

Oxford Revise | Geography | Answers

Chapter 7

All exemplar answers given are worth full marks.

1.1 A

1.2 Countries projected to have extreme water shortage are most countries in North Africa and the Middle East like Egypt and Saudi Arabia, and parts of central Asia like northern China. There are other isolated areas such as in South Africa Northern Chile and parts of western United States.

1.3 This question is level-marked:

Level	Marks	Description
3 (detailed)	5–6	<ul style="list-style-type: none"> • Thorough, detailed, organised, and relevant throughout with supporting evidence and examples • Communicates detailed, clear knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) • Good use of geographical terms and vocabulary
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound throughout with some supporting evidence and examples • Communicates some knowledge and understanding • Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) • Some use of geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Communicates using simple statements that are not developed • Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *One issue for people caused by climate change is the extreme water shortages shown in Figure 1. Water shortages may be due to decreased rainfall, increased evaporation or melting glaciers but in all cases, this means there is not enough water to drink or to grow crops. This can lead to food shortages and malnutrition and in extreme cases forced migration as climate refugees search for places to live with plentiful water supplies.*

Another issue for people is coastal flooding caused by sea level rise. In Vietnam, coastal flooding is threatening rice production, potentially causing food shortages for 1 million people. This would also have an economic effect on people as rice production can be sold and these people will be without a secure income.

1.4 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	<ul style="list-style-type: none"> • Sound, organised and relevant throughout, using supporting evidence and examples • Communicates good knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives) • Uses geographical terms and vocabulary
1 (basic)	1–2	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Explanations are partial • Little or no use of geographical terms and vocabulary
	0	No relevant content

Example answer: *One way the environment will be affected is increased intensity of tropical storms. This is because of warmer ocean temperatures providing a greater energy source for tropical storm formation. A second way is sea level rise. Warmer temperatures are causing thermal expansion and melting glaciers and polar ice caps are adding more water to the world's oceans, causing the sea level to gradually rise.*

1.5 14% of species may become extinct.

Accept other answers that refer to Figure 2.

1.6 People who live in coastal settlements might experience coastal flooding.

Accept other answers that refer to Figure 2.

1.7 This question is level-marked:

Level	Marks	Description
3 (detailed)	7–9	<ul style="list-style-type: none"> • Thorough, detailed, organised, and relevant throughout with supporting evidence and examples • Communicates detailed, clear knowledge and understanding • Communicates using developed statements and ideas (e.g. uses connectives to fully explore ideas) • Good use of geographical terms and vocabulary
2 (clear)	4–6	<ul style="list-style-type: none"> • Sound throughout with some supporting evidence and examples • Communicates some knowledge and understanding • Communicates using linked statements and ideas (e.g. uses connectives, but needs further development) • Some use of geographical terms and vocabulary
1 (basic)	1–3	<ul style="list-style-type: none"> • Basic throughout with limited supporting evidence and/or examples • Communicates limited knowledge and understanding • Communicates using simple statements that are not developed • Little or no use of geographical terms and vocabulary
	0	No relevant content

3-marks: SPaG (spelling, punctuation, grammar, and specialist terminology)

Marks	Description
3	<ul style="list-style-type: none"> • Accurate spelling and punctuation • Rules of grammar followed • Effective control of meaning • Uses wide range of specialist terms
2	<ul style="list-style-type: none"> • Generally accurate spelling and punctuation • Most rules of grammar followed • General control of meaning • Uses good range of specialist terms
1	<ul style="list-style-type: none"> • Reasonably accurate spelling and punctuation • Some rules of grammar followed – errors do not hinder meaning • Some control of meaning • Limited use of specialist terms
0	<ul style="list-style-type: none"> • Writes nothing • Does not relate to question • Basic grasp of spelling, punctuation, and grammar prevents clear meaning

Example answer: *I think that the effects of climate change on the environment are more concerning than the effects on people. This is because the effects on people are the result of environmental effects of climate change.*

For example, Figure 2 talks about one way that people will be affected by climate change: increased flooding in coastal areas in places like Bangladesh, forcing people to move inland. However, this is only happening because of the environmental effect of rising sea levels, which in turn is caused by rising global temperatures. Rising temperatures leads to thermal expansion and melting glaciers and ice caps, causing sea levels to rise. This increases the frequency of coastal flooding. The environmental effect is more concerning because it is the cause of the effects on people.

Similarly, people in northern Africa are affected by extreme water shortages. But this is caused by the environmental effect of changing rainfall patterns and evaporation of water from lakes. So again the environmental effect is more concerning because it caused the effects on people.

2.1 Mitigation strategies try to reduce the causes of climate change like removing CO₂ from the atmosphere, whereas adaption strategies try to adjust to climate change, such as planting drought resistant crops.

2.2 Using alternative energy sources like hydroelectric power (HEP).

Accept other suitable answers.

2.3 Building coastal defences like sea walls.

Accept other suitable answers.

2.4 Nuclear energy is an alternative source of energy. A disadvantage is that the nuclear waste produced is expensive and difficult to dispose of.

Accept other suitable answers.

