant industry body etc. ½
- The extent to which any adjustments applied to past data to allow for issues (e.g. random fluctuations) will actually represent what happens in the future. ½
 - Ensure appropriate experts are involved to apply judgement in the adjustments used. ½
- There is considerable uncertainty over whether the opponents of the government will actually get into power and even if they do get into power whether they actually significantly increase investment in medical research. ½
- Even if the governments opponents get into power and spend more on medical improvements it is uncertain over what period the additional spending will occur, what the spending will be on, and how different sub-groups of individuals will be impacted. 1
- The impact of any ban on smoking, and any additional future spending on medical improvements will have on future mortality experience is very uncertain. ½
 - Expert opinion sought into the potential impact of a smoking ban and different levels of spending on mortality experience and whether this would impact certain parts of

the country and the companies policyholders in the same way (they may already have no smokers in their population) 1

- Sensitively test assumptions to see how variable results are in different scenarios. ½

[Maximum 7]

3

- Use of reinsurance for example: 1
 - Quota share to share proportion of the risks taken on ½
 - Excess of loss reinsurance to protect against large individual claims. ½
 - Catastrophe reinsurance to protect against claims from large one off event ½
 - Stop Loss reinsurance to protect against large aggregate claims ½
- Use of underwriting at the proposal stage..... 1
 -to identify lives whose health is so seriously impaired that they would have to be deferred or declined..... ½
-and to ensure that actual mortality experience does not depart too far from that assumed in the pricing. ½
- Claims control systems to guard against fraudulent or excessive claims. 1
- Appropriate management controls are in place to monitor that business is written in line with the expected business mix.... 1
 -and controls are put in place if business mix is not as expected. ½
- Ensure terms and conditions are appropriately written to limit scope for unexpected claims or legal challenge. ½

[Maximum 5]

4

- Overall XYZ is likely to want to secure the scheme's benefits at an affordable and (reasonably) predictable cost..... $\frac{1}{2}$
-however there is a risk that the cost of providing defined benefits is higher than originally anticipated. For example: $\frac{1}{2}$
 - where the schemes liabilities are related to salary and/or inflation and salary growth or inflation is higher than anticipated $\frac{1}{2}$
 - benefits could be paid for longer than expected due to the individuals receiving pensions living longer than expected $\frac{1}{2}$
 - more deferred pensions could end up receiving benefits in payment due to lower mortality up to retirement than had originally been assumed – meaning more deferred pensioners actually end up receiving benefits than expected $\frac{1}{2}$
 - the data that was used to estimate future benefits may have been wrong... $\frac{1}{2}$
 -or any adjustments applied to past data to estimate future experience may have been wrong. $\frac{1}{2}$
- There is also a risk that the performance of the assets backing the scheme's liabilities could also be worse than expected which will potentially increase the cost to XYZ of providing the benefits for a range of possible reasons. For example: $\frac{1}{2}$
 - Poor performance of market as a whole or individual stocks held by the pension scheme. $\frac{1}{2}$
 - The investment manager may have to realise assets unexpectedly (for example where the scheme has insufficient liquid assets to meet benefits in payment as they fall due) which could lead to a lower value being obtained on the asset than anticipated. $\frac{1}{2}$
 - The returns on the assets held could fail to keep pace with pensions in deferment or payment $\frac{1}{2}$
 - A lower return may be achieved on corporate bonds than anticipated where the rate of default on corporate bonds is higher than expected. $\frac{1}{2}$
 - The liabilities for the pension scheme are likely to be in the domestic currency. However the overseas equities may be denominated in a different currency. Which would create losses due to currency movements. $\frac{1}{2}$
- Ultimately very poor investment returns and / or higher than expected benefits could increase the cost of the scheme to the employer to the point where it is unaffordable to the employer..... $\frac{1}{2}$
 - ...in the extreme higher pension funding costs could make XYZ insolvent. $\frac{1}{2}$

