GradeMax



Mark Scheme

Summer 2021

Pearson Edexcel International Advanced Level
In Geography (WGE03 01)
Paper 3: Contested Planet
(Results)

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General marking guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than be penalised for omissions.
- Examiners should mark according to the mark scheme, not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed-out work should be marked UNLESS the candidate has replaced it with an alternative response.
- For all questions marked using a levels-based mark scheme, examiners should pay particular attention to the initial rubric which begins the indicative content section. These rubric details the Assessment Objective that should be applied when making judgements within each band.

How to award marks when level descriptions are used

1. Finding the right level

The first stage is to decide into which level the answer should be placed in. To do this, use a 'best-fit' approach, deciding which level most closely describes the quality of the answer. Answers can display characteristics from more than one level, and where this happens markers must use the guidance below and their professional judgement to decide which level is most appropriate.

For example, one stronger passage at L4 would not by itself merit a L4 mark, but it might be evidence to support a high L3 mark, unless there are substantial weaknesses in other areas. Similarly, an answer that fits best in L3 but which has some characteristics of L2 might be placed at the bottom of L3. An answer displaying some characteristics of L3 and some of L1 might be placed in L2.

2. Finding a mark within a level

After a level has been decided on, the next stage is to decide on the mark within the level. The instructions below tell you how to reward responses within a level. However, where a level has specific guidance about how to place an answer within a level, always follow that guidance.

Levels containing 2 marks only

Start with the presumption that the work will be at the top of the level. Move down to the lower mark if the work only just meets the requirements of the level.

Levels containing 3 or more marks

Markers should be prepared to use the full range of marks available in a level and not restrict marks to the middle. Markers should start at the middle of the level (or the upper-middle mark if there is an even number of marks) and then move the mark up or down to find the best mark. To do this, they should take into account how far the answer meets the requirements of the level:

- If it meets the requirements *fully*, markers should be prepared to award full marks within the level. The top mark in the level is used for answers that are as good as can realistically be expected within that level
- If it only *barely* meets the requirements of the level, markers should consider awarding marks at the bottom of the level. The bottom mark in the level is used for answers that are the weakest that can be expected within that level
- The middle marks of the level are used for answers that have a *reasonable* match to the descriptor. This might represent a balance between some characteristics of the level that are fully met and others that are only barely met.

<table>
<tr><td>Question number</td><td colspan="2">Using Figure 1, explain the advantages and disadvantages of the tropical cyclone mitigation methods shown. (10)</td></tr>
<tr><td>1(a)</td><td colspan="2">AO1 (4 marks)/AO2 (6 marks)
Marking instructions
Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.

Indicative content guidance
The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:

AO1:
• Mangroves can dissipate some wave energy and reduce the impact of storm surges; some impact on reducing wind speed.
• Embankments are a physical barrier that can reduce coastal flooding.
• Cyclone shelters (and some homes) are elevated / on stilts to prevent drowning and in the case of shelters the concrete structure resists wind damage.
• Mobile phone warnings can give people the time to evacuate the area, and get to safety.
AO2:
• The context is a developing country e.g. Bangladesh, Haiti, the Philippines and others – so one major disadvantage is cost i.e. the affordability of cyclone shelters and embankments and providing enough for everyone.
• Some options are cheaper, such as mangrove replanting – but this would take years to mature so might not provide protection immediately; locals could undertake replanting and embankment construction themselves or with aid from an NGO. Mangroves could easily suffer from deforestation as pressure on resources grows.
• Shelters are robust, and safe but rarely available to all and need to be maintained (cost) plus along with embankments and elevated buildings only protect up to a ‘design’ storm surge: accept the idea that rising sea levels might reduce their effectiveness.
• Mobile phones have potentially widespread benefits to warn large numbers of people, who can evacuate. But there is a financial cost that some might not be able to afford; in addition the warnings rely on other technology such as satellites, forecasts, masts and electricity supply all of which could be vulnerable so any system has weaknesses.</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td></tr>
<tr><td></td><td>0</td><td>No rewardable material.</td></tr>
<tr><td>Level 1</td><td>1–4</td><td>• Demonstrates isolated or generic elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1)
• Applies knowledge and understanding to geographical information inconsistently. Connections/relationships between stimulus material and the question may be irrelevant. (AO2)
• Applies knowledge and understanding of geographical information/ideas to produce an interpretation with limited relevance and/or support. (AO2)</td></tr>
<tr><td>Level 2</td><td>5-7</td><td>• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1)
• Applies knowledge and understanding to geographical information to find some relevant connections/relationships between stimulus material and the question. (AO2)</td></tr>
</table>

		• Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 3	**8-10**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding to geographical information logically to find fully relevant connections/relationships between stimulus material and the question. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	Assess the importance of air masses in influencing the weather experienced in contrasting locations. (15)
1(b)	**AO1 (5 marks)/AO2 (10 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1: • Air masses are uniform bodies of air, with characteristic temperature and humidity levels. • Air masses take on characteristics of their source areas (T, M, P, C, A), but can be modified as they track to new locations. • Air masses combine to form mid-latitude depressions, and fronts. • Some locations, such as the Arctic / Antarctic and Equatorial areas essentially experience the same air mass continually. • Other factors, such ocean currents, jet streams / Rossby Waves, latitude (global circulation) and arguably trends such as global warming also influence the weather. AO2: • Air masses are mostly determined by latitude, so northern latitudes are influenced by Pc, Pm and Am air often experiencing high pressure and limited rainfall as a result, whereas sub-tropical areas experience Tm / Tc air with warmer weather and seasonal rainfall. • It could be argued that mid-latitude areas (Europe, the US Pacific coast, New England, southern Australia / NZ experience much more variable weather because these areas experience multiple air masses being on the boundary between polar and tropical air. • Mid-latitude areas frequently experience the interaction between air masses as fronts (warm, cold, occluded) and depressions; this produces highly variable weather not experienced elsewhere in the world. • Air masses exist within the 'big picture' of the global atmospheric circulation of high / low pressure belts: this might be considered more significant as the driving force behind air mass sources with weather being influenced seasonally by movements of pressure belts (ITCZ/STHPB). • In mountainous regions topography has a significant influence on the weather i.e. orographic precipitation. • It could be argued that in some places extreme events e.g. tropical cyclones are a major influence on the weather, at least seasonally and possibly global

	warming trends are a very significant influence in some places such as Australia i.e. extended drought and changing rainfall patterns. **NB:** Answers could focus on one or two air mass types in depth, or provide greater range across a larger number. Both approaches are valid for L4, as long as there is some assessment of importance.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Applies knowledge and understanding of geographical information/ideas, making limited and rarely logical connections/relationships, to produce an interpretation with limited relevance and/or support. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**5-8**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**9-12**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 4	**13-15**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	Using Figure 2, explain why there are three different projections for future global biodiversity. (10)
2	**AO1 (4 marks) /AO2 (6 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to

<table>
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Relevant points may include:

AO1:
• Figure 2 shows three projections which could be described as positive and negative for biodiversity, with perhaps ‘stabilisation’ being ‘neutral’.
• Biodiversity is shown to have declined sharply between 1970 and 2000, although the rate of decline has slowed.
• ‘Business as usual’ suggests a worsening situation after 2030, but ‘recovery’ suggest improvement after 2030.
• Figure 2 shows biodiversity being influenced by population, as well as actions at a global scale.
AO2
• Population levels influence biodiversity as more people need homes, food and space so ecosystems are under threat; future population is not known but rapid growth is likely to have a greater impact than slow growth.
• Population numbers could be significant, but affluence and resource demands of the population may be more so – deforestation driven by demands for land and resources; greater wealth leading to more consumption and pollution that threatens ecosystems (business as usual line)
• The stabilisation projection could result from some efforts to curb deforestation, conserve ecosystems and put in place policies to protect species – but perhaps limited efforts that stop the decline rather than reverse it.
• Changing attitudes towards biodiversity loss could be very important for the stabilisation / recovery lines as people apply pressure to their leaders to protect high-profile ecosystems and species (coral reefs, rainforests, snow leopard, orangutans).
• The ‘recovery’ projection is probably unlikely, as it would depend on concerted global and national efforts to deal with major environmental issues (deforestation, global warming, ocean plastics) which could be seen as unlikely – but perhaps could be led by the UN and others.
• Some countries might be prepared to act, but others might not, which could explain why there are different projections.
• The recovery projection could require very expensive conservation efforts such as ecosystem restoration, or ex-situ breeding programmes in zoos.</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td></tr>
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Level 3	**8-10**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding to geographical information logically to find fully relevant connections/relationships between stimulus material and the question. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

