Mark Scheme (Standardisation)

January 2018

Pearson Edexcel International
Advanced Subsidiary
Geography (WGE01)
Unit 1: Global Challenges

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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 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.

Spelling, Punctuation and Grammar Marking Guidance

- The spelling, punctuation and grammar assessment criteria are common to GCSE English Literature, GCSE History, GCSE Geography and GCSE Religious Studies.

- All candidates, whichever subject they are being assessed on, must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.

- Spelling, punctuation and grammar marking criteria should be applied positively. Candidates must be rewarded for what they have demonstrated rather than penalised for errors.

- Examiners should mark according to the marking criteria. All marks on the marking criteria should be used appropriately.

- All the marks on the marking criteria are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the marking criteria.

- Examiners should be prepared to award zero marks if the candidate's response is not worthy of credit according to the marking criteria.

- When examiners are in doubt regarding the application of the marking criteria 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.

- Handwriting may make it difficult to see if spelling, punctuation and grammar are correct. Examiners must make every effort to assess spelling, punctuation and grammar fairly and if they genuinely cannot make an assessment, the team leader must be consulted.

- Specialist terms do not always require the use of complex terminology but the vocabulary used should appropriate to the subject and the question.

- Work by candidates with an amanuensis, scribe or typed script should be assessed for spelling, punctuation and grammar.

- Examiners are advised to consider the marking criteria in the following way:
  - How well does the response communicate the meaning?
  - What range of specialist terms is used?
  - How accurate is the spelling, punctuation and grammar?

Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- show clarity of expression
- construct and present coherent arguments
- demonstrate an effective use of grammar, punctuation and spelling.

Full marks will be awarded if the candidate has demonstrated the above abilities.

Questions where QWC is likely to be particularly important are indicated “QWC” in the mark scheme.

Question Number	Answer	Mark
1 a (i)	**AO2 (2 mark)** • Landslide risk is concentrated in the west/along the coast/just inland of the coast (1) • Highest levels of risk are in the north-west (1) • Bands of moderate/high risk with some isolated pockets of high/very high risk (1) • Low risk areas are found inland/some pockets along the coast closer to higher risk areas (1) • There are areas of high and very high risk close to Los Angeles and San Francisco (1) Accept other correct descriptions of pattern. Do not credit explanation; or reference to single locations without reference to pattern.	**(2)**

Question Number	Answer	Mark
1 a (ii)	**AO2 (2 marks) / AO1 (2 marks)** Credit 1 mark for a reason / explanation and a further mark for a linked extension point. • Areas which are tectonically active such as along the San Andreas fault zone (1) because earthquake ground-shaking can trigger landslides (1) • Landslide risk is higher in locations with high relief/mountains (1) because steep slopes are more prone to landslides especially during rainfall (1) • Landslides can be triggered by weather events such as intense rainfall from heavy storms (1) which may be triggered due to El Nino (1) as a consequence of the saturation of bedding planes/joints • Coastal areas may be at high risk because of coastal erosion (1) undermining cliffs leading to collapse due to weathering and erosion (1) • Sedimentary geology can trigger landslides (1) areas underlined by clay/impermeable surfaces are prone to slip (1) Focus must be on physical processes/factors, not human influence.	**(4)**

Question Number	Answer	Mark
1 a (iii)	**AO1 (3 marks)** 1 mark for a reason / explanation and a further two marks for extended / linked points. • Land use zoning of areas of high hazard risk (1) to prevent development of residential property and therefore reduce exposure (1) • Hazard resistant design (1) such as buildings with deep foundations or retaining walls (1) • Warnings (1) during periods of heavy rain when risk of landslides increases (1) therefore enabling evacuation if needed (1)	**(3)**