- There is a risk that the administrative cost of running the defined benefit scheme could be much higher than expected, which could also adversely increase the cost of XYZ paying for the scheme benefits. This could be due to a range of reasons: ½
 - The cost of investing and managing the scheme's assets could be higher than expected. ½
 - The cost of administering the scheme's liabilities could be higher than expected due to higher than expected levels of inflation ½
- Where the solvency of the scheme was adversely impacted this could require XYZ to invest significant funds into the scheme to make good any deficit. ½
- An unexpected significant increase of contributions by XYZ into the pension scheme could have implications for XYZ's business – for example it could reduce the dividend the company could pay to shareholders at a given point in time. ½
- There may also be a potential regulatory risk:
 - The regulator could require XYZ to put more money into the funding of the pension scheme for example if it required a more onerous valuation basis than currently used by XYZ. ½
 - The regulator could become concerned about the solvency position of XYZ if XYZ had to invest significant funds in the scheme – possibly leading to a regulatory intervention. ½
- There may be a significant reputational risk for XYZ if the scheme were to fail... ½
 -or it was perceived that scheme members had been treated poorly. ½
- If the scheme benefits were regarded as poor or the scheme was viewed as poorly funded this could cause discontent among the members of the scheme..... ½
 -which could make it difficult to attract the best staff and..... ½
 -possibly worsen staff retention. ½
- Sponsor Covenant Risk – there is a risk that the company is not around to pay the additional contributions/funding if needed in the future ½

[Maximum 10]

5

Overall

- The scheme should select investments that are appropriate for the nature and term of the scheme's liabilities. 1/2
- The scheme should be able to meet liabilities as they fall due without have to liquidate assets unexpectedly. 1/2
 - o A cash flow model should be used to assess whether there are sufficient liquid assets available to meet the scheme's liabilities as they fall due. 1/2
 - o The scheme could hold sufficient liquid assets to meet liabilities as they fall due. 1/2
- Given the poor funding position of the scheme the company is unlikely to want to take significant investment risk by mis-matching the schemes assets and liabilities. 1/2
- The assets held by the scheme should be suitably diversified to ensure the scheme is not overly exposed to any one company, sector or asset type. 1/2
- The assets held by the scheme should be of appropriate quality – e.g. high quality investment grade assets. 1/2
- The assets held should be overly illiquid or speculative. 1/2
- Subject to the considerations above, the fund should aim to maximise the overall return on the assets (considering both income and capital gains)..... 1/2
-taking into account the risk appetite of the scheme trustees. 1/2
- The funding position of the scheme is also relevant..... 1/2
- The assets held should meet the requirements of regulators. 1/2
- The assets held by the scheme should be efficient from a tax perspective of the team. 1/2

Investment Mix

- A review of the investment mix of the scheme should be carried out to ensure the mix is appropriate for the schemes liabilities. In particular:
 - o Given the scheme appears to be largely made up of pensioners whether it is appropriate to hold such a high level of equities. 1/2
 - o Consideration should be given to whether pensions in payment are linked to inflation. If so potentially a higher proportion of index linked gilts may be appropriate. 1/2

- Consideration should be made to the extent to which the term of the bonds held is reasonable given the term of the schemes liabilities. 1/2
- The deferred annuities may have a term that is longer than the term of the bond assets available and therefore there is likely to an element of mismatch between the assets available and the deferred liabilities. 1/2
- Consideration should be given to the extent and performance of overseas equities held by the scheme. Has the poor performance been due to the fund manager or the assets held? 1/2

Investment Manager Risk

- Ensure the investment manager(s) is given specific investment return targets (by asset class and overall), and ensure that the investment performance of the manager is assessed regularly (e.g. annually) against these targets. 1
- If a fund manager does not meet the required investment targets then the scheme could change fund manager. 1/2
- It may be appropriate to get different fund managers to manage the parts of the fund they are expert in – e.g. a bond specialist manages the bond assets, whilst an equity expert manages the equity assets. 1/2

Credit Risk

- Ensure assets of suitable quality are held – e.g. corporate bonds need to be at least BBB rated. 1/2

Currency Risk

- Ensure there is not a significant mis-match in the currency of the assets and the liabilities of the scheme. 1/2
- Again this may be a further factor in reducing the schemes exposure to overseas equities 1/2

Investment Costs

- Investment manager should avoid excessive or unnecessary trading of assets to ensure dealing costs are not excessive. 1/2
- Trustees could regular tendering for investment management services to ensure it is paying a fair amount for these services. 1/2

[Maximum 8]

