



A-level GEOGRAPHY 7037/2

Paper 2 Human geography

Mark scheme

June 2025

Version: 1.0 Final



Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

No student should be disadvantaged on the basis of their gender identity and/or how they refer to the gender identity of others in their exam responses.

A consistent use of 'they/them' as a singular and pronouns beyond 'she/her' or 'he/him' will be credited in exam responses in line with existing mark scheme criteria.

Further copies of this mark scheme are available from aqa.org.uk

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Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the typical performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

The notes for answers provide indicative content. Students' responses may take a different approach in relation to that which is typical or expected. It is important to stress that examiners must consider all a student's work and the extent to which this answered the question, irrespective of whether a response follows an expected structure. If in doubt the examiner should contact their team leader for advice and guidance.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, i.e. if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Section A

Qu	Part	Marking guidance	Total marks
01	1	Outline what is meant by environmental interdependence. <u>Point marked</u> Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: <u>Notes for answers</u> Allow credit for knowledge and understanding of environmental interdependence. • Impacts to the natural environment in one place have consequences on the environment in other places (1). • All countries are connected environmentally because of the shared use of global commons (1). Negative impacts of one country's use of the atmosphere and oceans potentially affects all countries (1d). The use of global commons is governed by international rules/laws that most countries have signed-up to (1d). • Allow credit for valid examples of environmental interdependence. • Increasing awareness and concerns over climate change mean countries are working together to address these issues (1), establishing international organisations such as UNEP (1d). Countries have created shared targets/goals to address issues that will affect everyone (1), for example the Paris Agreement of 2015 (1d) which aimed to keep global temperature increases to no more than 2°C above pre industrial levels (1d) • Max 1 for a list of international agreements. • Allow credit for aspects of environmental interdependence linked to ecosystems eg within the Antarctic food chain. It is expected that candidates will interpret 'environmental' as relating to the natural/physical environment. However, if candidates interpret 'environmental' in a different context, eg built environment, that may be creditworthy as long as the focus of the response outlines how aspects of that environment are interdependent. The notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4

01	2	Analyse the data shown in Figure 1a and Figure 1b. AO3 – Analysis of the compound bar graph and map showing data about the sales and distribution of LEGO Groups sites. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. Level 1 (1–3 marks) AO3 – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. <u>Notes for answers</u> This question requires analysis of the relationship between the regional distribution of sales and corporate locations of LEGO Group. There should be analysis of the compound bars to show the variation in sales in different global regions, and total sales over time. Connections can be made between the two figures to analyse any connections between both distributions. AO3 - Figure 1a shows that LEGO Groups sales have increased. Sales in 2021 were about 60% higher than in 2017. However, the largest annual increase was between 2020 and 2021 when sales increase by around 11.5 billion Danish Kroner. This is about double the next largest annual increase, between 2019 and 2020. The rate of increase in sales has almost doubled each year since 2018. 2018 to 2019 the increased was about 6%, 2019 to 2020 about 13% and about 26% between 2020 and 2021. - The proportion of LEGO Group's sales for each region seem to stay reasonably even across the time period. - As with sales, Figure 1b shows a significant variation in the distribution of LEGO Group's corporate locations. - The majority of the sites are in Europe, Middle East and Africa, just over 3/5. However, only 3 countries have more than one site, the UK, and 2 eastern European countries, and account for 1/3 of the sites in this region. - Even though LEGO Group has operations in all continents shown, these are not evenly spread. China and one country in eastern Europe are the only countries with more than 4 sites, and South America and Africa only have a total of 2 sites between them. - There is some correlation between the distributions shown in Figure 1a and Figure 1b. Europe, Middle East and Africa have the largest share of sales, over 40%, and have the largest share of sites, over 60%. - Despite having half as many sites as Asia and Pacific, the Americas have around double the sales. Credit any other valid analysis.	6 AO3 = 6
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01	3	Using Figure 2a, Figure 2b and your own knowledge, assess the importance of NGOs in raising awareness around the need to protect Antarctica. AO1 – Knowledge and understanding of the role of NGOs in enhancing the protection of Antarctica. AO2 – Applies knowledge and understanding to the novel situation to assess the importance of NGOs in promoting the need to enhance the protection of Antarctica. <u>Mark scheme</u> Level 2 (4–6 marks) AO1 – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. AO2 – Applies knowledge and understanding to the novel situation offering clear analysis and evaluation drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with clear relevance. Level 1 (1–3 marks) AO1 – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change. AO2 – Applies limited knowledge and understanding to the novel situation offering basic analysis and evaluation drawn from the context provided. Connections and relationships between different aspects of study are basic with limited relevance. <u>Notes for answers</u> This question requires knowledge of the role of NGOs in enhancing the protection of Antarctica and the Southern Ocean. Students should apply this knowledge to analyse the information shown in Figure 2a and Figure 2b to assess the importance of NGOs, such as the one shown in Figure 2a and Figure 2b, in promoting the need to protect Antarctica and the Southern Ocean. For Level 2 there must be reference to the figures. AO1 • The concept of the ‘global commons’. The rights of all to the benefits of the global commons. Acknowledgement that the rights of all people to sustainable development must also acknowledge the need to protect the global commons. • Antarctica as a global common. An outline of the contemporary geography, including climate, of Antarctica to demonstrate its role as a global common and illustrate its vulnerability to global economic pressures and environmental change. • Threats to Antarctica arising from: – climate change – fishing and whaling – the search for mineral resources – tourism and scientific research.	6 AO1 = 2 AO2 = 4
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	• The role of NGOs in monitoring threats and enhancing protection of Antarctica. AO2 • Assessment of the information in Figure 2a and Figure 2b may come to the view that NGOs are important as a means of promoting the need to enhance the protection of Antarctica. The NGO, UNLESS, is clearly promoting a threat it perceives to the future protection of Antarctica. • Figure 2a and Figure 2b show the importance of the NGO in attempting to raise awareness of a potential threat to Antarctica. That current restrictions on the extraction of hydrocarbons in Antarctica are not permanent. • Assessment may come to the view that NGOs, such as UNLESS, have a significant role to play in reminding people that current protections for Antarctica are not permanent. • Assessment may come to the view that it is important for organisations like NGOs to remind people that the current Protocol that protects Antarctica is only in place until 2048. • Assessment of Figure 2a and Figure 2b may suggest that NGOs, like UNLESS, are important. The publicity material in the Figure shows people may not realise that the governance, and therefore protection of Antarctica, is controlled by a relatively small group of countries. • Responses may come to the view that NGOs are important as they may act less in their own self-interest than some of the countries who do have a direct say in the governance of Antarctica. • Assessment may come to the view that in some ways NGOs, like UNLESS, have less importance as they have little actual power to act in the protection of Antarctica. • There may be an overall assessment of the role NGOs play in ensuring the wider global population is aware of the governance of Antarctica as a Global Common. Credit any other valid approach.	
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01	4	‘Unequal flows of technology are the main cause of inequalities in patterns of consumption around the world.’ Critically assess the extent to which you agree with this statement. AO1 – Knowledge and understanding of unequal flows of technology as a cause of inequalities for people and places. Knowledge and understanding of global patterns of consumption. AO2 – Application of knowledge and understanding to critically assess the extent to which unequal flows of technology are the main cause of inequalities in consumption. <u>Notes for answers</u> The question requires candidates to make links between different aspects of the Global Governance unit. They need to apply their knowledge of unequal flows within global systems to patterns of consumption. This is a very open question and candidates can tackle it in a variety of ways. AO1 • Knowledge and understanding of dimensions of globalisation: patterns of consumption. • Issues associated with interdependence including how unequal flows of people, money, ideas and technology within global systems can sometimes act to promote stability, growth and development but can also cause inequalities, conflicts and injustices for people and places. • The impacts of globalisation to consider the benefits of growth, development, integration, stability against the costs in terms of inequalities, injustice, conflict and environmental impact. AO2 • Analysis of unequal flows of technology. Access to mobile phones, smart phones and the internet, has the potential to radically change people’s lives. However, access to such technology is still uneven, both between and within countries and regions. Issues relate to the uneven roll-out of infrastructure needed for such technology to work effectively and the unaffordability of devices needed to access mobile and internet services. • Analysis of unequal flows of technology. Technologies developed in HICs to improve productivity in manufacturing processes transferred to developing economies may increase production and improve economic growth but reduce employment opportunities, so not producing a corresponding increase in consumption. • Analysis of causes of inequalities. It could be argued that flows associated with globalisation may have begun to decrease inequalities between countries, as capital, ideas, technology and resources are able to be transferred from more developed economies to less developed economies. However, these global flows may actually have increased inequalities within countries, as the ability to exploit the	20 AO1 = 10 AO2 = 10
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	benefits of this globalisation is often geographically and socially concentrated. Responses would probably come to the view that ultimately wealth determines the level consumption. • Analysis of patterns of consumption. Generally, consumption of goods and services is still mainly dominated by those in more developed economies. However, as wealth increases in MICs, levels of consumption of manufactured goods and services rises too. • At a global level the transfers of technology above, have potentially decreased global inequalities in patterns of consumption. As access to the internet allows manufacturers and service industries increased access to larger global markets, and customers anywhere to access products and services that are globally available, so reducing inequality. • As transfers of technology are not even, those who are able to access the technologies noted above, massively increase the scope of the goods and services they can consume. This potentially increases the inequalities in consumption within countries as they initially gain new technology. • In developing economies where new technology is employed to reduce the need for labour, those benefiting from the increased productivity will see their ability to consume goods and services increase, whilst those who lose employment will see theirs decrease, thus increasing inequality. • Assessment may come to the view that other factors are more important in creating inequalities in consumption. This may include factors such as, constraints/opportunities provided by the physical environment, availability or otherwise of natural resources, the impacts of natural hazards or human factors to include the impacts of colonisation or levels of education and training, for example. • Overall conclusion should seek to assess the extent to which unequal flows of technology are the main cause of inequalities in consumption. It should be supported by the body of the text and evidence provided. Any valid assessment will be credited.	
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Marking grid for Question 1.4