<table>
<tr><th>Question number</th><th colspan="2">Answer</th><th>Mark</th></tr>
<tr><td>1 (b)</td><td colspan="2">AO1 (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:
Warmer oceans as a result of global warming have the potential to create more powerful cyclones, which in addition could increase in frequency and/or see their locations shift/expand due to changing climate belts
Sea level rise could make the cyclone threat worse by threatening areas with even higher storm surges
Changing rainfall patterns could increase disaster risk from both flood and drought, possibly even in the same locations as rainfall becomes more variable but seasonal patterns change
As rainfall plays a key role in landslides, and temperature in avalanches, the risk of both could change in unpredictable ways
An increase in extreme weather events such as floods and drought
Note: do not credit answers that focus on geophysical hazards.</td><td>(6)</td></tr>
<tr><td>Level</td><td>Mark</td><td>Descriptor</td><td></td></tr>
<tr><td></td><td>0</td><td colspan="2">No rewardable material.</td></tr>
<tr><td>Level 1</td><td>1-2</td><td colspan="2">Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant (AO1).
Understanding addresses a narrow range of geographical ideas, which lack detail (AO1).</td></tr>
<tr><td>Level 2</td><td>3-4</td><td colspan="2">Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies (AO1).
Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed (AO1).</td></tr>
<tr><td>Level 3</td><td>5-6</td><td colspan="2">Demonstrates accurate and relevant geographical knowledge and understanding throughout (AO1).
Understanding addresses a broad range of geographical ideas, which are detailed and fully developed (AO1).</td></tr>
</table>

Question Number	Answer	Mark
2 a (i)	**AO2 (1 mark)** **D** = 0.53 m (1)	**(1)**

Question Number	Answer	Mark
2 a (ii)	**AO2 (2 marks) / AO1 (2 marks)** Credit 1 mark for a reason and a further mark for an extended explanation. • Uncertainty about the scale and pace of the melting of large ice masses (1), which will impact on sea level rise (1) • There are a number of potential 'tipping points' that could lead to dramatic changes in sea level (1) such as widespread methane release from permafrost/forest die back (1) • There are also possible feedback mechanisms that could accelerate sea level rise (1) such as ice albedo feedback/or depress temperature rises such as increased cloud cover (1) • Sea level rise depends on future temperature (1) which is not known because future emissions cannot be known (1) • Future temperatures partly depend on human factors such as wealth/population size/energy sources (1) used in the future which are unknown (1) • The success of mitigation efforts (1) such as switching from fossil fuels to renewable energy sources/meeting targets from international agreements (1)	**(4)**

Question Number	Answer	Mark
2 (b)	**AO1 (4 marks)** Credit 1 mark for a reason and a further mark for an extended explanation. • Tree rings *sequences* (dendrochronology) can be used (1) because width or rings is determined by temperature during the growing season (1) • Ice cores preserve carbon dioxide levels in ice bubbles (1) which can be used as a proxy from past global temperatures. (1) • Pollen can be recovered from sediments such as peat bogs (1) and used to reconstruct past vegetation cover which is an indicator of past climates (1) • Art/historical records can preserve image of descriptions of past conditions (1) although these records are usually incomplete/short in terms of timescale (1) Note: post 1850 modern instrumental records are not acceptable answers.	**(4)**

<table>
<tr><th>Question number</th><th>Answer</th><th>Mark</th></tr>
<tr><td>2 (c)</td><td>AO1 (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:
• Volcanic eruptions emit large volumes of gas, ash and dust into the atmosphere changing its chemistry.
• The effect is short lived (a few years) and small (0.5 -1 °C) but it causes global cooling as gases and particulates block incoming solar radiation.
• If an eruption is large enough, high level atmospheric winds can redistribute ejecta around the globe leading to a global change.
• Solar variation occurs on an 11 year, and longer, cycle which alters the amount of incoming radiation from the sun.
• The variation is enough to cause warming/cooling of 0.1-0.6°C on timescale of a few years.
• In addition, longer term (decades) sunspot trends can have a cumulative cooling or warming effect.
• Shifts in the thermohaline circulation/ocean currents which can cause alternations to climate.
Answers should not focus on global warming/enhanced greenhouse effect or Milankovitch cycles.</td><td>(6)</td></tr>
</table>

Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant (AO1). • Understanding addresses a narrow range of geographical ideas, which lack detail (AO1).
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies (AO1). • Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed (AO1).
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout (AO1). • Understanding addresses a broad range of geographical ideas, which are detailed and fully developed (AO1).