6

De-Risking solutions

- Transfer all of the benefits to another party who will pay the members in return for a one off premium 1
- This transfers the risk associated with those benefits to the insurance company ½
- Buyout pensioner benefits (subsection of the members) with an insurance company, transferring the risk to the insurance company ½
- Transfer of the liabilities to a central discontinuance fund, operated on a national or perhaps industry-wide basis. 1
- Instead of insuring/transferring all of the benefits, it could look to de-risk parts of the risks mentioned. For example the longevity risk of its members could be a big concern and therefore could swap fixed payments (based on a longevity assumption that is fixed) in return for actual payments (based on the actual experience of the scheme) 1

If the scheme hasn't done so already then it could close the scheme to any future accrual, thereby reducing the length of service of the members in the scheme and the payments that would need to be paid in the future 1

Encourage transfer of deferred members, perhaps by paying enhanced TVs (or indeed reminding the members of their options on retirement). This removes these members from the liabilities and removes the associated longevity risk (although consideration must be given to fairness to remaining members). The government is considering this as a change in the legislation and therefore the scheme could take advantage of this if it came in. ½

Indeed the company could go further and target those individuals with the largest liabilities and hence expected to be the longest lived ½

Reduce member benefits – will be difficult to do for current pensioners – may be deferred members only affected. Depends on local regulations. 1

If the member benefits cannot be reduced then could consider whether any discretionary payments could be looked at to reduce the costs further. 1

Consider the expense base of the scheme and whether there were any opportunities to find synergies, either on own or by joining up with other schemes. 1

If administration is outsourced then could look at fixed fee contracts with the administrators to reduce the expense risk. ½

Consider the approach to advisor costs on the same basis ½

Could consider reviewing its assumptions in detail and adding prudence into them to ensure a more stable valuation, although this is likely to make the deficit worse in the short term (and arguably doesn't reduce the risks the scheme is running) 1

[Maximum 9]

7

- XYZ could increase its regular payments into the scheme above current levels..... ½
-with the aim of removing the deficit within a particular time period. ½

- XYZ could chose to remove the deficit with a large one off payment.... ½
-if the company does not have sufficient funds currently then it may need to raise funds to make the payment.... ½
 -for example by issuing subordinated debt.... ½
 -or it may need to save costs elsewhere in its business – for example via redundancies ½

- XYZ could use financial reinsurance arrangements to improve its regulatory balance sheet by crystallising the value of future expected profits..... ½
 - however, the viability of such arrangements is much reduced (or eliminated) under some regulatory regimes, such as Solvency II, which take credit for future profits. ½

- The company could also consider reorganising its business in a more efficient way. For example by....
 - Weakening assumptions to place a lower value on the liabilities ½
 - or remove any excess prudence in original assumptions that can now be removed ½
 - The company could defer distribution of surplus to shareholders ½

[Maximum 3]

Assignment 2

1.

There are different types of advice that can be given. These include:

- **Indicative advice** — giving an opinion without fully investigating the issues — such as in response to a direct oral question; 1
- **Factual advice** — based on research of facts, e.g. legislation, industry stats; 1
- **Recommendations** — researched and modelled forecasts, alternatives weighted, recommendations made consistent with requirements, work normally peer-reviewed. 1

For each of the above advice marks should be given for examples that link the relevant scenario, for example.

- *Could give indicative advice to ABC in respect to whether there is lack of completion in the motor insurance industry – based on the knowledge of the market generally* 1
- *Could give factual advice based on facts, this could be in reference to the overall expense base for writing motor insurance business, or indeed based on actual information on the competitors in the market.* 1
- *Could give factual advice on the number of younger drivers who have more powerful cars based on research over a suitable time period.* 1
- *Could give recommendations based on modelling of the expense assumptions based on forecasts of future business. Or could give recommendations on what the additional costs could be to the company if it applied the government’s proposals* 1

[Maximum 3]

2.

In most developed economies the government acts ultimately as lender of last resort because the consequences of complete financial market failure would be so severe for country, economy and society. 1

One aim of regulation will be to limit the likelihood and potential cost of failures of financial services companies, and to limit the need to step in as lender of last resort. 1

The principal aims of regulation are:

- to correct perceived market inefficiencies and to promote efficient and orderly markets; ½
- to protect consumers of financial products; ½
- to maintain confidence in the financial system; ½
- to help reduce financial crime. ½

In statutory regulation the government sets out the rules and polices them. ½

[Maximum 3]

3.