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	- Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). - Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). - Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	- Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). - Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). - Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	- Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). - Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). - Some knowledge and understanding of key concepts, processes and interactions and change (AO1). - Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	- Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Very limited relevant knowledge and understanding of place(s) and environments (AO1). - Isolated knowledge and understanding of key concepts and processes (AO1). - Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	Nothing worthy of credit.

Section B

Qu	Part	Marking guidance	Total marks
02	1	Outline how endogenous factors contribute to the character of place. <u>Point marked</u> Allow 1 mark per valid point with extra mark(s) for developed points (d). <u>Notes for answers</u> • Endogenous factors are the internal factors that shape the character of places (1) • Endogenous factors make every place unique as they relate to the demographics and physical geography of that place (1). • The location and topography of the place affects the character of place, for example whether it is mountainous creating a picturesque setting or coastal to create a seaside resort (1). • The physical geography contributes to the character of the place as it determines its natural environment for example a place in an upland river catchment with steep upland slopes will have a different character to a place on a river estuary which may have an industrial feel (1d). • The land use of the place determines whether it has a rural, urban or industrial character (1). This contributes to the economic character of the place, whether it is dominated by primary, secondary, tertiary or quaternary sector employment (1d). • Infrastructure can have a significant impact on the character of place, for example places located near to major ports, railway hubs or airports will have different place characteristics (1) as they will seem busy • The nature and architecture of the built environment significantly affects the visual character of a place (1) for example a place dominated by Georgian architecture will look significantly different to a place with Modernist architecture (1d). • The demographic characteristics affect the character of place, for example does the place have a predominantly ageing or youthful population (1), which will then affect the type of buildings, infrastructure and economic activity found there (1d). The ethnic diversity of the place will also have a significant impact on the character of the place, especially its cultural characteristics (1). • No credit for simply listing / naming examples of factors without some link to character. The Notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4

