



Institute  
and Faculty  
of Actuaries

# EXAMINERS' REPORT

CP1 – Actuarial Practice

Core Practices

Paper Two

September 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  
November 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.

Good 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.**

Paper 1 and Paper 2 had similar average marks which is slightly unusual where normally Paper 1 scores slightly higher. 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 57  
802 presented themselves and 341 passed.

## Solutions for Subject CP1-2 - September 2023

### Q1

(i)

This new requirement will be additional to the existing requirements for projects based on governments objectives and success criteria.

#### Advantages:

The new requirement is looking for market solutions to help the government reduce dependence on fossil fuels [½]

Introducing the new requirement now is likely to cost less than at outset when which of the new technologies would be successful was unknown [½]

It is usually easier and cheaper to raise finance for more focused development projects with proven technologies [½]

Combining renewable energy sources provides diversification within the project which can reduce risk and hence cost [½]

Introducing the new requirement is aiming to leverage market solutions to increase renewable energy generation further and reduce back-up fossil fuel generation 1

More efficient use of renewable energy sources in electrical load balancing would reduce dependence on back-up fossil fuel generation and capacity [½]

There is therefore scope of government to allow a range of different types of projects [½]

The minimum energy requirement reduces the risk of insufficient electricity being produced to meet demand from renewable sources [1]

There will be additional cost for the government from introducing the new requirement, however, this would be at least partially offset by reducing the cost of back-up fossil fuel generation and capacity [1]

If fossil fuel generation sources are reaching the end of their life and need to be replaced the new policy would reduce the need and significant cost of replacing them [½]

The savings from reducing back-up fossil fuel generation and capacity could more than offset the cost from the new requirement [½]

From the Government's viewpoint, the process for reviewing and assessing bids becomes more efficient and saves time [1]

Likely will affect the 'lowest cost' part of the bid process significantly [½]

#### Disadvantages:

The stage of development of renewable energy sources may still not be sufficiently advanced to combine them into single projects to meet the new requirement. [½]

This creates an additional barrier to development of, and investment in, renewable sources of electricity generation. [½]

Few individual renewable energy sources are capable of meeting a generating a minimum level of electricity at all times. [1]

Demonstrating through modelling whether a project can meet the new requirement will be complex [½]

and rely subjective judgements by the government. [½]

Whether a project is capable of meeting the new requirement will only be known once it is operational [½]

and will depend on how the project is operated. [½]

The new requirement may not be effective at reducing dependence on fossil fuels if it is more cost effective for sponsor to plan to pay any financial penalties from not meeting the minimum generation requirement when instructed. [1]

Most future projects are likely to have to combine different sources of renewable energy generation. [½]

Projects combining different sources of renewable energy generation will at risk and complexity. [½]

The additional risk and complexity could deter investors [½]

Particularly those that focus investment on single renewable energy sources. [½]

Increasing the total cost of each project is likely to reduce the level of competition in the bids increasing the overall cost for the government. [½]

Could dilute the potential benefits for a project [½]

This would further increase the subsidy required for each project. [½]

The government can therefore reduce subsidy costs by not having this requirement. [½]

The new requirement would act as a barrier to development of new innovative renewable energy sources in the future. [½]

The lead and development time will vary for different renewable energy sources. [½]

This would limit the ability to meet the new requirement until all parts of the project are operational. [½]

The government won't know for some time after their decision whether the project chosen will not meet the requirement, by which time government will have provided the funding and it may be difficult/impossible to get the money already sunk back (noting much of the funding is used early on in the development stage) [2]

[Marks available 21, maximum 9]

(ii)

Individual investors will apply their own individual criteria in the areas of environmental, social and governance. [½]

Environmental:

Investors will need to accept that all renewal energy projects will have some impact on the environment, both positive and negative. [½]

Some investors could choose to invest in projects that could potentially have a particularly positive environmental impact [½]

Investors may receive financial assistance from the government e.g., tax relief, subsidies [1]

Investors are likely to want to avoid projects that could have a materially adverse impact on the environment. [1]

Significant environmental problems with a project could lead to government intervention and lead to high unanticipated costs and lower overall returns from the project. [1]

Investors may wish to avoid certain types of project for example because morally they do not like the projects, or alternatively the projects may be particularly high reputational risk [1]

*(1 mark given for relevant examples)*

Use of energy and production of global warming gases/other pollution [½]

Changing environmental habitats [½]

Investors will want to consider the potential exposure of an individual project to environmental factors in deciding on whether to invest.