Question Number	Answer	Mark
3 a (i)	**AO2 (1 mark)** **A** - Goods (1)	**(1)**

Question Number	Answer	Mark
3 a (ii)	**AO2 (2 marks)** • Almost all in the northern hemisphere (1) • East – west flows predominate (1) • Major flows between Europe and North America/Asia and North America/narrow dense flow between Asia and Europe (1) • Funnelling through major shipping canals (1) Accept other correct descriptions of pattern. Do not credit explanation.	**(2)**

Question Number	Answer	Mark
3 a (iii)	**AO1 (2 marks)** Credit 1 mark for a basic explanations and a further mark for an extended explanatory point. • Containerisation has transformed shipping by dramatically reducing costs (1) this enables large quantities of goods made in distant locations to be shipped worldwide (1). • Shipping transports other goods such as components/fossil fuels/raw materials/food (1) as part of a global supply chain providing consumers with goods (1). • Technology (GPS) allows for the most efficient routing in shipping lanes (1) which allows for goods to be transported to distant places more quickly and efficiently (1). • The growth of cruise ships has helped expand global tourism (1) and brought distant places within closer reach of many people (1).	**(2)**

Question Number	Answer	Mark
3 (b)	**AO1 (4 marks)** Credit 1 mark for a reason and a further mark for an extended explanation. • WTO is a global IGO in existence since 1948 (formerly the GATT) which promotes free trade (1) which is a key component of the increase in economic activity as part of globalisation (1) • Successive WTO trade 'rounds' have gradually reduced tariffs and barriers to free trade (1) reducing protectionism and opening up countries to foreign direct investment (1) • The WTO has a key role in settling trade disputes (1) which could be barriers to trade and limit globalisation (1)	**(4)**

Question number	Answer	Mark
3 (c)	**AO1 (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: Benefits • Increased job opportunities in outsourced factories and call centres, including for people with limited skills • Higher incomes, especially compared to incomes in rural areas from where many workers originate; incomes can be used to improve housing and nutrition, pay for education • Some possibility for promotion, e.g. in Bangalore's call-centres and production TNCs; opportunities for women to enter the workplace Costs • Often poor working conditions; long hours, lack of worker rights/representation, relatively short working life • Low wages, which in some cases are exploitative including sweatshop conditions • Low quality of life and high costs in crowded, sometimes polluted cities; incomes often so low that only slum housing can be afforded. For Level 3 marks the answer should include both benefits and costs.	**(6)**

	NB: Do not credit reference to developed countries.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant (AO1). • Understanding addresses a narrow range of geographical ideas, which lack detail (AO1).
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies (AO1). • Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed (AO1).
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout (AO1). • Understanding addresses a broad range of geographical ideas, which are detailed and fully developed (AO1).

Question Number	Answer	Mark
4 a (i)	**AO2 (1 mark)** 88% (1)	**(1)**

Question Number	Answer	Mark
4 a (ii)	**AO2 (2 marks)** High skill elites, any one from: • Europe • USA & Canada Low skill workers, any one from: • South Asia • Other Middle East • Africa • Philippines	**(2)**

Question Number	Answer	Mark
4 a (iii)	**AO1 (2 marks)** Credit 1 mark for a basic reason and a further mark for an extended explanation. • Cultural issues/tensions with a large number of newcomers (1) such as religious tensions/traditions (1) especially as the Emirati population is much smaller than the immigrant population (1) • A shortage of housing could result from the large number of migrants (1) especially of a large number of them are unskilled migrant workers on low incomes (1). • Emirati workers may find it more difficult to find employment (1) as they are outcompeted by the high skilled migrant workers (1) Accept all relevant answers pertaining to economic, social or political issues arising.	**(2)**

Question Number	Answer	Mark
4 (b)	**AO1 (4 marks)** For each point - Credit 1 mark for a reason and a further mark for an extended explanation. • Migrant workers can send remittances back home to source countries (1) which in some cases can amount to 1-5% of total GDP (1) • Migrant workers gain skills/education in the host country (1) which can be taken back 'home' later, boosting the skills base of the source country (1) • For countries with high unemployment / spare productive capacity (1) migration represents a way of reducing the State welfare burden as workers emigrate (1). Answers must focus only on source countries, not host countries. Answers must focus on economic benefits not social /environmental ones.	**(4)**

Question number	Answer	Mark
4 (c)	**AO1 (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: Disadvantages • High levels of education are needed so demand for schools and teachers is high, representing a high economic cost – which is often not adequately provided. • Demand for health care is high, especially maternity and child vaccination • High level of youth dependency may limit female participation in the workforce • If not fully employed, there is a risk of a disaffected, under-used youth which can cause economic and political tensions. Advantages • A future 'demographic dividend' as a youthful population of today turns into a large working age population in the future, boosting economic potential; large tax base for national governments. • Large pool of labour, with supply making labour costs low; can be attractive to investors • Youthful populations may be dynamic and	**(6)**

	entrepreneurial • Youthful populations are quick to take up new technology which provides a large consumer market.		
Level	Mark	Descriptor	
	0	No rewardable material.	
Level 1	**1-2**	• Demonstrates isolated elements of geographical knowledge and understanding, some of which may be inaccurate or irrelevant (AO1). • Understanding addresses a narrow range of geographical ideas, which lack detail (AO1).	
Level 2	**3-4**	• Demonstrates geographical knowledge and understanding, which is mostly relevant and may include some inaccuracies (AO1). • Understanding addresses a range of geographical ideas, which are not fully detailed and/or developed (AO1).	
Level 3	**5-6**	• Demonstrates accurate and relevant geographical knowledge and understanding throughout (AO1). • Understanding addresses a broad range of geographical ideas, which are detailed and fully developed (AO1).	