02	2	Analyse the information shown in Figure 3. AO3 – Analysis of the information shown in Figure 3. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. Level 1 (1–3 marks) AO3 – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. <u>Notes for answers</u> The question requires analysis of the bar graphs shown in Figure 3. Connections can be made between the graphs. AO3 • The graphs show significant variation in the responses to both questions by adults and children. • In response to Question 1 there are only 2 sets of words that appeared in the top 6 responses for both adults and children – rundown/derelict and boring. Rundown/derelict was the most common response for adults, but the 5th most common for children, being given by more than 2.5 times the percentage of adults than children. The percentages were switched for “boring”, with it being the most common choice for children and 5th for adults – exactly twice as many children gave this response than adults. • For adults “rundown/derelict” was by far the most popular choice of response for question one, with almost twice the percentage of respondents than any other response. The responses for children were more evenly distributed, with boring and dirty/scruffy being similarly popular as responses. • In terms of question 2, again there is quite significant differences in the responses offered by the adults and children. • Both groups want to be able to describe Stanley as vibrant, clean and attractive/desirable. However, “vibrant/thriving” is the most popular response by far for adults, with nearly 3 times the percentage of respondents than any other response. • The response ‘clean’ from 12% of children was the highest percentage from children, no responses scored more than 12%. • There is an interesting correlation between the responses to the two questions. Over 1/5 of adults described Stanley as rundown/derelict in the Q1, with just over a ¼ hoping to describe it as the opposite (vibrant and thriving) in the future. • Similarly with children, 35% of respondents described Stanley as boring and dirty/scruffy, and the most popular responses about how they hoped to describe it in the future were the opposite, clean and fun. Credit any other valid analysis.	6 AO3 = 6
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02	3	Using Figure 4a, Figure 4b and your own knowledge, assess how a person's lived experience affects their sense of place. AO1 – Knowledge and understanding of people's lived experience of place. Knowledge and understanding of factors affecting sense of place. AO2 – Application of knowledge and understanding to this novel situation to assess how lived experience of place affects sense of place. <u>Mark scheme</u> Level 2 (4–6 marks) AO1 – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. AO2 – Applies knowledge and understanding to the novel situation offering clear analysis and evaluation drawn appropriately from the context provided. Connections and relationships between different aspects of study are evident with clear relevance. Level 1 (1–3 marks) AO1 – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change. AO2 – Applies limited knowledge and understanding to the novel situation offering basic analysis and evaluation drawn from the context provided. Connections and relationships between different aspects of study are basic with limited relevance. <u>Notes for answers</u> The question requires an understanding of how the lived experience of people affects their sense of place. Candidates must use Figure 4a and Figure 4b to assess how the experience of place of people living in it will differ from the experience of those visiting it. Reference to places other than London can be credited as AO1 knowledge. For L2 there must be reference to Figure 4a and Figure 4b. AO1 • The concept of place and the importance of place in human life and experience. • Insider and outsider perspectives on place. • Categories of place: – near places and far places – experienced places • The importance of the meanings and representations attached to places by people with a particular focus on people's lived experience of place in the past and at present. – How humans perceive, engage with and form attachments to places and how they present and represent the world to others, including the way in which everyday place meanings are bound up with different identities, perspectives and experiences.	6 AO1 = 2 AO2 = 4
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		AO2 - Figure 4a shows people in Canary Wharf, whilst Figure 4b specifically shows tourists visiting central London. Assessment may suggest that as those in Figure 4a are more likely to be residents/workers they will have an insider's perception of place, whilst those in Figure 4b, who are visiting, will have an outsider's perspective of place. - Assessment of Figure 4a and Figure 4b may suggest that for those who experience a place by living in it, their sense of place may be shaped by a sense of belonging and familiarity. Whilst the sense of place of those simply visiting it will be shaped by feelings of unfamiliarity. - Although Figure 4a and Figure 4b show people experiencing the same geographical place their perceptions may be very different. For those shown in Figure 4a who live/work there, it is likely that their sense of place is one of a "near place", a place to which they have a strong emotional attachment. Whilst, for those shown in Figure 4b, possibly more affluent, tourists from overseas, it is likely that their sense of place is one of a "far place", a place with which they have little emotional attachment and may seem difficult to comprehend. - Some responses may assess how experiences of place different to those of residents/workers or tourists will create different senses of place also. This is credit worthy. Credit any other valid assessment.	
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02	4	'Shifting flows of investment can have significant impacts on the character of place.' With reference to the distant place you have studied, to what extent do you agree with this statement? AO1 – Knowledge and understanding of shifting flows of investment. Knowledge and understanding of factors affecting the characteristics of a distant place. AO2 – Applies this knowledge and understanding to assess the extent to which shifting flows of investment have had a significant impact on a distant place. <u>Notes for answers</u> The question links different parts of the theme of Changing places, specifically how shifting flows of investment have contributed to the character of places and the distant place study. The question is very open-ended, and candidates may attempt this in a variety of ways. However, there should be a focus on whether shifting flows of investment have had a significant impact in their distant place.	20 AO1 = 10 AO2 = 10
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		AO1 • Factors contributing to the character of places: - Exogenous: relationships with other places. • The impact of relationships and connections on people and place with a particular focus on: - Either - Changing demographic and cultural characteristics - Or - Economic change and social inequalities • How the demographic, socio-economic and cultural characteristics of places are shaped by shifting flows of investment. • Distant place study – characteristics of the place. AO2 • Analysis of the extent to which shifting flows of investment have had a significant impact on the place characteristics of the distant place. For example, assessment of the nature of the impacts of deindustrialisation of a place as commercial investment moves overseas. Or assessment of the nature of the impacts of investment into a place by government, multinational corporations or other institutions. • Analysis of the extent of the level of significance (positive or negative) of impacts of investment on the place characteristics of the distant place. • Investment by government and property developers in Stratford in Newham in east London has had significant impacts for many. Positive impacts for some and negative impacts for others. Residents of former local authority housing areas may have experienced significant negative social impacts as they felt they were forced to leave their homes. Whilst investments associated with the development of the Olympic park and associated facilities, alongside new transport infrastructure and retail developments such as the Westfield Mall, may be viewed as having very significant positive impacts on the economy and built environment of the place. • Over recent decades a number of companies employed in tailoring and clothing manufacture in areas of Leeds like Burmantofts, have invested in manufacturing capacity in east Asia, such as China. For many this is seen as having had significant negative economic and social impacts on the many thousands of people who were once employed in factories in Burmantofts. However, some would see the opportunities this has created for investment in redeveloping some of these former industrial sites in more deprived areas of the city as significantly environmentally and economically positive. • Any conclusion is valid as long as it is supported by evidence in the body of the response. Credit any other valid approach.	
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Marking grid for Question 2.4

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1). • Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

Section C

Qu	Part	Marking guidance	Total marks
03	1	Outline causes of decentralisation in urban areas. <u>Point marked</u> Allow 1 mark per valid point with extra mark(s) for developed points (d). To achieve full marks more than one cause must be addressed, with a maximum of 3 marks if only one cause is included. Credit examples where appropriate. <u>Notes for answers</u> - Decentralisation is the outward relocation of people and/ or businesses from the city centre / CBD (1) (to the edges / suburbs / fringes of the city) - Business seeking to expand or redevelop their operations, relocate to sites towards, or beyond the edge of the existing urban area (1). Availability of large areas of more affordable land (1d) and improved access to transport networks (1d) act as pull factors. - Push factors such as high air pollution levels may have encouraged people to move out of central areas (1). - With improvements to wealth and socioeconomic development some residents may become dissatisfied with outdated, poor quality and crowded housing in some central areas (1). The availability of large areas of more affordable land on the rural-urban fringe and beyond, allows developers to build housing estates with larger more attractive dwellings, acting as a pull factor for some more affluent residents to move outwards from central urban areas (1d). - Changes in lifestyle and retailing can lead to both shoppers and retailers leaving traditional CBDs and town centres, in favour of out-of-town shopping centres (1d). Large areas of cheaper land are attractive for the developers and retailers (1d), whilst access to road networks and space for large free car parks is attractive to shoppers (1d). - Responses may refer policy making and implementation at local levels. For example, the elected mayors in a number of British conurbations. This is credit worthy as long as the response focuses on possible causes of this process. - People working from home (WFH) no longer needing to be close to city centre work places (1). The notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4

