

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Introducing the question

Students can be introduced to this question using the Kerboodle assessment:

4 On your marks

This will help students to unpick the question and to decide what they should and shouldn't include in their answer.

Using the student resources

The student resources for this question are provided on the following pages. These resources provide flexible support for your students in answering the question. They can be printed and copied as required.

Student resources	Page
<p>Plan your answer</p> <p>This is a planning document to help students decide what to include and how to structure their answer.</p>	3–5
<p>Write your answer</p> <p>This provides an answer sheet for students to complete their answer on paper in class or at home.</p>	6
<p>Mark your answer</p> <p>This student-friendly checklist and mark scheme can be used for self- or peer-marking. It can also be used by students in assessing the sample answers.</p>	7–8
<p>Sample answers</p> <p>Five sample answers, at a range of levels, are given. These could be used in a number of ways to demonstrate to students how to maximise their marks for this question.</p>	9–13
<p>Marked sample answers</p> <p>These marked and annotated versions of the five sample answers can be used by students to compare with their own marked sample answers.</p>	14–18

Please note: Students do not automatically have access to the *On your marks* presentation or resources from Kerboodle. If you would like your students to access these resources, or to complete the *On you marks* question on-screen, you will need to assign these to your students in Kerboodle.

continued overleaf

Using the Kerboodle Markbook

If you would like to use the Kerboodle Markbook to monitor progress and record student marks for this question, you must assign **4 On your marks** to the students from the assessment tab. Students can type their answer onto the final screen of the presentation and then submit this to the Kerboodle Markbook. Students' marks can then be entered into the Kerboodle Markbook and they will be informed automatically of their mark when they next log in to Kerboodle.

Timing	Spelling, punctuation and grammar (SPaG)
Under exam-style conditions, it should take students around six minutes to complete their answer to this question.	No additional marks are awarded for SPaG for this question.

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Before attempting to answer the question, remember to BUG it.

- ✓ **B**ox the command word.
- ✓ **U**nderline the following:
 - the **theme**
 - the **focus**
 - any **evidence** required
 - the **number of examples** needed.
- ✓ **G**lance back over the question – to make sure you include everything in your answer.



Command word: Give **evidence** from examples or case studies to support statements about how strategies can be used.

Number of examples: You must provide evidence from at least two different strategies.

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Focus: You should focus on more than one challenge posed by climate change and strategies that help us to adapt to climate change (not to reduce its causes).

Theme: This question is related to the theme of Climate change, assessed in Paper 1, Section A of your exam. The question is compulsory.

Name _____ Class _____

PEEL your answer

Use **PEEL** notes to structure your answer. This will help you to communicate your ideas to the examiner in the clearest way.

- **Point** – Make two or three points in detail, rather than lots of points in less detail. Don't use bullet points.
- **Explain** – Give reasons by using sentence starters such as: *'This is because ...'*, *'One reason is ...'*
- **Evidence** – Include facts and other details from named examples to back up your point. Each point – with explanation and evidence – should represent a separate PEE paragraph.
- **Link** – To link different points to each other, use PEE sentence starters such as: *'Another important point is ...'* or *'Of more importance is ...'*. Make sure your conclusion also links back to the question.



Quality not quantity: You will not be marked simply on the number of points you make, but on the quality of your answer. That means the quality of the content and how well you structure your answer.



SPaG: You are not awarded extra marks for spelling, punctuation and grammar for this question. However, you could miss out on marks if your spelling, punctuation or grammar is poor, so always check your answer carefully.

Name _____ Class _____

Planning grid

Use this planning grid to help you write high-quality paragraphs. Remember to include links to show how your points relate to each other and to the question.

	PEE paragraph 1	PEE paragraph 2	PEE paragraph 3
Point			
Explain			
Evidence			

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

This question is assessing the following assessment objectives (AO).

AO1	Testing your knowledge of management strategies that allow people and the environment to adapt to the challenges posed by climate change	3 marks
AO2	Testing your understanding of how these strategies can be used to adapt to the challenges posed by climate change	3 marks

1. To help you to identify if the answer includes detailed points, first highlight or underline the:



Points in **red**



Explanations in **orange**



Evidence in **green**

2. Use the mark scheme on the next page to decide what mark to give. You are not awarded extra marks for spelling, punctuation and grammar for this question. However, you could miss out on marks if your spelling, punctuation or grammar is poor, so always check your answer carefully.