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<tr><td>Question number</td><td colspan="2">“Stopping deforestation would solve many of the world’s problems.”
To what extent do you agree with this view? (15)</td></tr>
<tr><td>3</td><td colspan="2">AO1 (5 marks)/AO2 (10 marks)
Marking instructions
Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below.

Indicative content guidance
The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:

AO1:
• Deforestation involves removing forests (tropical, deciduous, mangrove etc) to use the land for a new purpose e.g. farmland, homes or mining.
• It causes a number of problems: soil erosion, flooding, increased landslide risk – as well as contributing to global warming.
• There are a wide range of global problems including global warming, biodiversity loss, poverty, hazard risk and many more.
• Some problems can be directly linked to deforestation in some cases e.g. flood risk, but others have a much more indirect link (or none at all).
• Forests play a key role in climate regulation, and regulating the water cycle – as well as providing humans with other goods and services.
AO2
• It could be argued that stopping deforestation would help solve the problem of global warming as deforestation releases carbon dioxide, and means trees no longer sequester it: however reafforestation would probably also be needed, plus it would not reduce emissions from burning fossil fuels and other gas sources e.g. methane.
• Some natural hazards are made worse by deforestation e.g. flooding, landslide risk (including during earthquakes and cyclones), coastal flooding during tropical cyclones – these risks would be reduced, but many natural hazards are complex and their impacts depend on multiple other factors e.g. poverty, preparedness.
• As deforestation has such as direct impact on flood risk, this might be seen as a fairly simple problem to solve by stopping it – perhaps alongside planting more trees.
• As forests, especially tropical ones, contain so much of the world’s biodiversity the problem of biodiversity loss might be seen as being partly solved by preventing it e.g. protecting the Amazon and other areas.
• Some might argue deforestation does generate wealth and development by allowing people to farm, grow commercial crops (palm oil) and that preventing it could cause poverty – unless some alternative income source is found.
• There are many problems that require other solutions: rapid urbanisation, poverty, slum housing and others might all seem to require other solutions so arguing against the contention in the question.
• A possible argument could be that for some places, deforestation presents a significant increase in risk, whereas in other places it is less significant and more indirect in terms of a threat and solution if prevented.</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td></tr>
<tr><td></td><td>0</td><td>No rewardable material.</td></tr>
<tr><td>Level 1</td><td>1–4</td><td>• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant.</td></tr>
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Level 2	**5-8**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**9-12**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 4	**13-15**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	To what extent do domestic energy sources always lead to greater energy security compared to using foreign energy sources? (20)
4	**AO1 (5 marks)/AO2 (15 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Responses that demonstrate **only** AO1 without any AO2 should be awarded marks as follows: • Level 1 AO1 performance: 1 mark • Level 2 AO1 performance: 2 marks • Level 3 AO1 performance: 3 marks • Level 4 AO1 performance: 4–5 marks **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include:

	AO1: • Domestic energy sources are found within a country's territories. • This can include fossil fuels, but also the potential for other renewable and recyclable sources (wind, biofuels, uranium, solar and others) • Foreign sources of energy are obtained by trade, and transferred by pipeline, ship, cable and other pathways. • Energy security implies reliable, affordable energy for users – and is often achieved by having a 'mix' of different energy sources; many factors influence energy security including price, reduced supply, rising demand and public attitudes. • Energy demand is rarely found in the same place as most supply, especially in the case of fossil fuels. AO2: • Many countries rely on their domestic fossil fuel supply e.g. coal, oil and gas in the USA, but in many locations e.g. the UK domestic supply does not meet demand so imports are needed; in a few cases e.g. UAE/ Qatar, domestic supply far exceeds domestic demand (exporters). • Foreign energy sources can be interrupted by political disputes (Russia/ Ukraine gas in 2006/09), natural hazards e.g. hurricanes, war and conflict (Iraq War, Libyan civil war 2011) reducing security of supply; however many of these interruptions are short lived. • Trade in oil and gas are global, and although prices can spike e.g. in 2008 the trade is generally smooth and secure with countries not having difficulties securing the supply they need – although perhaps not always at the price they would want. • In the USA shale gas / shale oil, tar sands imports from Canada and even new coal mining capacity have been developed in the last 15 years in an attempt to increase energy security from domestic sources (and friendly neighbours) – which suggests local supplies are seen as important. • Domestic sources of energy, especially renewables might be seen as more secure because they are controlled within a country's borders, however wind, solar, HEP and others are not always reliable (so may need other back-up sources such as natural gas); political issues can mean the public turn against some domestic sources e.g. nuclear power in Germany post-Fukushima, or nimbyism against UK wind farms or the Severn Barrage. • Many countries, like the UK, have relatively good energy security despite reliance on foreign sources e.g. imported uranium for nuclear fuel, gas imports from Norway and Qatar, electricity imports from the EU – good economic and political relationships mean that foreign sources are actually very secure. • In some places such as South Africa and India, ageing and technically poor electricity supply infrastructure means the national grid often fails to provide secure supply. • Until recently many renewables were expensive so although available, they lacked affordability; this has changed for solar and wind so domestic renewable sources are increasingly secure as regards price (if not constant availability). • In the future, if fossil fuel supplies tighten and prices increase, foreign sources could be less secure of resource nationalism prevents open trade in some energy sources.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–5**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Applies knowledge and understanding of geographical ideas, making

		limited and rarely logical connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an interpretation with limited coherence and support from evidence. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**6-10**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**11-15**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and accurate. (AO1) • Applies knowledge and understanding of geographical information/ideas to find some logical and relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial but coherent interpretation that is supported by some evidence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, largely supported by an argument that may be unbalanced or partially coherent. (AO2)
Level 4	**16-20**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas to find fully logical and relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2)

Question number	To what extent are physical factors rather than human factors always the main cause of water insecurity? (20)
5	**AO1 (5 marks)/AO2 (15 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. Responses that demonstrate **only** AO1 without any AO2 should be awarded marks as follows: • Level 1 AO1 performance: 1 mark • Level 2 AO1 performance: 2 marks

	• Level 3 AO1 performance: 3 marks • Level 4 AO1 performance: 4–5 marks **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1: • Water security exists when clean / useable water supply meets demand, and water is affordable to all. • Physical factors include drought, leading to physical water scarcity and falling surface and ground water supplies; long term climate change can be classed as a physical factor. • Water insecurity can also result from human factors such as poverty: economic water scarcity exists when people cannot afford available water. • The balance between supply and demand can change if demand rises so that renewable water supplies are utilised faster than they are recharged; this is often linked to economic development and / or unsustainable use of water supplies. AO2: • Water insecurity can be caused by physical factors, especially long-term drought such as the Millennium Drought in Australia, drought in the 2010s in California and examples in the Sahel: lower precipitation reduces supply, so surface reservoirs and groundwater is used up but not recharged and water insecurity is the result. • There is a widespread belief that recent water shortages linked to drought have been made worse by long-term trends of rising temperatures (higher evaporation) and reduced rainfall (falling precipitation); in some places failed monsoons and unreliable seasonal rains (ITCZ movement) have been linked with global warming. • El Nino / La Nina can be a cause of drought; this cyclical shift in Pacific Ocean currents and air circulation can cause drought; it is natural but may be made worse by climate change. • However, many water insecure people live in areas of abundant rainfall, but especially in urban areas cannot afford sufficient water and buy water at very high cost from street vendors: this is economic water scarcity. • In the Punjab in India, water insecurity is a result of increased demand: human factors such as population growth and unsustainable use of groundwater for farming has depleted aquifers because annual withdrawals exceed annual recharge; the factor here is poor water management. Many Chinese rivers are so polluted that the water is not useable, despite there being adequate physical supply. • Water supply can be carefully managed, e.g. in Singapore, where demand and supply are in balance and pricing systems ensure even low-income groups can access water affordably. • It could be argued that water insecurity purely as a result of physical factors is quite rare, and usually temporary, because most people who are water insecure are so because existing supplies have been depleted by poor management or they simply cannot afford available water.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–5**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1)