03	2	Analyse the data shown in Figure 5a and Figure 5b. AO3 – Analysis of the overall Global Power City Index score for the selected cities between 2015 and 2022. Analysis of the components of the GPCI scores for the selected cities in 2022. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. Level 1 (1–3 marks) AO3 – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. <u>Notes for answers</u> The question requires analysis of the data shown in Figure 5 and Figure 5b. Connections should be made between different aspects of the data. AO3 - Figure 5a shows that there is some variation in the GPCI scores for the selected cities between 2015 and 2022. - Figure 5a shows that scores for most cities fluctuate across the period, but all cities end on a higher score in 2022 than they started on in 2015. There is significant difference in the change in overall GPCI scores between 2015 and 2022. Singapore has the smallest increase, ~30 points, whilst Shanghai's increase is the largest, about 7 times more than Singapore's, gaining just under 200 points. - Figure 5a shows that 90% (9) of the cities had their peak GPCI score in 2018, with Shanghai being the anomaly peaking in 2022. - Figure 5a shows that there is very limited change in the rank order of the 5 highest scoring cities. Once Tokyo overtakes Paris after 2015, the top 5 remain in the same order. London 1st, New York 2nd, Tokyo 3rd, Paris 4th and Singapore 5th. There is more swapping of ranks for the bottom 5 cities. For example, Amsterdam is two places higher by 2022 than in 2015. Shanghai and Los Angeles swap places 3 times. - Figure 5a shows that the range in overall GPCI score is slightly lower in 2022 than in 2015. In 2015 the range is about 580 points and about 490 points in 2022, a decrease of about 90 points. - Figure 5b shows that there is some variation in the proportions of each component's contribution to the overall GPCI scores of each city in 2022. - Figure 5b shows that for 90% of the cities the factor that contributes the largest element of their overall score in 2022 is 'Liveability'. New York is the anomaly where 'Liveability' is its 2nd largest component, and it is the only city where 'Economy' is its biggest component.	6 AO3 = 6
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	• Figure 5b shows that for 4/5 of the cities 'Economy' is the second largest component of their overall score in 2022. This time London is an anomaly with 'Economy' being its 3rd largest component. • Figure 5b shows that for 80% of the cities the factor contributing the least to their overall GPCI score in 2022 is 'R&D'. Los Angeles is the most significant anomaly, as 'R&D' is its 3rd highest element. • Despite having the lowest overall GPCI score in 2022 in Figure 5a, Los Angeles has the 3rd largest score for 'R&D', showing what an important component 'R&D' is for Los Angeles. • Figure 5a shows that London and New York, 1st and 2nd place respectively, have overall GPCI scores significantly higher than the cities in 3rd and 4th place. Analysis of Figure 5b suggests that it is London's score for 'Cultural Interaction' that makes it the dominant city overall. Whilst New York's 'Economy' score is the largest of all the cities, the gap between London and New York's 'Cultural Interaction' more than cancels this out. In this category London has a score of about 340 against New York's score of about 250, a difference of about 90 points. Interestingly, Figure 5a shows that the difference between London and New York's overall score in 2022 is also about 90 points. Credit any other valid analysis.	
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03	3	Using Figure 6a, Figure 6b and your own knowledge, examine how this development fits the characteristics of fortress developments. AO1 – Knowledge and understanding of fortress developments. AO2 – Application of knowledge and understanding to the novel situation to assess the extent to which the development has the characteristics of a fortress development. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. Level 2 (4–6 marks) AO1 – Demonstrates clear appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging/evident with some clear relevance. Analysis and evaluation evident and supported with some clear appropriate evidence. A clear but partial argument is presented. Level 1 (1–3 marks) AO1 – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. <u>Notes for answers</u> This question requires a discussion of the characteristics of fortress developments. Candidates are required to apply their knowledge and understanding to figures 6a and 6b but can also consider other urban areas and cities. The focus of the question should be on the extent to which the map and photograph sources depict the Royal Palm Yacht and Country Club as a fortress development.	9 AO1 = 4 AO2 = 5
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		AO1 • New urban landscapes: fortress developments. • Urban characteristics in contrasting settings. Physical and human factors in urban forms. Spatial patterns of land use, economic inequality, social segregation and cultural diversity in urban areas, and the factors that influence them. • Issues associated with economic inequality, social segregation and cultural diversity in contrasting urban areas. AO2 • Analysis of Figure 6a and Figure 6b may come to the view that the map and photographs show that it is an enclosed/secure site. Responses may assess that this does suggest that Royal Palm does have characteristics of a fortress development. • The isolated/gated nature of Royal Palm does match that of fortress developments, where access to the place is prevented or strictly controlled. Royal Palm has only 2 gated access points, and is separated from other developments by water, nature reserves and the main highway. • The use of fences/boundaries in such developments acts as both a physical barrier to those outside, but also implies that the area inside is private, and that if you are not a resident then you are not allowed inside. In this respect use of Figure 6a may come to the view that Royal Palm does have the characteristics of a fortress development. • Analysis of Figure 6a, may come to the view that the presence of its own private golf course and yacht club, suggests that Royal Palm is an exclusive community for wealthy residents, which may suggest that it does have characteristics of a fortress development or gated community. • Analysis of Figure 6b may suggest that, like in Figure 6a, there is clearly a concern for maintaining the security of those living in Royal Palm. Assessment may come to the view that having controlled gated access and security patrols to maintain the security of the place is a characteristic of fortress developments. • Analysis of Figure 6b may suggest that there is a fear or suspicion of those who are not permitted to enter, or of those who do not belong in Royal Palm. Responses may come to the view that such a concern with excluding those from outside of the place is a characteristic of fortress developments. Credit any other valid approach.	
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03	4	Assess the relative importance of factors contributing to a sustainable city. AO1 – Knowledge and understanding of the nature and features of sustainable cities. Knowledge and understanding of factors that contribute to a sustainable city. AO2 - Application of knowledge and understanding to analyse and assess relative importance of factors that affect contribute to a sustainable city. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. Level 2 (4–6 marks) AO1 – Demonstrates clear appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging/evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. Level 1 (1–3 marks) AO1 – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. <u>Notes for answers</u> This question requires students to assess the relative importance of factors that contribute to a sustainable city. There is no requirement to name specific sustainable cities, but it is highly likely that candidates will support their assessment with illustrative examples. This is appropriate and credit will be given to named examples where appropriate. AO1 • Economic, social, technological, political and demographic processes associated with urbanisation.	9 AO1 = 4 AO2 = 5
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	• Impact of urban areas on local and global environments. Ecological footprint of major urban areas. • Dimensions of sustainability: natural, physical, social and economic. Nature and features of sustainable cities. • Contemporary opportunities and challenges in developing more sustainable cities. • Strategies for developing more sustainable cities. AO2 • Analysis of the concept of sustainable cities. The sustainability of urban areas relates to the level of quality of life provided for its residents, fair governance, and level of impact on the environment. • Assessment comes to the view that a sustainable city is one that provides a high standard of living, with good employment, a clean and healthy environment, has fair governance and is inclusive for all. • Assessment comes to the view that a sustainable city is one that has a focus on environmental management and a low ecological footprint. • Assessment of the importance of social development as a contributing factor of a sustainable city. Responses may assess the importance of: – Education and healthcare provision – Availability and quality of food supplies – Green housing and buildings – Clean water and sanitation – Green public transport – Green energy supplies – Recreation and community support. • Assessment of the importance of economic development as a contributing factor of a sustainable city. Responses may assess the importance of: – Decent employment opportunities – Production and distribution of renewable energy – Investment in green technology and innovation • Assessment of environmental management as a contributing factor of a sustainable city. Response may assess the importance of: – Waste and recycling management – Energy efficiency – Water management – Air quality conservation – Adaptation and mitigation of climate change – Forest and soil management • Assessment of urban governance as a contributing factor of a sustainable city. Response may assess the importance of: – Adoption of green urban planning and design strategies – Strategies to reduce inequalities – Strengthening of civil and political rights – Support of local, national, regional and global links • Assessment of the importance of specific factors named ‘sustainable city/ies’ is credit worthy. • Any conclusion is valid as long as it is supported by the body of the essay. Credit any other valid approach.	
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03	5	‘Impacts of changes to the carbon cycle will make managing environmental problems in urban areas more difficult.’ To what extent do you agree with this statement? AO1 – Knowledge and understanding of impacts of changes to the carbon cycle. Knowledge and understanding of managing environmental problems in urban areas. AO2 – Application of knowledge and understanding to analyse and assess the extent to which impacts of changes to the carbon cycle will make managing environmental problems in urban areas more difficult. <u>Notes for answers</u> The question links items from across specification units. Specifically impacts of changes to the carbon cycle, in the Water and Carbon unit, to strategies to manage environmental problems, in the Contemporary Urban Environments unit AO1 • Changes in the carbon cycle over time, to include human impact (including hydrocarbon fuel extraction and burning, farming practices, deforestation, land use changes). • The carbon budget and the impact of the carbon cycle upon land, ocean and atmosphere, including global climate. • Urban temperatures: the urban heat island effect. Precipitation: frequency and intensity. Fogs and thunderstorms in urban environments. Wind: the effects of urban structures and layout on wind speed, direction and frequency. Air quality: particulate and photo-chemical pollution. • Issues associated with catchment management in urban areas. The development of sustainable urban drainage systems (SUDS). • Environmental problems in contrasting urban areas: atmospheric pollution, water pollution and dereliction. • Strategies to manage these environmental problems. AO2 • Analysis and evaluation of the predicted impacts of changes to the carbon cycle. This could include increased atmospheric temperatures and changes to the amount and pattern of precipitation. • Analysis of factors affecting the management of environmental problems in urban areas. • Evaluation of the extent to which predicted increases in temperature will make managing air pollution more difficult. If urban areas become drier and hotter this may increase the level of air pollution. • Evaluation of the extent to which predicted increases in temperature and changes to patterns of precipitation will make managing water quality in urban areas more difficult. Many areas are expected to experience more unpredictable and intense storm events, this could lead to increased contamination of water supplies due to excess stormwater run-off.	20 AO1 = 10 AO2 = 10
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		• It is possible that impacts of changes to the carbon cycle could lead to increases in sea levels and more intense storm events, that could affect the viability of some coastal urban areas due to increased flood risk. If such urban areas were abandoned this could lead to increased issues of dereliction needing to be managed. • Any conclusion is valid as long as it is supported by the body of the essay. Credit any other valid approach.	
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Marking grid for Question 3.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	- Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). - Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). - Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	- Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). - Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). - Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	- Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). - Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). - Some knowledge and understanding of key concepts, processes and interactions and change (AO1). - Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	- Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Very limited relevant knowledge and understanding of place(s) and environments (AO1). - Isolated knowledge and understanding of key concepts and processes (AO1). - Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	Nothing worthy of credit.

