Oxford Revise | Geography | Answers

Chapter 6

All exemplar answers given are worth full marks.

1.1 D

1.2 The area covered in Arctic sea ice has decreased between 1979 and 2014, from 7.2 million km^2 to 5 million km^2. The trend is the area is getting smaller, but it fluctuates, and in some years such as 1996 the area increases.

1.3 This question is level-marked:

Level	Marks	Description
2 (clear)	3–4	• 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	• 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: *Ice cores provide another piece of evidence for climate change. From the concentration of CO_2 trapped in ice cores, scientists can calculate past temperatures going back 1000s of years. The calculations show the temperatures are increasing.*

Global temperature data is another piece of evidence. Weather stations around the world gather temperature data, which shows that the last nine years have been in the ten hottest years on record, suggesting that climate change is taking place.

1.4 This question is level-marked:

Level	Marks	Description
3 (detailed)	5–6	• 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

Level	Marks	Description
2 (clear)	3–4	• 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	• 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: *Human activity has contributed to climate change through burning fossil fuels as shown in Figure 2. When fossil fuels are burnt, they release CO_2, which is a greenhouse gas. With more CO_2 in the atmosphere, more of the Sun's energy is trapped in the atmosphere. This causes a rise in temperatures and climate change.*

Figure 2 also shows deforestation. This contributes to climate change because when trees are cut down, they release CO_2 which, similar to burning fossil fuels, means more greenhouse gases in the atmosphere and less energy escaping as long wave radiation. Human activity also releases greenhouse gases through agriculture, in which fertilisers and livestock release methane. This is also a greenhouse gas, which adds to the layer of greenhouse gases in the atmosphere and increases global warming and climate change.

1.5 Ice cores show changes in temperature via the amount of CO_2 trapped in the ice. Sea levels are rising, and average global temperatures are increasing.

1.6 A painting might be unreliable because the artist is giving a personal impression of the weather. This makes it a subjective representation that is not based on scientific data.

2.1 This question is level-marked:

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2 (clear)	3–4	• 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	• 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: *Orbital changes cause changes in Earth's climate by changing the distance between Earth and the Sun and therefore changing the amount of energy Earth receives. Eccentricity changes the orbit from a circle to an oval, altering the distance to the Sun. Obliquity changes the angle of tilt, meaning Earth is sometimes pointing more toward the Sun and receiving more energy. Precession is a wobble as the Earth*

spins, which changes the point in the orbit where the Earth is pointing toward the sun. The three cycles combine to cause gradual changes in climate.

2.2 This question is level-marked:

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2 (clear)	3–4	• 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
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Example answer: *Large volcanic eruptions emit gases like sulphur dioxide and volcanic ash high into the atmosphere. This creates a large cloud in the atmosphere, which spreads around the world and blocks the Sun's energy from reaching the Earth. This means that less energy reaches the Earth and results in a cooling in Earth's temperature lasting two to three years.*

2.3 Solar output varies with Sun spots on the Sun's surface. These are dark spots which appear in 11-year cycles and emit more energy than usual. Earth's temperature increases in periods with high Sun spot activity because more energy is received.

2.4 Agriculture uses fertilisers that releases a greenhouse gas called methane. When methane is released, it increases the quantity of greenhouse gases in the atmosphere, meaning more of the Sun's energy is trapped on Earth, contributing to climate change.

2.5 This question is level-marked:

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1 (basic)	1–2	• 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
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Example answer: *Deforestation contributes to climate change in two ways. Firstly, trees absorb carbon dioxide, thereby reducing the quantity of CO_2 in the atmosphere. Carbon dioxide is a greenhouse gas that traps energy from the Sun in the atmosphere and increases global temperatures. If trees are cut down, they*

are not able to remove this $CO_2$from the atmosphere. Secondly, cutting down trees releases the carbon stored in the vegetation back into the atmosphere. This adds to the layer of greenhouse gases, meaning more energy is trapped and global temperatures increase.

2.6 This question is level-marked:

Level	Marks	Description
3 (detailed)	7–9	• 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	• 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	• 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	• Accurate spelling and punctuation • Rules of grammar followed • Effective control of meaning • Uses wide range of specialist terms
2	• Generally accurate spelling and punctuation • Most rules of grammar followed • General control of meaning • Uses good range of specialist terms
1	• 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	• Writes nothing • Does not relate to question • Basic grasp of spelling, punctuation, and grammar prevents clear meaning

Example answer: *I strongly agree with the statement that climate change since 1850 has been caused by human activity. This is because the graph shows a clear link between CO_2 concentrations and average global temperatures. From the year 1000 to 1750, CO_2 concentrations remained constant at around 280 parts per million (ppm). Average global temperatures fluctuated but within quite a narrow range of 13.6°C to 13.8°C.*

However, CO_2 concentrations increased rapidly after 1900, to 370 ppm in 2000. This has been accompanied by a similar sharp increase in average global temperatures from 13.6°C in 1900 to 14.4°C in 2000. During this period, there has been a large expansion in human-produced CO_2 emissions as countries have burnt fossil fuels like coal for energy, deforested large parts of the world, and released gases like methane and nitrous oxide through agriculture. All these gases are greenhouse gases, which trap long-wave radiation and warm the Earth's atmosphere, helping explain the large increase in Earth's average temperature.

There may be natural reasons for changes such as increased Sun spot activity increasing the amount of energy reaching Earth, but the close link between the temperature and CO_2 lines suggests that human activity is to blame.

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

3.1 In the centre of a tropical storm is the eye. Conditions are calm, with clear skies, warm temperatures, and no wind.

3.2 This question is level-marked:

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	0	No relevant content

Example answer: *One short term response to Typhoon Haiyan was the Red Cross providing 1.1 million people with water. This reduced the impact on people because it made the spread of illness and disease like dysentery and typhoid less likely. These diseases are spread when people drink contaminated water, so providing people with clean water meant that people stayed healthy.*

A long-term response was a UN Cash for Work programme to clean up the debris. This reduced the impact on people because people were earning an income, allowing food and other essentials to be purchased and helping them return to normal life more quickly.

3.3 This question is level-marked:

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1 (basic)	1–3	• 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
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Example answer: *The Somerset Level floods in the winter of 2013–14 resulted from a mixture of physical and human causes, but I think that physical causes were more to blame than human causes.*

Physical causes included prolonged heavy rainfall with January 2014 being the wettest January on record. The prolonged rainfall meant that soil was saturated, which meant water could not be absorbed into the soil and ran off straight into the River Tone, causing flooding. This is the most important cause of the floods because without heavy rain there would not have been any flood at all.

However, human causes made this worse. The River Tone had not been dredged for twenty years. If it had been dredged, the capacity would have been greater, which may have reduced the severity of the flood.

Another physical cause was extremely high tides that preventing river water escaping out to sea. This meant that even if the river had been dredged, it was likely the flooding would still have taken place, which means that physical causes were more significant than human causes.