A-level
GEOGRAPHY
7037/2

Paper 2 Human Geography

Mark scheme

June 2022

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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.

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

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, ie 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 threats to Antarctica from fishing and whaling.** Point marked Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: Notes for answers Allow credit for specific knowledge and understanding of the threats to Antarctica from fishing and whaling. Candidates may also consider the extent to which the threats are mitigated. Candidates can gain maximum marks from covering fishing or whaling, there is no requirement to consider both. • Antarctica marine waters are highly productive due to the Antarctic Convergence where the upwelling and mixing creates waters rich in oxygen and nutrients (1). This makes them highly lucrative for fishing businesses and over-fishing has occurred (1) (d). • Many species of whales have been over-exploited (1). However, the threat is now less due to the establishment of the IWC which banned commercial whaling globally in 1982 (1). However, some nations such as the Japanese still whale under the guise of scientific research (1) (d). • Overfishing of krill removes a major supply of food as it is low down in the food chain (1). It is a popular protein food in SE Asia and commands high prices (1) (d). This demand is making fishing of krill in the Southern Ocean unsustainable (1) (d). • Illegal fishing is of grave concern in the Southern Ocean as it is difficult to control and manage for organisations such as ASOC (1). The long-line fishing of the Patagonian Toothfish (1) has caused a massive depletion of stocks but also resulted in the deaths of sea-birds due to loss of a food source (1) (d). • Fishing ships are also responsible for ocean pollution, often dumping fishing gear and waste into the ocean (1). The cold water temperatures are slow to break down pollutants (1) (d). • Fishing and whaling boats have brought in invasive species on the hull of their ships (1) such as the Mytilus bivalve (1) (d). 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 line graph, proportional circles and map of Antarctica to consider the changes in the distribution and volume of ice extent across Antarctica. Mark scheme **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. Notes for answers This question requires analysis of the changing ice extent across Antarctica. There should be analysis of the line graph to examine different rates of change and the map to look at the distribution of change. Connections can be made between **Figure 1a** and **1b** and within the data sets, for example by analysing the spatial relationship of the total ice-loss. **AO3** • Figure 1a shows that all areas of Antarctica, except East Antarctica, have shown a negative mass change. • As a whole Antarctica has seen a mass change of approximately 2500gt, which has contributed to about 8mm of sea-level rise. The greatest change is seen in West Antarctica with a loss of 2200gt. • East Antarctica has seen very little change with a very slight increase between 2008 and 2014. • The proportional circles support the graph in 1a as they show that the highest concentration of largest circles are found in the West, for example Getz and Pine Island both have melt rates in excess of 100gt/yr, whereas only Amery and Shackleton in the East have around 100gt/yr melt. • The rate is more erratic around the Antarctica Peninsula with some areas such as George V1 having around 100Gt of melt whereas others have very small amounts of melt such as Larsen G having around 1gt/yr. • Figure 1b map of East Antarctica shows that in 2013 many stations were showing ice loss in excess of 10Gt, this doesn't correlate well with 1a as in 2013 there seems to be a positive mass change and ice mass is above 0. Although after 2013 there does seem to be a slight dip which could reflect the data shown in **Figure 1b**. Credit any other valid analysis.	**6** **AO3 = 6**

01	3	**Using Figure 2, and your own knowledge, assess the role of transport as a factor in globalisation.** **AO1** – Knowledge and understanding of transport as a factor in globalisation. **AO2** – Applies knowledge and understanding to the novel situation to analyse and evaluate the role of transport in globalisation. <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 transport as a factor in globalisation. Students should apply this knowledge to assess the importance of shipping and shipping containers in globalisation. They may also consider other forms of transport as AO1 knowledge and understanding. For Level 2 there must be reference to **Figure 2**. **AO1** • Factors in globalisation: transport • Other factors in globalisation: the development of technologies, systems and relationships, including financial, security, communications, management and information systems and trade agreements • Global features and trends in the volume and pattern of international trade and investment associated with globalisation. **AO2** • Evaluation of the role played by transport – without transport developments the scale of globalisation would not be possible. • The shipping containers in **Figure 2** are very large, allowing for goods to be transported in huge volumes, increasing profit margins and allowing for mass production of goods. They are also standardised allowing them to be packed efficiently onto ships.	**6** **AO1 = 2** **AO2 = 4**

		• The containers appear to be from 2 companies – the dominance of large TNCs is also a factor in globalisation as these companies are large enough to be able to afford to export goods all over the world. • Analysis of the role of shipping containers in globalisation – they allowed international trade to happen on a scale never seen previously. Large heavy goods can be exported and imported over large distances between many countries. • Role of shipping containers in transporting cheap goods to countries has also enabled greater integration for consumers across the globe. • Assessment of transport as a tool in globalisation might consider that Iceland is inaccessible but large container ships mean that it makes it more profitable rather than a small ship that wouldn't be able to transport a large volume • There may be an overall assessment of the role of transport which may consider it relative to other factors. This is a legitimate approach. Credit any other valid approach.	