Qu	Part	Marking guidance	Total marks
04	1	Outline the concept of the epidemiological transition. <u>Point marked</u> Allow 1 mark per valid point with extra mark(s) for developed points (d). <u>Notes for answers</u> • Most basically it describes changes in health and population as a country's economy develops. (1). • It describes changing patterns of population age distributions, mortality, fertility, life expectancy, and causes of death (1). • It suggests that the nature of disease and causes of death experienced in a place change over time (1). • It describes a shift from infectious diseases being the primary causes of death in a country to noncommunicable diseases being the dominant causes of death (1). Over time pandemics of infection are gradually replaced by degenerative conditions and diseases associated with lifestyle, as the main form of morbidity (1d). • The concept suggests there are 4/5 stages to this transition (1). Age of infection and famine; Age of degenerative and <i>man-made</i> diseases; Age of delayed and degenerative diseases; Age of inactivity and obesity (1d). • It suggests that with changes in morbidity life expectancy increases in each stage of the transition (1), from 20 to 40 years in phase one, to over 70 years in phase 4 (1d). The Notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4
04	2	Analyse the data shown in Figure 7a and Figure 7b. AO3 – Analysis of the quantitative data shown in Figure 7a and Figure 7b. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data. Level 1 (1–3 marks) AO3 – Basic analysis of the quantitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data. <u>Notes for answers</u> The question requires analysis of the two line graphs shown in Figure 7a and Figure 7b. Connections should be made between the two graphs.	6 AO3 = 6