e.g., a project could be particularly exposed to adverse physical impacts from the environment (e.g., fire, floods etc) which could influence an investor in terms of whether they will invest (or not) in a particular project. [1 ½]

Social:

'Greenwashing' i.e., improved public perception of an investor [½]

Investors may wish to avoid renewable energy projects that could have a materially adverse social impact [1]

This could be because the project could be exposed to higher legal costs and delays  
If the individuals impacted by a project could challenge the project in court. [1]

The project could be subject to additional costs due to government intervention [1]

Delays and additional costs would reduce the returns for investors [1]

Investors may choose morally not to invest in projects where there is a concern about social conditions [½]

For example (*relevant example*) [½]

Poor working conditions

Lack of gender diversity.

Governance:

Investors will want to see renewable energy projects with strong governance in place to ensure that the projects can ultimately deliver the returns promised. [1]

A project with strong governance can potentially protect investments from risks of a project performing badly and reputational risks e.g., environmental clean-up costs. [1]

[Marks available 15½, maximum 7]

(iii)

Overarching Risks/Challenges:

(Give credit for each of these once and once only)

Risk that the technology isn't developed enough [1]

Lack of experience/knowledge of running the projects [1]

Lack of experience/knowledge of maintaining the technology/ideas [1]

Regulation/Local rules may mean there are limitations on running times due to  
Things like sound pollution [1]

Operational issues can also arise that stop electricity generation [1]

Construction risk, which is amplified by adding further facilities in other locations [1]

Damage to the environment/habitat/wildlife [1]

Project A:

This project requires sunlight to generate electricity and without it will be unable to generate electricity. [½]

There is a risk that solar doesn't give sufficient energy throughout the day unless  
The solar project covers a wide range of areas to ensure that sunlight is available for longer periods of time. [1½]

The level and strength of sunlight varies across the year and across each day. The project will therefore need to ensure the panels are situated in the most appropriate locations to ensure electricity generation is optimised. [1]

Operational issues on Project A can also arise that stop electricity generation:	
e.g., risk of maintenance costs being higher than expected	[½]
e.g., could be lack of expertise to maintain system	[½]
e.g., may need to replace panels more often than expected.	[½]
e.g., weather events can cause damaged to solar electric infrastructure limited the ability to generate electricity.	[½]
e.g., Issues with supply of parts - e.g., lack of parts available on market or increased cost of replacements if high international demand?	[½]
Although Solar electric may be a proven technology and therefore could be low risk from a systematic failure of the technology.	[1]
 Project B:	
This project requires wind generate electricity and without it will be unable to generate electricity.	[½]
The level and strength of wind varies across the year and across each day.	[1]
The precise location also affects electricity generation from wind.	[½]
The main risk for Project B is therefore that the wind does not blow sufficiently to generate the required amount of electricity.	[½]
There is a risk that there could be prolonged periods when there is insufficient wind lasting days, weeks or months.	[½]
The wind can blow sufficiently to generate electricity 24 hours a day so it has capability to meet the minimum requirement 24 hours a day.	[1]
Operational issues on Project B can also arise that stop electricity generation,	
e.g., risk of maintenance costs being higher than expected	[½]
e.g., could be lack of expertise to maintain system	[½]
e.g., may need to replace wind turbines more often than expected.	[½]
e.g., weather events can cause damaged to wind turbine infrastructure limited the ability to generate electricity.	[½]
e.g., Issues with supply of parts - e.g., lack of parts available on market or increased cost of replacements if high international demand?	[½]
Wind turbines may have proven technology so there could be a low risk from a systematic failure of the technology.	[1]
Geographical diversification can reduce the risk of being unable to meet the minimum generation requirement.	[1]
 Project C:	
This project uses the rise and fall of tides to generate electricity. Whilst the tide is rising or falling it is able to generate a level of electricity	[½]
The level and strength of tides varies across the year which will affect electricity generation	[½]
There will be periods when the tide stops rising before falling when no electricity would be generated	[1]
The level and strength of tides varies across the year which would affect generation	[½]
The precise location of the dam will also affect electricity generation levels	[½]
Operational issues can also arise that stop electricity generation, often linked to precise locations	[1]
Weather events can cause damaged to infrastructure limiting the ability to generate electricity	[1]
There is a risk that an individual tidal project may not be sufficient to satisfy the generation requirement	[½]

There needs to be suitable locations for the projects being available and the level of the minimum requirement [1]

Project D:

Hydroelectric pumped storage is essentially a form of electric battery. It requires an input of electricity to pump water up to the higher lake and generates electricity when water is allowed to flow from the higher lake to the lower lake [½]

It is probably a proven technology so electricity can be produced reliably [½]

Adverse weather events such as a flood can cause damage to infrastructure limiting the ability to generate electricity [1]

Alternatively lack of rain say could lower water level of lake leading potentially to reduced flow of water and reduced electricity produced? [½]

Particular issues around materials (e.g., rare metals) for battery in terms of supply and cost? [½]

With carefully planned management this project should be capable of meeting the minimum generation requirement on demand at any time [1]

However, whether it can in practice depends on the length of time the minimum generation requirement is required to be met. At some point it will need recharging [1]

If multiple projects can be added, then it will add diversification reduce the risk of being unable to meet the minimum generation for operational reasons e.g., weather, damage to infrastructure [1]

Project E:

Lithium-ion battery requires an input of electricity to charge and generates electricity when it is discharged. [½]

Weather events can cause damaged to infrastructure limited the ability to generate electricity [½]

However, whether it can in practice depends on the length of time the minimum generation requirement is required to be met. At some point it will need recharging. [1]

Might need consider whether 1 battery is sufficient or whether multiple batteries are needed to reduce the risk of being unable to meet the minimum generation for #operational reasons e.g., weather, damage to infrastructure [1]

[Marks available 37, maximum 15]

(iv)

Insufficient wind to general electricity requirements

Locating the wind far in a location with the greatest reliability for wind of the right intensity reduces the risk [1]

Could make up for lack of wind at a given point in time by introducing electricity storage [½]

The weather monitoring, projection and modelling would allow the project to calculate the amount of electricity storage required to minimise the risk of breaching the requirement to an acceptable level [½]

This modelling can also be used to operationally to plan for the amount of storage to cover anticipated shortage of generation [1]

Inadequate wind can last for periods of days, weeks into months which potentially requires an enormous amount of storage affecting the profitability of the overall project [1]

Lack of diversification [½]

Increasing the number of wind-turbines increases diversification reducing the risk

of generating too little electricity for operational reason	[1]
Geographic diversification reduces concentration risk from inadequate wind levels where the turbines are located	[1]
Increasing diversification within the infrastructure increases resilience reducing the risk of being unable to generate electricity. Geographical diversification will also involve separation of infrastructure reducing this risk	[2]
Project B can undertake analysis and modelling to optimise the level of diversification	[1]
This could also optimise the cost of the project by balancing the benefits of increased diversification in the infrastructure versus the cost.	[1]
Weather monitoring, projection and modelling would allow the project to manage the risk of breaching the minimum generation requirement.	[1]
Need to consider impact of possible damage to the environment/habitat/wildlife	[½]
[Marks available 13, maximum 6]	

(v)

Advantages:

The objective behind combining projects is to maximise investment returns, subject to an acceptable level of risk.	[1]
Achieving this objective would allow the project to bid for a lower subsidy	[½]
A lower subsidy bid increases the likelihood of being successful in the reverse auction.	[1]
Projects A, B and D are all proven technologies which reduces the overall project risk.	[1]
The three projects use a different form of renewable energy increasing the level of diversification.	[1]
Combine resources and expertise across the three projects.	[½]
Ensure sufficient staff to maintain operations.	[½]
When there is insufficient wind project A (solar energy) should be capable of satisfying the minimum requirement during daylight hours. Project A is able to “charge” the project D to generate electricity when project A is unable to generate electricity.	[1]
When there is sufficient wind project B should be capable of generating the minimum requirement 24 hours a day.	[½]
The cost of electricity varies throughout the day so when electricity prices during the day are lowest project A and B is able to “charge” project D for the minimum cost. Project D can generate electricity on demand when prices are highest increasing the profitability of the overall project.	[1]

Disadvantages

Project too difficult to implement if you try and combine A, B and D	[1]
Difficult to determine how to allocate project resources with very different projects requiring different expertise and materials to deliver.	[1]
Too difficult and costly to maintain all three projects once they are delivered.	[1]
Combined project unlikely to be lowest cost bid so project unlikely to be picked by government.	[1]
It may be that one or two of the projects which are successful end up subsidising one or two of the projects which are not successful.	[1]
This will reduce overall returns for the combined project.	[½]

[Marks available 14, maximum 8]

(vi)