		• Applies knowledge and understanding of geographical ideas, making limited and rarely logical connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an interpretation with limited coherence and support from evidence. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**6-10**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships. (AO2) • Applies knowledge and understanding of geographical ideas in order to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
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Level 4	**16-20**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas to find fully logical and relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is supported by evidence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a rational, substantiated conclusion, fully supported by a balanced argument that is drawn together coherently. (AO2)

Question number	Using Figure 3, explain the disadvantages of using military personnel to measure a country's power. (5)	Mark
6 (a)	**AO1 (2 marks)/AO2 (3 marks)** Award **1** mark (AO1) for each relevant point and further expansion marks for reasons/explanations linked to the data shown (AO2), up to a maximum of 5 marks. • The relationship between active military personnel and GDP	**(5)**

	per capita in figure 3 is weak e.g. North Korea data (1) which suggests number of soldiers is not determined by wealth (1). • Total number of military personnel is high in North Korea, with a low GDP per capita (1), which might suggest the personnel are not well trained / equipped and therefore not a good indicator or military capacity (1). • A very wealthy country like Norway could have highly sophisticated military technology (1) that does not rely on numbers of personnel e.g. drones, or missiles (1). • Some countries have similar number of personnel e.g. USA & North Korea, UK & Bangladesh (1) but very different capacities e.g. blue water navies/ modern air forces (1). Accept other relevant explanations.	

Question number	Using named examples, assess the extent to which the resource demands of superpowers and emerging superpowers cause environmental degradation. (15)
6 (b)	**AO1 (5 marks)/AO2 (10 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance** The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1: • Resource demands include energy, water, materials and minerals and even land / space. • Superpowers are countries with disproportionate economic and political power – or in the case of emerging superpowers, they are developing towards this. • Environmental degradation could include deforestation, pollution of water supply and damage to marine / aquatic ecosystems, air pollution especially in cities and issues around waste disposal. • Resource demands are growing in many emerging superpowers, especially in China and India as a result of a growing middle-class. AO2: • It could be argued that in some superpowers, especially the EU (and a lesser extent the USA) resource demands are actually falling; carbon emissions have fallen as fewer fossil fuels are used per person; in some places environmental issues have moved up the political agenda and efforts to be 'greener' have occurred e.g. renewable energy. • In the USA and EU, many of the environmental issues caused as a result of rapid economic development e.g. water pollution, have been cleaned up to some extent – whereas these issues are still on the increase in China and India. • Middle-class resource consumption is still immature in emerging superpowers but is growing very rapidly, and this leads to widespread pollution and environmental issues if it is not managed; China / India could be 'blamed' more than others simply because of the size of their populations and the potential for consumption increases in the future. • Taking a long-term via, the USA is responsible for the largest share of carbon emissions despite China being the largest emitter today; this means apportioning 'blame' is complex; taken together the USA and China could be

	seen as the main contributors to the environmental degradation caused by global warming. • It could be argued that all countries, not just superpowers and emerging powers, are causing at least some environmental degradation: some might argue the major fossil fuel producers are most to blame.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Applies knowledge and understanding of geographical information/ideas, making limited and rarely logical connections/relationships, to produce an interpretation with limited relevance and/or support. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)