	AO3 • Figure 7a shows that globally there has been an increase in the amount of calories of food produced per person per day. By 2018 there is about 250 extra calories per person per day being produced around the world. • Despite some slight fluctuation in North America and Europe, and Oceania, all regions have seen an increase in the number of calories produced per person per day. Asia has seen the most significant increase, gaining almost 350 calories per person per day over the time period, which is over 3 times the increase seen in North America and Europe. • Although all regions have had increased food production overall, Africa has seen a slight decrease in the last 5 years of the period. • There is a very significant variation in the calories produced across the regions. In 2000 North America and Europe produced over 40% more calories per person than in Africa. Despite the reasonable increases noted above the gap between these two regions has not noticeably shrunk over the 18 years. • Despite the significant variation in the number of calories produced, Figure 7b shows that none of the regions have less food available than the recommended average number of calories per person. • Figure 7a and Figure 7b show that both the average food production per person and average food supply per person have increased in all regions. • Figure 7b shows that despite all regions having adequate/enough food per person, there is very significant variation in how adequate food supply is in each region. • In both figures the different regions are almost in the same order. With North America and Europe producing the most food and having the greatest surplus of available calories, and Africa has both the lowest level of production and smallest surplus per person per day. • North America and Europe have over a 1/3 more food than is needed in 2000, this surplus increases to 40% over 18 years. Whilst in Africa over the same period there is a much lower increase in amount of surplus food, from less than 10% to less than 15%. North America and Europe's surplus is 2.5 to 3 times that in Africa. • The rate of increase in both the amount of food produced and the size of surplus food availability has slowed in all regions since about 2010. Credit any other valid analysis.	
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04	3	Using Figure 8a, Figure 8b and your own knowledge, assess the view that education is the most significant factor in reducing fertility rates. AO1 – Knowledge and understanding of factors affecting fertility rates. AO2 – Application of knowledge and understanding to the novel situation to analyse and assess the extent to which education and other factors affect fertility rates. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. Level 2 (4–6 marks) AO1 – Demonstrates clear appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging/evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. Level 1 (1–3 marks) AO1 – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. <u>Notes for answers</u> The question requires knowledge and understanding of factors in natural population change, especially, fertility rate and factors affecting it. Candidates should apply knowledge and understanding to assess how much factors, like education, as shown in Figure 8a and Figure 8b, affect fertility rates. Max low level 2 if no reference to education. There is no credit for analysing data on the graph in isolation.	9 AO1 = 4 AO2 = 5
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		AO1 • Factors in natural population change: the demographic transition model, key vital rates, age–sex composition; cultural controls. Models of natural population change, and their application in contrasting physical and human settings. Concept of the Demographic Dividend. • Key population parameters: distribution, density, numbers, change. Key role of development processes. Global patterns of population numbers, densities and change rates. • Relationships between people in their local, national and international communities. AO2 • Assessment using Figure 8a may suggest that there is a negative correlation between the proportion of girls who complete primary school and fertility rates. This is especially true in 2010, and once the rate of primary school completion passes 50 percent. In 1980 almost half of the countries have less than 50% of girls completing primary school and almost half of the countries have fertility rates of over 6 babies per woman. By 2010 the majority of countries have over 80% of girls completing primary school and the fertility rates in the majority of countries is below 3, less than half the rate in 1980. • Assessment using Figure 8b may reinforce the connection between education and fertility identified in Figure 8a. Figure 8b suggests that if girls continue with education and complete secondary school they may marry later and are likely to have fewer children. This is because, young women may then be more able to make informed decisions for themselves about their own priorities, for example by continuing into further education or starting a career. This may mean girls go on to have fewer children. • Assessment should come to the view that there are a range of factors that affect fertility and education although important, is just one factor. Responses should explore the role of other factors, such as the level of choice women have in their lives, cultural influences, availability and quality of health care (especially around maternal health), child health and infant mortality rates, and wealth. • Responses may come to the view that Figure 8b supports the view that education is significant, but that there are a range of factors that affect fertility. However, it could be suggested that education plays a crucial role in all/many of these. For example, it suggests that education affects future wealth and health which themselves are also important factors affecting fertility rates. • There may be an overall conclusion coming to the view that there are a range of factors affecting fertility rates, but that education is possibly one of the most important. It should be supported by evidence in the response. Credit any other valid approach.	
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04	4	Assess the relative importance of factors that have a negative impact on health in a local area that you have studied. AO1 – Knowledge and understanding of factors affecting health. Knowledge and understanding of the population characteristics of a local area. AO2 – Applies knowledge and understanding to analyse and assess the importance of factors that have a negative impact on health in a local area. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. A well balanced and coherent argument is presented. Level 2 (4–6 marks) AO1 – Demonstrates clear appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are emerging/evident with some relevance. Analysis and evaluation evident and supported with some appropriate evidence. A clear but partial argument is presented. Level 1 (1–3 marks) AO1 – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented. <u>Notes for answers</u> This question requires candidates to go beyond the specification to assess the relative importance of factors that negatively impact on health in the local area they have studied. The question is very open-ended, and candidates may attempt this in a variety of ways. However, there should be a clear focus on how specific factors affect health in the named local area.	9 AO1 = 4 AO2 = 5
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		AO1 • Case study of a specified local area to illustrate and analyse the relationship between place and health related to its physical environment, socio-economic character and the experience and attitudes of its populations. • Economic and social development and the epidemiological transition. • The relationship between environment variables eg climate, topography (drainage) and incidence of disease. Air quality and health. Water quality and health. AO2 • Assessment of whether the physical environment of the local place has a negative impact on the people. For example, if there is a lack of green space which potentially has a negative impact on the mental well-being of the population. • Assessment of whether the local climate has specific negative impacts on health. For example, excess summer deaths due extremes of heat during heatwaves in a heavily urbanised place. • Assessment of whether the socio-economic character of the local place has a negative impact on health. For example, is the local area experiencing high levels of multiple deprivation with negative health outcomes associated with this. • Responses may assess whether the air quality of the local area has specific negative impacts on health. For example, if the local place is prone to very high levels of particulate pollution relating to high traffic levels, leading to higher levels of asthma, COPD or other respiratory health complaints. • Assessment should come to a view about the relative importance of factors in having a negative impact on health in the local area. • Any assessment and conclusion is valid as long as it supports the preceding content. Credit any other valid approach.	
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04	5	‘Impacts of changes to the carbon cycle will become an increasingly important cause of migration in the future.’ To what extent do you agree with this statement? AO1 – Knowledge and understanding of changes to the carbon cycles. Knowledge and understanding of causes of migration. AO2 – Application of knowledge and understanding to assess the extent to which changes to the carbon cycles will become an increasingly important cause of migration in the future. <u>Notes for answers</u> The question links items from across specification units. Specifically human induced changes to the carbon cycle, in the Water and Carbon unit, to environmental and socio-economic causes of migration, in the Population and the Environment unit. There is no requirement for reference to specific migrations, but allow AO1 credit for named examples where appropriate. AO1 • Changes in the carbon cycle over time, to include human impact (including hydrocarbon fuel extraction and burning, farming practices, deforestation, land use changes). • The carbon budget and the impact of the carbon cycle upon land, ocean and atmosphere, including global climate. • International migration: refugees, asylum seekers and economic migrants: environmental and socio-economic causes, processes. • Prospects for the global population. Projected distributions. Critical appraisal of future population environment relationships. AO2 • Analysis and evaluation of the predicted impacts of human induced changes to the carbon cycle. This could include increased atmospheric temperatures, changes to the amount and pattern of precipitation. • Analysis and evaluation of the environmental and socio-economic causes of migration. • It is predicted that human induced changes to the carbon cycle are leading to increased rates of desertification and drought. Some parts of north Africa and southern Europe are predicted to change from semi-arid to arid climate conditions. This could lead to issues for food production and water supply which could become a push factor for migration from those areas. • It is predicted that human induced changes to the carbon cycle will lead to rises in sea level of between 1 and 2 metres by 2100. This could make living in low lying coastal environments problematic and become a push factor for migration from those places. For example island nations like Kiribati are already considering relocating their population in the future.	20 AO1 = 10 AO2 = 10
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		• Some locations are predicted to experience increased intensity and unpredictability of storm events. Low lying areas which are already densely populated, especially in southeast Asia, may find that negative impacts of tropical storms become a more important push factor for migration in the future. • Responses may also assess the extent to which other factors will become important causes of migration in the future, this is credit worthy, as long as these are assessed in relation to the importance of changes to the carbon cycle. • Any conclusion is valid as long as it is supported by the preceding content. Credit any other valid approach.	
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Marking grid for Question 4.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	• Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). • Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). • Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). • Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). • Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	• Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). • Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). • Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). • Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	• Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). • Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). • Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). • Some knowledge and understanding of key concepts, processes and interactions and change (AO1). • Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	• Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). • Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). • Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). • Very limited relevant knowledge and understanding of place(s) and environments (AO1). • Isolated knowledge and understanding of key concepts and processes (AO1). • Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	• Nothing worthy of credit.