01	4	**Assess the impacts of world trade in a food commodity and/or a manufactured product on your life and the lives of people across the globe.** **AO1** – Knowledge and understanding of world trade in a food commodity and/or manufacturing product. **AO2** – Application of knowledge and understanding to analyse and evaluate the impacts of world trade in chosen commodities on the lives of students and people across the globe. <u>Notes for answers</u> The question requires students to assess the consequences of world trade in a commodity and / or product on the lives of themselves and people across the globe. The trade should relate to a commodity or product not a TNC. They can choose more than one trade and impacts could be political, social, economic or environmental. Impacts may be seen as positive and / or negative. **AO1** • Knowledge of the pattern of world trade in a food commodity / manufactured product. Likely choices are bananas, palm oil, coffee, apple iPhones. • The nature and role of transnational corporations (TNCs), including their spatial organisation, production, linkages, trading and marketing patterns. • Analysis and assessment of the geographical consequences of global systems to specifically consider how international trade and variable access to markets underly and impacts on students' and other people's lives across the globe. • Issues associated with interdependence - 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 **AO2** • Analysis of the consequences of the world trade of the commodity / product at a global level. For example, the demand for palm oil by developed countries has caused mass deforestation of tropical rainforests, increasing global levels of CO_2 and threat of climate change. This may concern students at an individual level. Many people have protested about the use of palm oil. • The link between development and the world trade. Coffee consumption is increasing most rapidly in emerging economies. The richest economies dominate the top 10 users of iPhones. • Evaluation of the consequences of world trade on unequal flows of money for example, banana production in Central America is controlled by US TNCs and 90% of the price paid stays in the US rather than reaching the producers.	**20** **AO1 = 10** **AO2 = 10**

		• Analysis of the local consequences of the world trade, for example, bananas have a high cost to the local environment due to waste and soil contamination from disinfectant used to wash the fruit at harvesting. Social costs of Apple iPhone production are high in China with reported suicides due to alleged severe working practices in Foxconn where the iPhone is produced. • Analysis of the positive consequences of world trade for local producers, for example, the growth of fair-trade coffee and bananas, mean that local people's lives have seen huge benefits such as co-operatives working to provide education and healthcare. • The link between the world trade and the lives of students themselves, for example, low costs and availability of bananas – UK is the highest EU importer at 1.15 million tonnes. They may consider how their own views are impacted by world trade, for example knowledge of the working conditions at Foxconn producing iPhones. The rise in world trade for palm oil causing TRF destruction. • Alternative futures in terms of the change in world trade and how this may impact on people's lives. For example, Brexit could affect the trade in many products for example, we may have to negotiate different trade agreements and find that prices rise. • Producers are also subject to alternative futures such as changing demands due to environmental pressures. Palm oil trade could be subject to restrictions affecting the production and subsequent lives of local producers and employees. • A legitimate response would be to consider how people and themselves influence world trade in their chosen commodity / product. For example, environmental pressure groups such as Greenpeace are asking people to boycott products containing palm oil resulting in TNCs producing more sustainable palm oil. Demand for fair-trade has increased world trade in bananas / coffee with the label. • Assessment may well be broad and could be considered in terms such as relative importance, level of impact, comparative impacts at different scales or categories such as economic versus environmental. • Overall conclusion should seek to assess the impact of the consequences on the lives of students and people across the globe. It should support the body of the text and evidence provided. • Overall conclusion may suggest that there is very little direct impact on their own life, for example it may be a product they don't consume. However there should be recognition that there is some level of impact for any product through environmental or economic consequences. Any valid assessment will be credited.	

Marking grid for Question 01.4

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	**Explain the difference between experienced places and media places.** Point marked Allow 1 mark per valid point with extra mark(s) for developed points (d). For example: Notes for answers • Experienced places are places that you have lived in or visited before (1). This means we may acquire a deeper understanding of the place (1) (d). • Media places are places that we only know through media such as TV, literature, songs or art (1). This means that our perceptions are based on what is presented to us (1) (d). • Media places can be fictitious for example Hogwarts (1) and we can gain a strong sense of place through the media representations of these places (1) (d). These places cannot fall short of our expectations as we are unable to experience them (1). • Media places can become experienced place but not vice versa (1). However, when we experience such places, they may not live up to our expectations (1) for example visiting Melbourne after experiencing it through the TV show Neighbours and finding out that not every home has a swimming pool (1) (d). • Media places often focus on extreme positive or negative characteristics of place (1). For example, new stories focusing on gang culture in London (1) can cause topophobia (1) (d). • For full marks there must be a clear difference identified. The Notes for answers are not exhaustive. Credit any valid points.	**4** **AO1 = 4**