Limited Underwriting

Process

- The application process will now only have three questions on the form which will significantly reduce the time spent for ABC in reviewing the application process. ½
- However the company will need to decide what questions to ask and how complicated they need to be to ensure they are not selected against ½
- And will need to ensure they have enough information to either accept/reject the risk and also at what price for the applicant ½
- The underwriting time should be reduced but the process for accepting/rejecting may need to be considered. ½
- Pricing approach would need to be reviewed as limited number of rating factors now available ½
- The approach could therefore increase the number of claims and hence the management of the claims process may need to change accordingly ½
- Processes for systems would need to be altered ½
- Staff would need to be trained on the new processes ½
- Processes in respect of marketing, distribution understanding would need to reviewed, especially if the questions asked are different to the competitors ½

Profit

- Increased likelihood of anti-selection i.e. bad risks being taken on as they can no longer be identified due to restriction on number of questions – which would lead to poor claims experience and reduced profits for ABC 1
- Increased uncertainty over future claims experience could require insurer to hold more capital for product reducing return on capital. ½
- May increase profits if the industry introduced prudence into its pricing assumptions to allow for the additional risk, this would depend on competition 1
- Initial fall in profit due to the expenses in changing the processes mentioned above ½
- Reduction in initial per policy underwriting costs will reduce set up costs. ½
- Claims expenses will increase as more claims are likely to be received due to bad risks ½
- Simplified systems will be easier to maintain longer term so will reduce expenses, increasing profit ½

Claims Settlement in 2 weeks

Process

- Will have to closely track time between claim arriving and being settled, building additional checks into the process. ½
- Investigation may take longer than two weeks if, for example motorist involved in fatal road traffic accident and therefore claims may have to be settled with the process

- not being completed, so additional work on likely outcomes from previous cases would need to be investigated. 1
- True cost of claim may not be known within 2 weeks – e.g. for injury claims so claim payment to policyholder could be over or under generous to the policyholder. ½
 - May need to recruit and train more claims handlers to deal with higher volume of claims and speed of process. 1
 - Could decide to pay out less quickly, to ensure settled faster but this may lead to complaints and/or challenges in court. ½
 - Would need to consider how fraud processes could be improved as less time to investigate. ½
 - Two weeks is very short for some cases and analysis on previous cases would need to be considered to ensure ABC meets the timeframes. ½
 - Default decisions could be introduced to speed up the process (i.e. for minor accidents always pay out if certain conditions are met). ½
 - Could change the terms and conditions of the policy to state claims would be declined if sufficient evidence wasn't provided in the two week period in order to assess the claim. ½

Profit

- Recruitment and training costs likely to increase to meet pace of claims handling, reducing profit for ABC. 1
- Can be valid reasons for investigation taking longer than two weeks and ABC could follow that – could result in a fine though which would decrease profits from current position but could be better than paying out inflated claims OR indeed incorrect claims. 1½
- Likelihood of more fraudulent claims getting through reducing profit. ½
- ABC could be harsher in when it pays claims which could increase profits, i.e. if proof had not been obtained in the 2 weeks then they would not pay out, however this is likely to be unacceptable to the market and/or the government based on the aims of the government (and will depend on the terms and conditions)... 1
- ...or ABC could end up overpaying on claims just get claim settled within required timescales leading to lower profits. ½
- Also depends on the approach from competitors and how their claim processes change ½

New Entrants

Process

- ABC may find it difficult to recruit appropriate staff if new entrants are able to offer higher salaries as subsidised. ½
- This could be mitigated by changing recruitment processes ½
- Review the approach to pricing for existing customers ½

Profit

- Increased competition in the short term will inevitably put downward pressure on pricing and therefore reduce profits for the company. 1
- The downward pressure on pricing may reduce longer term if competitors are unable to make sufficient profits and leave the market. ½
- New staff may have to be paid a premium to attract them over new subsidised companies, and existing staff may need to be paid retention incentives to keep them from leaving. ½
- May have to increase marketing costs to compete with new companies which will reduce profits. ½
- New companies may be able to offer loss leaders to attract business, especially if subsidised by government. ½
- Not a level playing field as don't have to pay start-up costs back until turning a profit so could take advantage to build market share, losing market share will reduce profits. ½
- Financing may become more expensive for ABC because the funders will not be getting business from potential new business, making re-financing costs more expensive and hence lower profit. ½