Qu	Part	Marking guidance	Total marks
05	1	Outline differences between primary and secondary sources of energy. <u>Point marked</u> Allow 1 mark per valid point with extra mark(s) for developed points (d). To achieve full marks the response must explicitly seek to draw out the differences between primary and secondary sources of energy. Maximum 1 mark for a simple list of energy sources. Credit examples where appropriate. <u>Notes for answers</u> • Primary energy comes directly from energy contained in natural resources (1) with a valid qualified example to illustrate the form - such as burning wood or gas to cook food (1) • Secondary sources do not come directly from nature as they require refining / processing (1) with a valid qualified example to illustrate the form such as crude oil which needs to be converted to petrol for use in vehicles (1). Secondary energy is derived from primary sources of energy. (1d) • Primary sources of energy in their natural form include tidal, uranium (nuclear), wave, wind or running water (1) which can directly generate secondary sources such as electricity (1d). Primary sources such as crude oil can be processed into secondary sources such as petroleum or diesel (1). • Some biofuels are either primary or secondary sources of energy (1). Some like fuelwood are burnt directly providing energy for cooking and heating (1d). Whilst others like bioethanol or biodiesel are produced from natural raw materials (agricultural crops), which are then combusted to release the energy (1d). The notes for answers are not exhaustive. Credit any valid points.	4 AO1 = 4

