

Oxford Revise | Geography | Answers

Chapter 13

All exemplar answers given are worth full marks.

1.1 One challenge are the extremely cold temperatures that can be as low as -30°C . This makes it difficult for machinery to operate and for people to work outside.

Accept other suitable answers.

1.2 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: *Extreme temperatures in cold environments can reach as low as -30°C . This provides a challenge because it is too cold for people to work outside without protective clothing, but such clothing makes it more difficult to move around and work. Machinery might not work properly in the cold, making it difficult to develop. Cold environments are also inaccessible with little transport infrastructure. This makes it much more difficult to develop because the difficulty in transporting machinery, people, and supplies is a barrier to construction and industry.*

1.3 It is difficult because of the permafrost. Buildings need to be built on stilts so that the heat they give off does not melt the ground around them, which would make them unstable. Transport infrastructure like roads also have to be on gravel so that the ground does not thaw underneath the road.

1.4 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

Level	Marks	Description
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: *I strongly agree with this statement because many of the difficulties of developing cold environments are linked to the extremely cold temperatures.*

In Svalbard temperatures can reach as low as -30°C , meaning that people cannot work outside and machinery might not function properly. This causes problems for development because it means there are seasons during which development like building essential infrastructure cannot take place. This means the pace of development is slower than in more temperate climates.

Challenges like inaccessibility might be considered very important because the location and poor infrastructure of many cold environments means it is difficult to transport machinery and other equipment. However, even if these places were made more accessible, the cold temperatures and challenges of building on permafrost would still hinder development. Therefore, the extreme temperatures are the biggest challenge that is faced.

1.5 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
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Example answer: *Many cold environments like Svalbard have 24 hours a day of sunlight in the summer months. This provides an opportunity for development because solar energy can be produced, which can create economic wealth when it is sold. Svalbard can also produce energy from geothermal sources. This is a very clean and reliable energy source that can be used for economic development.*

1.6 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: Fishing provides an opportunity for economic development because in some cold environments the sea is stocked with fish off the coast. This means that trawlers are able to gather fish to sell, generating wealth and leading to economic growth and development. Off the coast of Svalbard, for example, there are large amounts of cod and herring that can be fished. People employed in the fishing industry will also earn money that will be spent in the local economy. This benefits local shops, restaurants and other businesses and creates a multiplier effect.

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 slightly disagree with the statement. This is because I think cold environments provide some opportunities for successful economic development, but I think these opportunities are quite limited.*

Figure 1 shows adventure tourism, which has been a big growth area for economic development in cold environments. Tourists are attracted by the unique environment and opportunities to participate in unique activities like snow mobile safaris. In Svalbard, tourism is now the biggest employer and there were 120 000 visitors in 2018, which suggests successful economic development. However, I think that the market is limited and concerns over damage to the fragile ecosystems means that tourism cannot expand indefinitely. If too many tourists arrive, then the attraction of being in the wilderness will be destroyed.

Coal mining might also provide an opportunity but similarly, environmental concerns will limit this in the future. The world is moving away from coal production so in the long run this is not a feasible strategy. Other possibilities for economic development include solar energy production and fishing. These are viable economic strategies but the barriers to economic development like the extreme weather, isolation, and difficulties building infrastructure in the permafrost will all prevent large scale economic development.

To conclude, there are some opportunities for economic development in cold environments but there are not many opportunities.

Arguments agreeing with the statement should be credited if they are supported with appropriate examples.

2.1 Wilderness areas are places that are remote and untouched by human activity.

2.2 This question is level-marked:

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	0	No relevant content

Example answer: *Cold environments are ecosystems with very difficult conditions for plants to grow in. Plants have to adapt to the very cold weather and low rainfall. When these ecosystems are damaged, it is difficult for them to re-establish because of the challenges they face. In addition the growing seasons are very short. This means that even when plant growth returns, it takes a very long time for damaged ecosystems to fully recover.*

2.3 Permafrost is a big methane store. Methane is a greenhouse gas when released to the atmosphere traps radiation returning to space and quickens global warming. When permafrost melts it releases its stored methane and therefore quickens climate change.