<table>
<tr><td>Question number</td><td colspan="2">Answer</td></tr>
<tr><td>5 (a)</td><td colspan="2">AO1 (5 marks) / AO2 (5 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:
• Damage represents the economic losses from disasters, such as destruction of and damage to homes, business and infrastructure; it varies from 364 billion in 2011 to only 34 billion in 2006 – a 10-fold difference
• There is less variation in people affected, from 260 million in 2010 to 96 million in 2013
• Death tolls show the greatest variation ranging from 328629 in 2010 to only 7000 in 2014
• Deaths are a small proportion of people affected, i.e. less than 1%
• The highest/lowest numbers in each category generally do not correspond to the same year, suggesting the relationship is not simple
AO2:
• Variation could be explained by the number of disasters, e.g. in 2010 there could have been a very high number of earthquakes and cyclones explaining the high number affected; there is natural variation in the number of events
• Very high magnitude events, e.g. very large earthquakes could increase the death toll and number affected if they affect a large area, e.g. the Sichuan earthquake in 2008 combined with cyclone Nargis
• Impacts might be higher if developing countries are involved, e.g. the very high death toll in 2010 is a result of the 2010 Haiti earthquake
• The impact of megadisasters is one explanting for variation such as the very high damage costs in 2011 (the 2011 Japanese earthquake and tsunami)
• Accept explanations of a trend, i.e. falling since 2011 – this could be put down to better management and response reducing deaths and affected, but not economic losses which remain high
• Areal extent of a hazard or the duration may lead to variation in impact</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. (AO1)
• Demonstrates isolated elements of geographical understanding, some of which may be inaccurate. (AO1)</td></tr>
</table>

		• Applies knowledge and understanding to geographical information/ideas, making limited logical connections/relationships. (AO2) • Applies knowledge and understanding to geographical information/ideas to produce an interpretation that is not relevant and/or supported by evidence. (AO2)
Level 2	**5-7**	• Demonstrates geographical knowledge, which is mostly relevant and may include some inaccuracies. (AO1) • Demonstrates geographical understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding to geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding to 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 throughout. (AO1) • Demonstrates accurate and relevant geographical understanding throughout. (AO1) • Applies knowledge and understanding to geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding to geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

Question number	Answer
5 (b)	**AO1 (5 marks)/AO2 (15 marks)** **Marking instructions** Markers must apply the descriptors in line with the general marking guidance (page 3) 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 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 • Adaptation involves accepting that future climate change will occur and changing lifestyles and economic activity to suit. • It could involve adapting to more extreme weather (flood defences, warnings, and hazard resistant design) or changing farming methods (drought resistant crops, water conservation) and changes to lifestyles. • Mitigation means reducing emissions to both try and prevent global warming, or reduce its impact/scale. • It involves reducing carbon dioxide production, which means using fewer fossil fuels/stopping deforestation and/or increasing carbon sequestration, e.g. by afforestation. • Mitigation has been attempted by global agreement (Montreal, Kyoto, and Paris) and nationally through energy and waste policies. AO2 • Do adaptation schemes successfully drive mitigation schemes at all scales? • Global conferences (Kyoto 1997, Paris 2015) have had variable success in reaching agreements and reducing emissions reductions – variation in target setting between countries and willingness to ratify treaties. • Mitigation on a local scale may be developed on a need basis. • Lack of agreement in evidence and projections of global warming has led to differing models of impacts and therefore actions. • The priority of global warming afforded by government, as political policy, will determine the readiness of action to be taken (or political stability of governance). • The implementation of adaptation and mitigation is dependent on geographical location and economic factors, e.g. coastal areas subject to increases in sea level rise will be more likely to take measures to reduce the impacts and however this will be dependent on the cost-benefit. • Spatial variation in the work of NGOs, such as WaterAid or the Red Cross to work with local communities to facilitate mitigation strategies