Level 2	**5-8**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas with limited but logical connections/relationships to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**9-12**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 4	**13-15**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	Using Figure 4, explain the disadvantages of using life expectancy to measure a country's development. (5)	Mark
7 (a)	**AO1 (2 marks)/AO2 (3 marks)** Award **1** mark (AO1) for each relevant point and further expansion marks for reasons/explanations linked to the data shown (AO2), up to a maximum of 5 marks. • Life expectancy is very similar in USA and Cuba at 79.1/79.3 (1) but incomes are vastly different so the development message is contradictory (1). • LE is a single measure of health / wellbeing (1) and while it reflects wider quality of life, single indicators are much less useful than indices with several metrics (1). • Brazil's LE is 75 i.e. close to that of the USA but incomes are very different (1) which could suggest LE does not differentiate well as a measure of wider development (1). • Malawi's LE is about 4 years less than South Africa's but its income p.c. is far lower (1), so the link between income / LE may be quite a weak one. (1) Accept other relevant explanations.	**(5)**

Question number	Using named examples, assess the extent to which high debt levels cause a lack of development progress in the poorest countries. (15)
7(b)	**AO1 (5 marks)/AO2 (10 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance and the qualities outlined in the levels-based mark scheme below. **Indicative content guidance**

	The indicative content below is not prescriptive and candidates are not required to include all of it. Other relevant material not suggested below must also be credited. Relevant points may include: AO1: • The world's poorest countries are mostly in Sub-Saharan Africa, South Asia and parts of Latin America. • Development progress implies improving human well-being, with basic needs met and quality of life improving. • Debt is money owed by countries to international lenders (banks), IGOs like the World Bank or ADB, or to other national governments in the form of bilateral loans. • Debt, as an issue, dates back to the 1980s and the severity of the debt issue has led to solutions such as the HIPC. AO2: • Debt means that a high proportion of a countries income is spent on debt interest, so there is less money to be spent on health, education, investment and other programmes that might promote development; on the other hand debt itself is not 'bad' as borrowing can be used to invest in energy, water supply and industry and so promote economic development. • Some argue debt creates dependency (Dependency Theory) and so by its very nature keeps some countries in a state of underdevelopment. • However, lack of development progress can be explained by many other factors; these include poor governance and corruption – although this may be seen as having caused the debt issue in the first place. • Many of the world's poorest countries rely on a few commodity exports for most their external income, and these are vulnerable to price fluctuations, poor terms of trade and issue like crop failure – so poor trade conditions might be seen as a significant cause. • It could be argued that war and conflict is a significant barrier to development progress; military spending can lead to debt and the spending does not promote development. • On the other hand, some countries have managed to reduce their debt through SAPs and HIPC; some like Uganda have made progress since passing through the HIPC process – so lack of development progress today could be seen as resulting from being land-locked, or being switched off from globalisation, or lacking a skilled / educated workforce.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant. (AO1) • Applies knowledge and understanding of geographical information/ideas, making limited and rarely logical connections/relationships, to produce an interpretation with limited relevance and/or support. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce an unsupported or generic conclusion, drawn from an argument that is unbalanced or lacks coherence. (AO2)
Level 2	**5-8**	• Demonstrates geographical knowledge and understanding, which is occasionally relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical

		information/ideas with limited but logical connections/relationships to produce a partial interpretation that is supported by some evidence but has limited coherence. (AO2) • Applies knowledge and understanding of geographical information/ideas to come to a conclusion, partially supported by an unbalanced argument with limited coherence. (AO2)
Level 3	**9-12**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a partial but coherent interpretation that is mostly relevant and supported by evidence. (AO2)
Level 4	**13-15**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout. (AO1) • Applies knowledge and understanding of geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding of geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)