2.4 This question is level-marked:

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Example answer: *Economic development might harm cold environments through the building of infrastructure needed for development. The equipment, vehicles, and machinery needed to build things like roads and coal mines will all damage the fragile ecosystem as they are transported and used. Secondly, specific activities like off-road driving will damage the ecosystem because the vehicles drive across unprotected landscapes. Both of these developments are especially damaging because cold environments take a long time to recover from any damage due to the short growing seasons.*

2.5 This question is level-marked:

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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
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Example answer: *I partially agree with the statement because opportunities for economic development are quite limited in cold environments, and the ecosystem they damage is more valuable than the economic benefits of developing it.*

For example, cold environments might be developed through tourism. In Svalbard this is the biggest employer and in 2018 130 000 visitors arrived. However, due to the inaccessible and hostile nature of the environment, tourism will never create large amounts of wealth. Furthermore, even small numbers of tourists can be immensely damaging because cold environments are extremely fragile. It can take years for ecosystems to recover from damage from tourists walking off road or the damage caused by building tourist facilities. Because cold environments contain many unique plant and animal species and are important areas of wilderness for scientific study they are, therefore, more valuable left intact.

3.1 Conservation groups like Greenpeace can reduce damage through campaigning successfully against economic development like oil exploration or whaling.

Accept other suitable answers.

3.2 This question is level-marked:

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Example answer: *Governments can establish nature reserves and protected areas. This means that economic development is concentrated in certain areas and other areas are not damaged, creating a balance between conservation and development. For example, the Arctic National Wildlife Refuge in Alaska (USA) was established in 1960 and protects 19 million acres.*

Governments can also sign international agreements like the Antarctic Treaty. This means that efforts at conservation are coordinated internationally which prevents unregulated fossil fuel exploration and promotes the idea that cold environments are valuable to everyone. This means a consensus is built around long-term conservation and the short-term needs of economic development.

3.3 This question is level-marked:

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	0	No relevant content

Example answer: *In Alaska, the needs of economic development relate to the oil industry and the drilling and transport of oil in this fragile cold environment. Oil is a valuable resource and is important to economic*

development because of the wealth that is earned from selling it. Technology allows a balance between development and conservation through the building of the Trans-Alaska pipeline to transport the oil. The pipeline is built above ground level so that the permafrost does not melt and the caribou can travel beneath it when migrating, thus limiting the environmental damage caused by transporting oil.

3.4 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
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Example answer: *Figure 2 shows two different strategies balancing the needs of economic development with conservation. The first involves indigenous groups who have lived alongside their environment in a*

sustainable manner for centuries. Listening to the needs of indigenous groups is important if the benefits of economic development like employment and social improvements are to be balanced with conservation.

However, indigenous groups are just one opinion in organisations like the Arctic Council. Groups like Greenpeace (also shown in Figure 2) are also important in putting pressure on all groups involved in Arctic development to think about conservation. This shows that a variety of strategies are needed to balance economic development with conservation. In addition, when economic development takes place, technology can be used to reduce the environmental impact of this. For example, the Trans-Alaska pipeline allows oil to be transported without large numbers of vehicles. It is also built above ground so that the permafrost does not melt and caribou can travel beneath it when migrating.

A range of strategies working together can control economic development and also ensure that conservation is considered when it does take place.

4.1 Emergents

4.2 The forest floor is a very dark and wet environment with thick vegetation.

4.3 This question is level-marked:

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	0	No relevant content

Example answer: Tropical rainforests have high biodiversity because the climate is hot and wet all the year round. It is hot because tropical rainforests are close to the equator where there is low solar insolation. It is wet because the heat from the Sun creates convectional rainfall when warm air rises, cools, and condenses to give heavy rain showers every day. These hot and wet conditions are the ideal environment for plant growth which is then able to support a huge variety of insects and animals.