Black Box

Process

- Will need to set up systems and processes to access central database. ½
- Will need to be able to interpret the results meaningfully – could results form part of application questions. 1
- This will need to feed into pricing assumptions and possible rating factors. ½
- There may be increased data protection processes to comply with local data protection regulations. ½
- Data storage processes would need to be upgraded. ½
- Increased analysis of complex driving patterns and challenges would be required, i.e. how to utilise, analyse and review big data. ½
- Would need to consider how the data and the form would interact, i.e. would a form be needed at all if the “black box” information could be used to price the business. 1

Profit

- Will there be costs to access the government database, if so will reduce profits. ½
- There will be system / IT costs to setup a system to retrieve the data, which will decrease profits. ½
- There will be costs associated with training staff to use data / coding up algorithms to make use of the data. ½
- The data from the black box could be useful in speeding up the claims process as it would show driver speeds. 1
- Could also be used to apply ratings to drivers so the premium charged was more appropriate to the risk. 1

- The black box could encourage safer driving which could reduce claim costs and therefore increase profits. 1/2

Inflationary Price Increases Only

Process

- Need to track claims history of policyholders. 1/2
- Need to find out if claim free for three years with same company or including change of insurer. 1/2
- Assume only applicable if everything on policy remains unchanged otherwise policyholder will be susceptible to increases when getting revised quotes. 1/2

Profit

- Wouldn't be able to take into account new lapse data / claims data / ratings data and apply it to claim free members' renewal premiums. 1
- So risk may not match premium – this could result in a reduced profit. 1/2
- Renewal premium calculation would be a lot simpler therefore there would be administration savings, contributing to increased profit. 1
- If costs significantly increased would not be able pass onto policyholders. 1/2
- If legislation changed again making claim payments compulsory on certain conditions again this couldn't be reflected. 1/2

[Maximum 17]

4.

- Allow insurers to use postcodes to rate policyholders as they suggest certain areas of some cities are disproportionately contributing to higher insurance premiums. 1
- Allow the insurer to ask supplemental questions if the policyholder's answers to the first three questions highlighted there was a potential issue. 1/2
- Allow more detailed questions for policyholders deemed to be high risk. 1/2
- Government could choose to insure policyholder's that are deemed to be very high risk – which would enable them to pool risks. 1/2
- Allow more than three questions to ascertain age, car type, experience driving but limit to straightforward questions that policyholders would be able to answer quickly. 1/2
- Set a consistent format between insurers for their application forms, be it questions, sections or some other grouping 1/2
- Restrict purchase of high powered vehicles to drivers over say, 30, or limit the speed of high powered vehicles 1
- Or put disincentives in place (e.g. higher tax rates) 1/2
- Allow higher excesses for policyholders deemed to be high risk 1/2
- Allow maximum claim amounts for certain types of claim – e.g. injury claims. 1/2
- Restrict traffic in the areas of cities where the accidents are happening. 1/2

- Reduce criminal activity (in particular theft and deliberate accidents), by using tracker boxes, more CCTV etc – noting that this would increase the cost of policing for the government. 1
- Allow insurer to ask about criminal record to decide on rating factors, or indeed give insurers access to information on request (although there may be GDPR issues with this suggestion). ½
- Review unnecessary regulations that have increased expenses for ABC or introduce tax breaks in place for insurers. ½
- Increase the age before you can drive, this would be unpopular. ½
- Or make the test harder to pass, thereby reducing the number of accidents from younger drivers and therefore claims less for ABC. ½
- Offer funds to ABC to make the necessary proposed changes. ½
- Force insurers to state that insurance prices may be better with other insurers at renewal time to encourage drivers to shop around, particularly on renewal cases. ½
- Prevent insurance companies charging cancellation fees so drivers can move policy more easily. ½
- Reduce speed limits to reduce the number of accidents. ½
- Enforce safety measure in all cars as mandatory. ½
- Reduce/remove insurance premium tax. ½
- Allow a longer period to implement new regulation changes so associated expenses can be spread over longer period. ½

[Maximum 5]

5.