For what purpose are we doing the modelling & what are we trying to calculate- e.g. to determine breakeven? Total profitability, annual profitability?	[2]
Complexity of model needs to be consistent with purpose.	[½]
Income - number of days sunshine, wind amounts etc, allowance for variability of weather, subsequent units of electricity produced, electricity prices, how often is price reassessed?	[3]
Outgo - development costs, ongoing costs etc, allowance for inflation?	[1½]
Cashflows - What frequency is appropriate - daily/ Monthly?	[1½]
Assumptions?	[½]
Consider output required for model	[½]

The risks in project X vary across 24 hours 365 days a year and from year to year.	[½]
The minimum electricity generation requirement applies continuously	[½]
The model needs to be capable of modelling risks continuously varying across 24 hours 365 days a year and from year to year.	[1]
Electricity generation depends on weather patterns and sunlight patterns so these risks need to be modelled	[1]
Wind and sunlight vary with location so the model has to be capable of modelling these risks by location	[1]
The project requires optimisation between projects A, B and D	[½]
The weather and sunlight have uncertainty, so the model needs the capability to do nested stochastic modelling.	[1]
To optimise the project requires the size (generation capability) each of projects A, B and D to be variable and the locations of projects A and B to be varied	[1]
	[Marks available 16, maximum 4]

(vii)

The objective of combining the projects is to maximise investment returns subject to an acceptable level of risk	[1]
Project D has a fixed size to combining with E would increase the total electricity storage capacity. This would be potential worthwhile if this maximised investment returns, however, if not it would be sub-optimal	[1½]
Even if combining in project E maximised investment returns the combined project may exceed the capital the sponsor has available	[1]
Adding project C adds further electricity generation capacity. It would also increase diversification of electricity generation. However, this might not help maximise investment returns	[1]
Even if combining in project C maximised investment returns the combined project may exceed the capital the sponsor has available.	[1]
Combining in Projects C and E will Increase the size and complexity of a project which would increase risks, potentially beyond acceptable levels	[1]
The sponsor of project D will have environmental, social and governance criteria that need to be met for the project to have an acceptable level of risk.	[½]
Projects C and E may be unable to satisfy the projects' environmental and social criteria.	[½]
Benefits of diversification are not significant enough to warrant combining	[½]
	[Marks available 8½, maximum 4]

(viii)

Insurer thinks project X is an attractive asset due to:

Overall expected returns from project X are thought to be attractive in absolute returns	[½]
and relative to other asset types	[½]
Risk v' return is within insurer's risk appetite.	[½]
Diversification from the other assets the insurer holds	[½]
Returns from project X are consistent with the liabilities the insurer holds	[½]
Government backing reduced risk of default?	[½]
Depends on what it is the insurer is actually investing in. Is it a direct share in the project or a body / equity form of investment?	[1]
The project offers the potential for both debt and equity investment. The insurance company may have products seeking equity investment and others seeking debt investment.	[1½]
Project X is a long-term project. It can therefore provide long-term debt and equity investment opportunities that an insurer seeks to match long-term liabilities and maximise investment returns.	[1½]
Project X may satisfy ESG requirements the insurer requires investments to satisfy.	[½]
The insurance company might want to benefit from the additional diversification that investment in Project X's debt and equity provide.	[1]

[Marks available 9, maximum 3]

**[Total 56]**

*Part(i) was answered reasonably well; however some candidates did not relate their answers to the new requirement but just discussed the benefits of renewal energy in general and therefore scored less well.*

*Part (ii) was answered less well with candidates tending to cover the same points with few mentioning things like legal challenges and delays - i.e., did not go into enough breadth.*

*Part (iii) was answered reasonably well with most scoring about 60% of marks available which for a large number of marks is consistent with previously seen long questions.*

*Part (iv) was not very well answered with few candidates managing to score more than 60% of the marks available. Most candidates did not go into enough depth on different modelling and optimisations required of storage, turbine numbers or locations).*

*Part (v) was reasonably well answered as was Part (vi).*

*Part (vii) was answered reasonably well although many candidates just focused on why A and B would be better rather than why the sponsors would not want to combine C with E.*

*Part (viii) was answered well.*

## Q2

(i)

Gather information to support a high-level risk analysis (e.g., from insurers, concert hall, key stakeholders, regulators etc) [1]

Make a high-level preliminary risk analysis to confirm that the concert does not have such a high-risk profile that it is not worth analysing further, in which case the concert should not proceed. [1]

Hold a brainstorming session of project experts and senior internal and external people (from consultants, specialist companies, festival organisers). [1]

The aim will be to:

follow a process to identify risks associated with the concert, both likely and unlikely, and their upsides and downsides

discuss these risks and their interdependency

attempt to place a broad initial evaluation on each risk, both frequency of occurrence and probable consequence if it does occur

generate initial mitigation options; and

discuss them briefly [3½]

Carry out a desktop analysis to supplement the results from the brainstorming session by identifying further risks and mitigation options researching similar events undertaken by the local government or other similar organisations in the past.