continued overleaf

Name _____ Class _____

Level	Marks	Descriptor	Examples
3 (Detailed)	5–6	<p>AO1: Shows detailed knowledge of strategies that can be used to respond to the challenges of climate change.</p> <p>AO2: Shows thorough understanding of how specific strategies are used to respond to these challenges by adapting to climate change.</p>	<p>Summers will become warmer in the UK and many plants will not survive. However, there are many new vineyards being planted in southern England, which will provide a new source of income for farmers in the wine industry.</p> <p>People are building higher sea walls and other forms of coastal defense to cope with the increasing frequency and intensity of winter storms, and rising sea levels, caused by climate change.</p>
2 (Clear)	3–4	<p>AO1: Shows clear and accurate knowledge of strategies that can be used to respond to the challenges of climate change.</p> <p>AO2: Shows some understanding of how specific strategies are used to respond to these challenges by adapting to climate change.</p>	<p>As the climate changes and it gets drier or hotter, there will be a need to start growing different crops.</p> <p>As sea levels rise, it will be necessary to move people away from the areas that will flood.</p>
1 (Basic)	1–2	<p>AO1: Shows limited knowledge of strategies that can be used to respond to the challenges of climate change. The simple basic statements are not developed, may be purely descriptive and may only include one strategy or challenge.</p> <p>AO2: Shows slight understanding of how management strategies are used to respond to these challenges by adapting to climate change.</p>	<p>Start growing different crops. Move people away from likely flooded areas. Build houses on stilts. Shade crops from the Sun.</p>

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 1

Climate change means that crops which have always been grown may no longer survive. Farmers need to start growing different crops that can survive in the new climatic conditions. Renewable energy must be used instead of coal and oil to make electricity. This means making electricity using wind or solar power. This cuts down on the amount of greenhouse gases being sent into the atmosphere. There needs to be international agreements where countries agree to make plans to cope with climate change. There will be a need to have plans to improve the supply of water to cope with drier conditions. People may have to move away from where they are living when the sea level rises.

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 2

If fossil fuels are used to make electricity it makes climate change worse. This is because CO_2 is put into the atmosphere that causes the temperature to get higher. If carbon capture techniques are used then it will stop the climate changing. People are moved to higher levels. Crops like grapes can be grown. Crops will need to be protected from the increased problem of pests and diseases using insecticides and pesticides. Surveys need to be taken to see how ecosystems are changing and which animals and plants are dying. Irrigation is necessary if desertification is to be stopped.

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 3

Plans need to be put in place, which allow people and the environment to adapt to climate change. Some strategies will attempt to reduce the effects of climate change. This will need international agreements like the one in Paris. It will take a long time to achieve this so strategies are needed to cope with the fact that the present climate is changing.

The climate is getting warmer and drier and the polar ice caps are melting, causing a rise in sea level. Low-lying islands like the Maldives will become uninhabitable. People will have to be moved away to higher and therefore drier places. These may have to be specially built.

The rising temperatures caused by climate change can present challenges and opportunities. Scientists predict that global warming will make arable land in many LIEs less productive or unusable. Genetically modified crops that are drought resistant will need to be grown by farmers. Oilseed rape, which can survive drought, is already being grown successfully in the increasingly dry areas of the USA, like California. Warmer conditions in the UK mean that Mediterranean crops, like grapes can now be successfully grown. There are many vineyards in southern England that are making a profit.

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 4

In parts of West Africa on the edge of the Sahara Desert it is getting drier, and there is a danger of desertification because of climate change. The farmers there have been encouraged to change the crops they grow because crops were frequently failing because of increasing drought. New crops have been introduced that can survive the drier conditions.

Groundwater management means that more effective use is made of underground water and new techniques in water harvesting are being introduced. In the Himalayas the amount of water available is likely to get less as climate change is causing the glaciers to retreat. This is where the water comes from at the moment but there is now the need to collect water, which is allowed to freeze into an artificial glacier, which then provides water in the summer months.

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 5

There is now a global agreement to reduce the emissions of greenhouse gases, which will affect climate change. Trees are planted which removed some of the carbon dioxide from the atmosphere. Where there are low-lying areas that will flood if sea level rises due to climate change. Houses are built on stilts which will stop them becoming flooded. If this does not work then the population will have to be moved away to another country. People will have to start growing different crops to what they had one in the past. Grapes can now be grown in the UK it may become too warm to produce the grapes used in making Champagne in France.

Strengths of the answer			
Ways to improve the answer			
Level		Mark	

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 1

Climate change means that crops that have always been grown may no longer survive. Farmers need to start growing different crops that can survive in the new climatic conditions. Renewable energy must be used instead of coal and oil to make electricity. This means making electricity using wind or solar power. This cuts down on the amount of greenhouse gases being sent into the atmosphere. There need to be international agreements where countries agree to make plans to cope with climate change. There will need to be plans to improve the supply of water to cope with drier conditions. People may have to move away from where they are living when the sea level rises.

Point: Clearly identifies one challenge presented by climate change.

Explanation: Identifies one strategy that responds to the challenge.

Points: Not relevant. Moves away from the focus of the question and strays into the area of climate change mitigation.

Points: Identify two vague strategies, but lacks clarity.