2.5 This question is level-marked:

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	0	No relevant content

Example answer: *Alternative energy production like wind energy can help manage climate change because it will reduce the amount of CO₂ released into the atmosphere, since it is not a fossil fuel. CO₂ is a greenhouse gas that traps the Sun's energy and warms the climate, so reducing this can help manage climate change. International agreements set legally binding targets for countries to reduce CO₂ emissions, encouraging the development of low carbon economies and thus helping to manage climate change.*

2.6 This question is level-marked:

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Example answer: *Carbon capture is a technology that captures and removes CO₂ from the atmosphere. The removed CO₂ is then stored underground. This helps to manage climate change because CO₂ is a greenhouse gas that traps long-wave radiation in the Earth's atmosphere and causes climate change. Removing CO₂ means less long-wave radiation is trapped and global warming is reduced. Planting trees works in a similar way. As trees grow, they remove CO₂ from the atmosphere as part of photosynthesis and store this carbon in their trunks, thus reducing the amount of greenhouse gases in the atmosphere.*

2.7 This question is level-marked:

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Example answer: *Carbon capture could potentially be effective in mitigating climate change but currently it is not effective. Carbon capture works by using technology to capture carbon at power plants and prevent it entering the atmosphere. However, current technology is unable to capture all the carbon emitted. Large quantities still end up in the atmosphere, so it is only partially effective.*

Planting trees will also capture carbon in the atmosphere because trees absorb carbon as they grow. However, critics argue that to plant the quantities of trees needed to make a significant difference would require up to 1 billion new hectares of forest, which could take 1 000 years to grow. Therefore both these approaches work in theory but in practice they are unlikely to be highly effective in mitigating climate change.

3.1 This question is level-marked:

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Example answer: *Carbon capture helps mitigate climate change by removing CO₂ from the atmosphere. Some people might disagree with investing in this technology because currently it is unproven to work well enough to have a significant impact. Carbon capture investment might give the impression that we can carry on burning fossil fuels without increasing global warming and this might mean less money is invested in much more effective technologies like wind or solar energy.*

3.2 This question is level-marked:

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Example answer: *Drought resistant crops can be planted to adapt agricultural systems and manage climate change. These crops are able to grow in areas of water shortage, ensuring food production can continue in drought-prone areas.*

New irrigation techniques like drip irrigation can also be used. These techniques target plants and roots systems, meaning water is used much more efficiently. This helps to manage the water shortages that are one of the impacts of climate change.

3.3 This question is level-marked:

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Example answer: *Changing agricultural systems include planting drought resistant crops. Climate change is causing rainfall patterns to change and evaporation rates to increase, which is making more of the world prone to drought. Planting crops that can grow in areas of water shortages means that food supply will be less impacted.*

Agriculture can also use more efficient irrigation like drip irrigation so that water is used more efficiently and the water shortages caused by climate change are better managed. Water supply can also be managed through reducing water consumption and improving water storage and recycling.

Consumption can be reduced through using things like aerators on taps which reduce the amount of water used when showers or hoses are used. Water can also be stored in water bins so that tap water is not used on crops or in the garden. Both these techniques reduce the consumption of water and help to manage the water shortages caused by climate change.

3.4 Building defences like sea walls can reduce the risk of rising sea levels because the sea walls will prevent coastal erosion and flooding. Housing can also be built on stilts so that it remains safe from floodwater.

3.5 This question is level-marked:

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Example answer: *I mostly agree with this statement. This is because it is only through mitigation strategies that the effects of climate change can be brought under control in the long run. Reducing our carbon emissions will stop the ever-worsening impacts of climate change. For this reason, mitigation strategies like legally binding targets for all nations to reduce CO₂ emissions are essential because they encourage other mitigation strategies and quicken the pace of switching to greener energy sources like wind power that do not emit CO₂.*

However, adaption strategies are also important. This is because the effects of climate change are being felt today and communities urgently need help in adapting to these. Given access to drought resistant crops and benefitting from water transfer schemes are essential for community survival. Adapting is important in the short term, therefore, but we cannot adapt indefinitely. This is why mitigation is more important because that is the only way the impacts will be reduced in the long run.

Arguments disagreeing with the statement should be credited if they are supported with appropriate evidence.

4.1 Tropical storms are found in these bands because that is where se temperatures reach 26.5°C. This is minimum sea temperature for tropical storms to form because warm rising moist air is needed to generate the energy for a tropical storm.

4.2 This question is level-marked:

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Example answer: *A number of long-term management strategies were put in place after the Somerset Levels floods of winter 2013–14.*

Firstly, a twenty-year Somerset Moors Flood Action Plan was developed at a cost of £20m. This included spending £6m dredging the Tine and Parrett rivers. This will reduce the risk of flooding in the future because it will increase the channel capacity of these rivers. This means they can hold more water when the area experiences extreme rainfall.

In addition, several main roads are being raised. This will not stop flooding, but it will reduce the social and economic impacts of flooding because traffic will now be above flood waters and will not be disrupted. The closure of main roads in the 2013–14 floods meant that people could not get to work. This will reduce the risk of this happening in the future.

Answers will vary depending on the weather event studied.