	within communities. These measures often take place in areas where there is greatest need. • In areas where the impacts of global warming brings benefits (e.g. viticulture) there may be less desire to act and implement adaptation and mitigation. Or if economic benefits outweigh impacts of warming mitigation may not be a priority.	
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	Answer
6 (a)	**AO1 (5 marks) / AO2 (5 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 • In 2000 the percentage connected is generally very low; the USA stands out as being highly connected but is still less than 60% • Some developing countries are basically not using the internet at all in 2000. • There is much more variation in 2016, with N Korea still virtually 0 but over 80% in USA and Singapore. • Developing countries have increased hugely between 2000 and 2016, especially in China and Kenya, although Ethiopia still has a low percentage connection. AO2 • In 2000 the internet was a new, expensive technology so was not affordable in the developing world; it required an electricity grid and landline grid which was only found in developed countries. • The rise of mobile phones is a major reason for the growth in developing/emerging world internet use. • The expansion of the global submarine fibre-optic cable network has connected developing/emerging countries cheaply – and led to a huge expansion; poverty can be used as an argument for the lower % in some developing countries. • Some countries are politically cut off, e.g. N Korea – internet still viewed as politically dangerous so banned.

	• Physical reasons, i.e. mountainous, rural isolation, extreme climate may be used as explanations for Ethiopia's still low %. • Role of globalisation, TNCs and outsourcing in China, i.e. companies demand internet connections which are then used by the wider population.	
Level	Mark	Descriptor
	0	No rewardable material.
Level 1	**1–4**	• Demonstrates isolated elements of geographical knowledge. (AO1) • Demonstrates isolated elements of geographical understanding, some of which may be inaccurate. (AO1) • Applies knowledge and understanding to geographical information/ideas, making limited logical connections/relationships. (AO2) • Applies knowledge and understanding to geographical information/ideas to produce an interpretation that is not relevant and/or supported by evidence. (AO2)
Level 2	**5-7**	• Demonstrates geographical knowledge, which is mostly relevant and may include some inaccuracies. (AO1) • Demonstrates geographical understanding, which is mostly relevant and may include some inaccuracies. (AO1) • Applies knowledge and understanding to geographical information/ideas logically, making some relevant connections/relationships. (AO2) • Applies knowledge and understanding to 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 throughout. (AO1) • Demonstrates accurate and relevant geographical understanding throughout. (AO1) • Applies knowledge and understanding to geographical information/ideas logically, making relevant connections/relationships. (AO2) • Applies knowledge and understanding to geographical information/ideas to produce a full and coherent interpretation that is relevant and supported by evidence. (AO2)

<table>
<tr><th>Question number</th><th colspan="2">Answer</th></tr>
<tr><td>6 (b)</td><td colspan="2">AO1 (5 marks)/AO2 (15 marks)
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• Level 1 AO1 performance: 1 mark
• Level 2 AO1 performance: 2 marks
• Level 3 AO1 performance: 3 marks
• Level 4 AO1 performance: 4 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
• Global population is projected to grow in the future, but the exact level is unknown; by 2050 9 billion is widely expected but by 2100 predictions range from 9 – 11 billion
• Some commentators believe that population will peak mid-Century while others think it will continue to grow
• Resources include water, food and energy resources particularly fossil fuels.
• There are three theoretical relationships between population and resources, i.e. Malthus, Boserup and the Club of Rome.
AO2
• A key variable is global population; this cannot be known and depends on present and future BR/DR; higher rates of growth may increase the likelihood of shortages but there is uncertainty.
• The Malthusian argument can be applied to food production, i.e. too many mouths to feed; against this is lack of evidence of widespread famine and Boserupian developments in farming technology (drip irrigation, green revolution, GM crops) which mean so far food production has kept pace.
• The Boserupian argument can be applied to fossil fuels as well, i.e. renewable technology is increasingly replacing fossil fuels so that shortages are unlikely to be an issue because replacements have been found
• The Club of Rome position is a ‘resource crisis’ one (not just about food) where population, pollution, energy, water and food all combine at crisis levels – this is often seen as very pessimistic and doom-laden – however, it does allow for global environmental issues (global warming) to play a role in the equation.
• Some might argue that global warming will degrade the resource base so that there will be fewer resources in the future than today, e.g. water resources – making shortages much more likely (but the cause is not really population growth)</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>
</table>

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)