05	2	Analyse the data shown in Figure 9a and Figure 9b. AO3 - Analysis of the quantitative data shown in Figure 9a and Figure 9b. <u>Mark scheme</u> Level 2 (4–6 marks) AO3 – Clear analysis and interpretation of the quantitative evidence provided, which makes appropriate use of data in support. Clear connection(s) between different aspects of the data and evidence. Level 1 (1–3 marks) AO3 – Basic analysis and interpretation of the quantitative evidence provided, which makes limited use of data and evidence in support. Basic connection(s) between different aspects of the data and evidence. <u>Notes for answers</u> The question requires analysis of the two line graphs shown in Figure 9a and Figure 9b. Connections can be made between the two graphs. AO3 - Figure 9a shows that there is significant variation in the value of iron ore imports for the 15 countries, Figure 9b shows that there is also variation in the value of the exports, although the range of the differences is lower. - Figure 9a shows that China dominates iron ore imports. The value of China's imports is just under 10 times greater than Japan's in rank 2. China accounts for around 70% of imports and Japan around 7%. - Figure 9a shows that the value of China's iron ore imports is about 3 times the value of the other 14 countries combined. The 14 other countries' imports total around \$60bn dollars compared to China's \$180bn dollars (approximately). - Figure 9a and Figure 9b show that the geographical pattern of imports and exports differs. Only 1/5 of the countries are both in the top 15 importers and exporters of iron ore – China, Malaysia and Russia. - Figure 9b shows that unlike iron ore exports, there are two countries that dominate. Despite having 4 times the exports of 3rd place South Africa, 2nd place Brazil has only about 40% of the exports of Australia. - Like China in Figure 9a, the value of 1st place Australia's exports are larger than the total value of the next 14 countries' exports. - Figure 9a and Figure 9b show that the total value of the imports and exports of the top 15 importers and exporters, are similar with imports totalling about £230bn and exports about \$210bn. Credit any other valid analysis.	6 AO3 = 6
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05	3	Using Figure 10a and Figure 10b and your own knowledge, assess the challenges in achieving a sustainable water supply. AO1 – Knowledge and understanding of water supply. Knowledge and understanding of sustainability issues associated with water management. AO2 – Applies knowledge and understanding to the novel situation to analyse and assess the challenges in achieving a sustainable water supply. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. Level 2 (4–6 marks) AO1 – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are evident with some relevance. Analysis and evaluation are evident and supported with clear and appropriate evidence. Level 1 (1–3 marks) AO1 – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and supported with limited appropriate evidence. <u>Notes for answers</u> The question requires an understanding of sustainability issues associated with water supply. Figures 10a and 10b present information relating to the management of, and issues associated with wastewater. Candidates should apply their knowledge of sustainable water management, to assess how wastewater is a challenge to sustainable water supply. Candidates can also gain AO1 credit for reference to other challenges for sustainable water supply.	9 AO1 = 4 AO2 = 5
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		AO1 • Sustainability issues associated with water management: virtual water trade, conservation, recycling, 'greywater' and groundwater management. • Strategies to increase water supply to include catchment, diversion, storage and water transfers and desalination. • Strategies to manage water consumption (including reducing demand). • Sources of water; components of demand, water stress. AO2 • Assessment using Figure 10a will probably come to the view that there is very significance difference in the volumes of wastewater produced, and more importantly in the amount that is treated and recycled in different groups of countries. Assessment of how this highlights the huge missed potential for increased recycling of water and hence more sustainable water supply. • Assessment using Figure 10a may come to the view of the extremely small amounts of water that are currently recycled. With HICs only recycling, and therefore reusing less than 1/7 of the wastewater they produce there is clearly significant unsustainability in the use of water. Increased recycling of wastewater could improve the sustainability of supply. • Assessment of the information in Figure 10a may come to the view that improving the sustainability of water supply through the increased recycling of wastewater is a significant challenge. At present only a tiny minority of wastewater is recycled, especially in MICs and LICs, where it may be the case that the need for improved water supply is greatest. Assessment may suggest that this implies there are preventing increased use of recycling – for example, cost, availability of resources, political will, or other priorities. • Assessment using Figure 10b may come to the view that improved management of wastewater, can have some very specific improvements in the sustainability of water supply and sustainable management of water. Specifically, that if wastewater is managed well then there is reduced potential for the contamination of groundwater, which is a significant source of water for water supply. • Figure 10b also highlights that better management of wastewater not only improves the sustainability of water supply, but also other aspects of environmental and social sustainability. • Figure 10b highlights that poor management of wastewater leads to groundwater contamination. Improved management would enable groundwater to be used as a source of fresh water, and so improving the sustainability of supply. • Candidates may also assess other factors that pose challenges for achieving a sustainable water supply. This may include factors relating changing climate and rainfall patterns, or challenges relating to increasing water supply sustainably. • Candidates should come to a conclusion using the evidence. Any conclusion is valid as long as it supports the content of the response. Credit any other valid assessment.	
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05	4	To what extent will geopolitics become increasingly important in mineral resource security in the future? AO1 – Knowledge and understanding of geopolitics. Knowledge and understanding of mineral resource security. AO2 – Application of knowledge and understanding to evaluate the extent to which geopolitics will become increasingly important in mineral resource security in the future. <u>Mark scheme</u> Level 3 (7–9 marks) AO1 – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout. AO2 – Applies knowledge and understanding appropriately with detail. Connections and relationships between different aspects of study are fully developed with complete relevance. Analysis and evaluation are detailed and well supported with appropriate evidence. Level 2 (4–6 marks) AO1 – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. AO2 – Applies clear knowledge and understanding appropriately. Connections and relationships between different aspects of study are evident with some relevance. Analysis and evaluation are evident and supported with clear and appropriate evidence. Level 1 (1–3 marks) AO1 – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy. AO2 – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation are basic and supported with limited appropriate evidence. <u>Notes for answers</u> The question requires links to be made between two different parts of the Resource Security specification, the geopolitics of ore mineral resource distributions, trade and management, and the sustainability of mineral security in the future. The question does not require reference to a specific metal ore, but AO1 credit can be awarded for named examples where appropriate.	9 AO1 = 4 AO2 = 5
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		AO1 • Global patterns of production, consumption and trade/movements of energy and ore minerals. • The geopolitics of mineral resource distributions, trade and management. • Sustainable resource development. • Environmental impacts of a major mineral resource extraction scheme and associated distribution networks. • Sustainability issues associated with ore extraction, trade and processing. AO2 • Analysis of the extent to which the level of demand for minerals, including metals and those used in commercial activities, and the geographical pattern of such demand, will change in the future. Assessment of the extent to which this will pose issues for mineral resource security. • Analysis of the extent to which demands for different minerals will change in the future as technologies change, and issues this will pose for the security of such resources. • Analysis of the extent to which geopolitics will become increasingly important in the future. • In the future, environmental concerns relating to the extraction, trade and use of minerals will become increasingly political and governed by regional and global agreements and rules. • As the processes that influence changes in the patterns of supply and demand for mineral ores globally, it is inevitable that political decisions between countries will become increasingly important. • As environmental concerns become increasingly important in the future, the role of global politics will increase, as it is only governments that can act to create rules and laws to manage mineral resource security. • As developing economies seek to attract FDI to exploit their own mineral ore reserves, geopolitics will play an increasingly important role in the governance of trade. • Candidates should come to a conclusion as to the extent to which geopolitics will become increasingly important in mineral resource security in the future. Any conclusion is valid as long as it is supported by the preceding content. Credit any other valid approach.	
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05	5	‘Impacts of changes to the carbon cycle will cause significant challenges for the management of energy supply and/or energy consumption.’ To what extent do you agree with this statement? AO1 – Knowledge and understanding of impacts of changes to the carbon cycle. Knowledge and understanding of strategies to manage energy consumption and/or strategies to increase energy supply. AO2 – Application of knowledge and understanding to assess the extent to which impacts of changes to the carbon cycle will cause significant challenges for the management of energy supply and/or energy consumption. <u>Notes for answers</u> The question links items from across specification units. Specifically changes to the carbon cycle caused by humans, in the Water and Carbon unit, to strategies to manage energy supply and energy demand in the future, in the Resource Security unit. There is no requirement for reference to specific strategies, but allow AO1 credit for named examples where appropriate. AO1 • Changes in the carbon cycle over time, to include human impact (including hydrocarbon fuel extraction and burning, farming practices, deforestation, land use changes). • The carbon budget and the impact of the carbon cycle upon land, ocean and atmosphere, including global climate. • Energy supplies in a globalising world: competing national interests and the role of transnational corporations in energy production, processing and distribution. • Strategies to increase energy supply (oil and gas exploration, nuclear power and development of renewable sources). • Strategies to manage energy consumption (including reducing demand). • Alternative energy futures and their relationship with a range of technological, economic, environmental and political developments. AO2 • Analysis and evaluation of the predicted impacts of changes to the carbon cycle. This could include increased atmospheric temperatures, changes to the amount and pattern of precipitation. • Global temperatures are predicted to increase. Many urban areas are already experiencing extreme summer temperatures. In 2018 increased demand for energy driven by increased use of air-conditioning during high summer temperatures contributed to record energy consumption that year. If strategies to meet this increased demand lead to more energy generation from the burning of hydrocarbons this could exacerbate the impacts of changes to the carbon cycle, potentially leading to more warming. A more logical	20 AO1 = 10 AO2 = 10
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	response would be to try to manage demand through building design, ventilation and insulation. • Analysis may suggest that it is the continuing burning of fossil fuels to meet increased demand and consumption that is leading to the impacts of changes to the carbon cycle. • Candidates may assess the extent to which strategies to manage future increases in demand and consumption for energy should in fact be to ensure increases in future energy supply are met through renewable sources. Responses may assess the extent to which increasing supply through renewable sources is viable. • Whilst energy supply transitions to more renewable sources, candidates may assess the extent to which different components of energy demand can reduce their level of consumption. Responses may assess the extent to which different sectors – industry, transport, residential, commerce and agriculture – can reduce their level of energy consumption. • Responses should come to a conclusion as to the extent to which they agree with the statement. Any conclusion is valid as long as it is supported by the preceding content. Credit any other valid approach.	
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Marking grid for question 5.5

Level/ Mark Range	Criteria/Descriptor
Level 4 (16–20 marks)	- Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question (AO2). - Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2). - Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1). - Full and accurate knowledge and understanding of key concepts and processes throughout (AO1). - Detailed awareness of scale and temporal change which is well integrated where appropriate (AO1).
Level 3 (11–15 marks)	- Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question (AO2). - Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Generally clear and relevant knowledge and understanding of place(s) and environments (AO1). - Generally clear and accurate knowledge and understanding of key concepts and processes (AO1). - Generally clear awareness of scale and temporal change which is integrated where appropriate (AO1).
Level 2 (6–10 marks)	- Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question (AO2). - Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2). - Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1). - Some knowledge and understanding of key concepts, processes and interactions and change (AO1). - Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies (AO1).
Level 1 (1–5 marks)	- Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question (AO2). - Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2). - Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2). - Very limited relevant knowledge and understanding of place(s) and environments (AO1). - Isolated knowledge and understanding of key concepts and processes (AO1). - Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies (AO1).
Level 0 (0 marks)	Nothing worthy of credit.