The next step is to obtain the considered opinions of experts who are familiar with the details of the concert and the outline plans for financing it. [2½]

Carefully set out all the identified risks in a risk register or a risk matrix, with cross references to other risks where there is interdependency. [1]

[Marks available 10 maximum 8]

(ii)

*(Credit was given for any other reasonable examples of risk and/or mitigation that are not shown here)*

Risk:

Rainstorm, leading to flooding at the location.

Mitigation:

Hold the concert indoors.

Hold the concert during a dry period where there is less chance of a rainstorm occurring.

Risk:

Musical act fails to turn up, leading to complaints or request for refunds.

Mitigation:

Have contingency plans e.g., have another musical act lined up in the event of a no show.

Purchase a cancellation insurance product.

Risk

Outbreak of food poisoning, leading to claims against the local government

Mitigation:

Outsource food preparation (and any liability) to a third party.  
Ensure high food hygiene standards are adhered to.

Risk:

Low ticket sales, leading to low revenue

Mitigation:

Increase marketing to publicise the event.

Ensure there are no other concerts or events occurring on the same date.

Risk:

Collapse of stage, leading to injury

Mitigation:

Check safety levels before the event starts.

Check if any insurance in place covers this risk

[Marks available 7½, maximum 5]

(iii)

Funding could come direct from the local/national government. It in turn will have to decide where the funds should come from e.g., through additional taxes, diverting spending from another department etc. Funds could be paid either at the beginning or on a 'pay as you go' basis as and when costs arise

[2]

The Committee would look to bring in revenue through ticket sales. If this is done far enough in advance, it can be used to meet initial expenses. However, initial capital is likely to be needed at the beginning before tickets can go on sale to meet fixed expenses.

[1½]

It could consider entering into a partnership with a private company that agrees to sponsor some or all of the concert. In turn the private company may expect something in return e.g., a share of the revenue raised by ticket sales.

[1]

Merchandise sales.

[½]

A short-term loan from a bank, which would need to be re-paid either before or soon after the concert takes place.

[1]

From the public - e.g., Crowd funding

[½]

[Marks available 6½, maximum 4]

(iv)

A model could be developed to determine a structure for the ticket prices that will meet the Committee's requirement to maximise revenue.

[½]

It would project cashflows on the basis of a set of base value for the parameters in the model. The net projected cash flows will then be discounted at a rate of interest, the risk discount rate. This could be a rate that allows for the return required by the Committee and the level of risk attaching to the cash flows. Given the short-term nature of the project, the Committee may decide to set the discount rate to zero.

[3]

To assess the level of risk, it can use sensitivity analysis based on adjusting key parameter values. On the grounds of simplicity and time constraints, a deterministic model is more likely to be used than a stochastic model

[1]

The ticket price can then be adjusted so as to maximise the revenue required.

[½]

Could also provide the committee with more confidence about the viability of the event, the financial impact of experience being different to assumptions, potential

variability of revenue etc [1½]  
 The prices need to be considered for marketability e.g., if prices are set at a very high level, this will lead to low demand. [1]

This might lead to a reconsideration of:

The ticket structure e.g., have different prices for standard and VIP tickets, 'early-bird' tickets bought early at a lower price  
 change the distribution channel e.g., may be cheaper to do all online, rather than sell physical tickets

The Committee's revenue targets

What costs can be afforded e.g., use less expensive acts [2]

Use the results from the modelling to ascertain whether they Would need to sell a certain number of tickets to cover fixed costs. [½]

[Marks available 10, maximum 5]

(v)

The model will require estimates of the expected cashflows, their amounts, timing and certainty. [1]

Different data will be needed for the two different objectives. [½]

Inflows:

Data on the funding options set out in part (iii) e.g., initial up-front capital [1]

Data will need for the estimated number of tickets that might be sold, broken down by type e.g., early bird, discounted tickets. [1]

A maximum may be placed by the Committee due to size restrictions with the location selected. [½]

Estimates will also be needed for the other sources of revenue, such as sponsorship and merchandise. [1]

Details on the type of tickets - e.g., are they all one price, or are there different levels of ticket price. [1]

Outflows:

The model will require estimate for the costs and expenses incurred. [½]