Point: Identifies another challenge and strategy, but needs to be developed.

Feedback: The first two sentences show some clarity, but are followed by confusion between adaptation to climate change and mitigation of its effects. Returning to relevant material, the statements are too vague and not developed enough to show clearly how strategies can respond to challenges. No explanations or evidence are given.

Level = 2 Marks = 3

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 2

If fossil fuels are used to make electricity it makes climate change worse. This is because CO₂ is put into the atmosphere that causes the temperature to get higher. If carbon capture techniques are used then it will stop the climate changing. People are moved to higher levels. Crops like grapes can be grown. Crops will need to be protected from the increased problem of pests and diseases using insecticides and pesticides. Surveys need to be taken to see how ecosystems are changing and which animals and plants are dying. Irrigation is necessary if desertification is to be stopped.

← **Point:** Not relevant. Focuses on mitigating causes not adapting to climate change.

← **Points:** Relevant strategies, but need to be linked to appropriate challenges.

← **Point:** Not relevant.

← **Point:** Factually incorrect.

Feedback: This basic answer confuses migration and adaptation. Some relevant strategies are identified, but there is little attempt to link them to appropriate challenges, explain how they can be used or provide evidence.

Level = 1 Marks = 1

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 3

Plans need to be put in place, which allow people and the environment to adapt to climate change. Some strategies will attempt to reduce the effects of climate change. This will need international agreements like the one in Paris. It will take a long time to achieve this so strategies are needed to cope with the fact that the present climate is changing.

Points: Recognises the need to adapt, but much of this content is not focused on answering the question.

The climate is getting warmer and drier and the polar ice caps are melting, causing a rise in sea level. Low-lying islands like the Maldives will become uninhabitable. People will have to be moved away to higher and therefore drier places. These may have to be specially built.

Evidence: Gives a specific example of a challenge.

Explanation: Explains why the challenge is a problem and then shows how a strategy can respond to the challenge.

The rising temperatures caused by climate change can present challenges and opportunities. Scientists predict that global warming will make arable land in many LIEs less productive or unusable. Genetically modified crops that are drought resistant will need to be grown by farmers. Oilseed rape, which can survive drought, is already being grown successfully in the increasingly dry areas of the USA, like California. Warmer conditions in the UK mean that Mediterranean crops, like grapes can now be successfully grown. There are many vineyards in southern England that are making a profit.

Point: Links back to the question and recognises that there will be winners and losers.

Point: Identifies a challenge.

Explanation: Shows how a strategy responds to the challenge.

Evidence: Gives two located examples.

Feedback: Although this answer contains some irrelevant material, it links detailed knowledge and understanding of strategies to the challenges of adapting to climate change.

Level = 3 Marks = 6

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 4

In parts of West Africa on the edge of the Sahara Desert it is getting drier, and there is a danger of desertification because of climate change. The farmers there have been encouraged to change the crops they grow because crops were frequently failing because of increasing drought. New crops have been introduced that can survive the drier conditions.

Groundwater management means that more effective use is made of underground water and new techniques in water harvesting are being introduced. In the Himalayas the amount of water available is likely to get less as climate change is causing the glaciers to retreat. This is where the water comes from at the moment but there is now the need to collect water, which is allowed to freeze into an artificial glacier, which then provides water in the summer months.

Evidence: Gives a located example.

Point: Clearly identifies a challenge caused by climate change.

Explanation: Clearly shows how a strategy responds to the challenge.

Explanation: Identifies another strategy, but it needs to be more clearly linked to the challenge of drier climate.

Evidence: Gives another located example of a strategy.

Feedback: This answer identifies various strategies in named locations for responding to challenges posed by climate change. However, only one strategy is linked clearly enough to the relevant challenge.

Level = 3 Marks = 5

Name _____ Class _____

Show how management strategies can be used to respond to the challenges posed by climate change. (6 marks)

Sample answer 5

There is now a global agreement to reduce the emissions of greenhouse gases, which will affect climate change. Trees are planted which removed some of the carbon dioxide from the atmosphere. Where there are low-lying areas that will flood if sea level rises due to climate change, houses are built on stilts which will stop them becoming flooded. If this does not work then the population will have to be moved away to another country. People will have to start growing different crops from those they grew in the past. Grapes can now be grown in the UK, but it may become too warm to produce the grapes used in making Champagne in France.

Point: Not relevant.

Confuses mitigation with adaptation.

Point: Identifies a challenge.

Explanation: Clearly links two strategies to respond to the challenge.

Point: Identifies another strategy, but not clearly linked to a challenge.

Evidence: Located examples of where the strategy is used and where the challenge is a problem.

Feedback: Although there is some clarity in identifying strategies, with located examples, this answer does not demonstrate clearly how these strategies respond to specific challenges posed by climate change.

Level = 2 Marks = 4