- ABC insurance company could increase the premiums that it would charge to the policyholders, this could be done immediately or over time. 1
- This policy is only likely to be successful if ABC's competitors followed suit. ½
- And given this doesn't meet the government's aims then this is unlikely to be popular with the government either ½
- It could also change its strategy to write more/less business ½
- Another alternative could be for ABC to take reduced profits (i.e. cover the costs) but aim to write more, i.e. if others increased the price they may obtain greater market share. 1
- This will only be palatable if the additional costs were not significant. ½
- The company could also target a different business mix in its pricing. ½
- ABC may have surplus cash that it could use to fund the proposals, that it is had cash reserves in place from retaining previous profits. 1
- Could sell other assets if the company had them, i.e. other parts of the company, property holdings etc. 1

- ABC could raise additional capital from its existing shareholders – i.e. by issuing more shares (through a rights issues. This will depend on whether the market still makes a good return from the additional capital that will be required. 1
- ABC could borrow money, how much would depend on the overall cost in implementing the government’s proposals. 1
- This could be done by:
 - Increasing the overdraft facility with ABC’s banking provider, this could be an option if the cost is small and likely to be repaid quickly. 1
 - Borrowing from the bank more generally (e.g. via a loan). ½
 - Issue corporate bonds to the market, the cost again will depend on the length of the time needing to borrow and the rate required from the market. 1
- ABC could reduce expense and make the processes more efficient in order to improve its expense base and then absorb the additional expected costs from the proposals. 1
- ABC could ask the government for a phased in period or ask for additional funds to make the changes, especially the links to the black box recording system. 1
- ABC could lobby the government to reduce taxes, either policyholder taxes or corporation tax that the company pays. ½
- ABC could consider using re-insurance more to assist in the funding of these policies, i.e. it may want to change the optimal re-insurance strategy of the company. ½
- ABC could change its dividend policy and pay out less to shareholders and then using the funds to pay for the changes required. ½
- ABC could aim to outsource some of its work to cheaper options. ½
- The company will incur different forms of cost due to the proposed changes. The approach taken to fund these costs could depend on the nature of the costs. ½
- E.g. the company will need to fund immediate costs to implement the changes and these could require the company to raise additional funds immediately. ½
- E.g. ongoing additional per-policy costs caused by the changes could be included in policyholder premiums. ½

[Maximum 10]

6.

- ABC should firstly ensure that its capital is obtaining a good rate of return and if this isn't the case it should review where it is writing business and make sure it's capital is being used in the most efficient way. 1
- That is it should be invested in projects that offer benefits to the company and increase profits (and/or reduce premiums for the policyholder). 1
- Ensure the interaction of all companywide risks are capture accurately in any solvency calculation so the solvency capital is as low as possible thus leaving more free assets to invest in e.g. efficient systems. 1
- Reduce risk profile of its assets, if invested in non-liquid assets classes. 1
- Regularly review expense base of the company and in particular any outsourcing arrangements. 1
- Could use capital to lobby government for positive change for the industry which could have a knock on effect of reducing premiums (e.g. reducing insurance premium tax) 1

Financial Reinsurance

Generally, the main aim of FinRe is to exploit some form of regulatory arbitrage to manage the capital, solvency, or tax position of a provider more efficiently. 1

It frequently relies on the regulatory, solvency or tax position of a reinsurer, which may be based in an overseas state, being different from that of the provider. This is done in the form of a reinsurance contract between the reinsured and the reinsurer. 1

Banking Products

The banking sector provides some capital management solutions for the insurance industry directly.

These include:

- Liquidity facilities, which can be used to provide short term financing for companies facing rapid business growth. 1
- Contingent capital can be a cost-effective method of protecting the capital base of an insurance company. Under such an arrangement capital would be provided as it was required following a deterioration of experience (i.e. it is provided when it is needed). Although these arrangements clearly improve the financial strength of an insurer and can be given credit for by a rating agency, they lack visibility. 1
- Senior unsecured financing directly for an insurance company would not have capital benefits as the loan would be treated as a liability on the company's balance sheet. However, financing at the group level can be used within a group structure to provide capital to insurance subsidiaries. It can be more cost effective than other forms of capital but clearly has financial strength implications at the group level. 1

- Consider if derivatives could help.

½

[Maximum 10]

END