Some suppliers may be willing to fix their charges at either a fixed sum or a fixed amount per ticket, making it easier to estimate costs. [½]

Expenses will include salaries, hiring equipment, food and drink, venue costs, fees for each of the acts, cost of cancellation insurance. [1]

any third-party costs - e.g., cost of security, cost of obtaining any permits [1]

[Marks available 8½, maximum 4]

(vi)

Need to discuss with the local government any potential access to emergency funds and how much they would be prepared to self-insure themselves. If they are prepared to fully self-insure, then may not need to pay the insurance after all. [1½]

Check the level of cover offered is appropriate for the Committee's Risk Budget. [½]

Compare insurance premium paid against expected recoveries in different plausible adverse scenarios. [1]

In particular consider the worst-case possible adverse scenario, and to what extent would all costs be covered? [1]

The Terms & Conditions should be thoroughly reviewed to ensure that cover is

provided in all eventualities.	[1]
Sometimes, the most expensive quotation may be the most appropriate for the situation if the level of cover and Terms & Conditions are comprehensive.	[1]
Obtain equivalent quotations from other insurance companies. These should be on the same, or similar, terms, so a consistent comparison can be made.	[1]
Cancellation insurance is a specialist market so insurer could get advice from a specialist broker on the appropriateness of insurance cover or even find an	
Alternative quotation	[1½]
The broker could also assist in giving their expert opinion on the comparable values, especially when the quotations' terms are not consistent with each other.	[1]
Would need to consider the broker's fee commission as well	[½]
It may be possible to adapt the pricing model set up in part (iv), although would require actuarial expertise for the results to make sense	[1]
Other things to consider about the appropriateness of the quotation:	
Credit rating of the insurer? Low premium from insurer with poor credit rating may not be good value.	[1]
Market reputation of the insurer? Again, low premium from insurer with poor reputation may be bad value.	[1]
Historic successful payout ratio on claims?	[½]
	[Marks available 13½, maximum 8]
(vii)	
Ultimately, need to assess whether the original aims have been met i.e. increase the town's profile and revenue generation.	[½]
Increase the town's profile:	
The Committee can assess the impact the concert had on the local economy e.g. more tourists than before, busier restaurants.	[1]
A national survey could be conducted to gauge public opinion.	[½]
Increased web searches, news articles, social media followers etc for the town may be another sign of a higher profile.	[½]
May need to recognise that as well as a short-term boost, it may take time for the full effects of the concert to come through in terms of profile e.g., increase in property prices	[1]
Revenue generation:	
In theory, this should be easier to assess.	[½]
The Committee can gather data on the proceeds from tickets sales, sponsoring etc. and compare against its original target	[1]
As well as revenue, the level of profit after costs are deducted should be equally important. The success of the concert may well have come at the expense of significant risk, which in a bad year could render the event highly unprofitable	[1½]
Other criteria:	
Feedback from the concert goers would be constructive, to find out what they did and did not enjoy.	[1]
	[Marks available 7½, maximum 6]

(viii)	
The actuarial control cycle could be used to assess this	[½]
Monitoring of experience and the effects of past action can help in revising the Committee's strategy for risk management and in reassessing the risks that it faces.	[1]
Can use the results to reassess their view of the future experience. This may result in changes to the assumptions or models used for pricing tickets.	[1]
The feedback received can be used to focus the Committee on the areas that need to be improved.	[½]
What went well/less well	[½]
Could other things be done to improve the criteria - e.g., more advertising	[1]
Based on the feedback were there others interested in things like sponsorship	[½]
	[Marks available 5, maximum 4]

*This question was answered better than question 1.*

*Part (i) was answered well with most candidates scoring more than 70% of the marks available.*

*Part (ii) was answered very well with most candidates scoring full marks.*

*Part (iii) was answered well, again with most candidates scoring over 70% of the marks available.*

*Part (iv) was answered poorly with candidates tending to be too generic discussing modelling without reference to the case and therefore not scoring particularly well.*

*Part (v) was also less well with many candidates not focusing enough on the case being asked about or unfortunately focusing on or two things (e.g. weather forecast) rather thinking more widely.*

*Part (vi) was answered less well with few candidates scoring more than 50% with depth of the solution being the main reason for the lower marks.*

*Part (vii) was answered reasonably well but those candidates that focused outside of just financial benefits did well.*

*Part (viii) - those candidates that looked at the ACC focused their answer and then scored well.*

**[Paper Total 100]**

**END OF EXAMINERS' REPORT**



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