02	2	**Analyse the changes shown between Figure 3a and Figure 3b.** **AO3 –** Analysis of the quantitative data shown in **Figures 3a** and **3b** relating to changes in the town and surrounding area of Newton Abbot. Mark scheme **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. Notes for answers The question requires an analysis of the map and satellite image to analyse changes in land-use and growth of the town. They may also consider what hasn't changed. No credit for simple lifting of data in isolation. **AO3** • Newton Abbot has clearly grown in size. The continuous built-up area covered approximately 3km from south east to north west in 1946. In 2019 the same area extends across 5km and obviously goes beyond the edge of the map. • Growth has occurred along the main roads, for example, A383 and also as infill between roads such as the St Marychurch Rd and Shaldon Rd. • There is a new major road – the A380 and there appears to be lot more built-up areas adjacent to this. • With the exception of the new A380, there doesn't appear to be much change to the main road layout between 1946 and 2019. • Some areas have seen little change, particularly to the far east of the area and north west. These areas are low-lying areas adjacent to the River Teign and other water courses. • Some land-use has remained the same, for example, there is still a race-course just to the North of Newton Abbot. However in 2019 the satellite image shows there is extensive building to the north west of it. Credit any other valid analysis.	**6** **AO3 = 6**

02	3	**Using Figure 4 and your own knowledge, examine endogenous factors contributing to the character of this place.** **AO1** – Knowledge and understanding of the endogenous factors that contribute to the character of place. Knowledge and understanding of the concept of character of place. **AO2** – Application of knowledge and understanding to this novel situation. Interpretation of **Figure 4** to examine endogenous factors represented in the painting. <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 endogenous factors. Candidates must look for evidence of endogenous factors represented by the painting. No credit for reference to exogenous factors or other places. Similarly, the question does not require candidates to assess the usefulness of the painting, so evaluation of the painting is not creditworthy. Endogenous factors not represented in the painting can be credited as AO1 knowledge. For L2 there must be reference to **Figure 4**. **AO1** • Knowledge and understanding of the of physical geography as an endogenous factor. • Knowledge and understanding of other endogenous factors – location, land-use, built environment, infrastructure, demographic and economic characteristics. • Knowledge and understanding of the concept of character of place **AO2** • Interpretation of the painting to identify endogenous factors present in the painting. • The built environment is densely packed showing it is an urban, built up area. The buildings in the foreground are tall and appear to be industrial buildings. They make the area look industrial.	**6** **AO1 = 2** **AO2 = 4**

		• The land-use appears quite mixed. The area around the square looks to have shops but the buildings behind appear more industrial. To the rear there are churches and houses – a typical urban landscape perhaps. • Colour is used on buildings making the area look less drab and industrial, the people look to be having fun, the demographics suggest mixed ages but predominantly workers as they are all dressed similarly. • The topography is flat in the foreground but the area in the background appears to rise. • Economically the area has a very industrial feel, there are warehouse type buildings and large chimneys giving off a lot of smoke. This is contributing to the grey skies and 'grey' feel of the area. • Credit the link between the painting and the candidate's own perception of character is also valid. For example, the buildings and grey skies make the character of the place look foreboding. Credit any other valid assessment.	

02	4	**'Place meaning and identity are simply a reflection of past and present socio-economic characteristics and no attempt by external agencies at rebranding can change this.'** **To what extent do you agree with this viewpoint?** **AO1** – Knowledge and understanding of how past and present processes of development influence socio-economic characteristics and place-meanings. Knowledge and understanding of rebranding attempts by external agencies. **AO2** – Applies this knowledge and understanding to evaluate attempts at rebranding and the link between socio-economic characteristics and perception of place and place identity. <u>Notes for answers</u> The question links different parts of the theme of Changing places, specifically place meaning as a result of socio economic characteristics and attempts by external agencies to rebrand places. The question is very open-ended, and candidates may attempt this in a variety of ways. There may be reference to their local and distant place, but this is not a requirement. They may consider it as an evaluation of attempts at rebranding to change place meaning and this is a legitimate route to a successful response. **AO1** • Knowledge and understanding of how past and present processes of development influence social and economic characteristics and so be implicit in present meanings. • Knowledge and understanding of the concept of place-meaning and identity. • The concept of place and the importance of place in human life and experience. • How external agencies, including government, corporate bodies and community or local groups make attempts to influence or create specific place-meanings and thereby shape the actions and behaviours of individuals, groups, businesses and institutions. • Qualitative and quantitative sources used to represent places such as posters, media, census and statistics. • How places may be represented in a variety of different forms such as advertising copy, tourist agency material, local art exhibitions in diverse media (eg film, photography, art, story, song etc) that often give contrasting images to that presented formally or statistically such as cartography and census data. • Place knowledge of local and distant places. **AO2** • Analysis of different perception of places and how this might be linked to socio-economic characteristics. For example, London Docklands are linked to the history of the docklands and older residents will still see it as the 'docks', however a younger person might see it as a global finance hub.	**20** **AO1 = 10** **AO2 = 10**

		• Analysis of the links between place-meaning and changing socio-economic characteristics in the local and / or distant place studied. For example, Brick Lane currently has an identity as Banglatown due to the high proportion of Bangladeshi immigrants, however in the past it has been known as a tailoring centre due to immigration of Huguenots. • Evaluation of the extent of the link between place-meaning and changing socio-economic characteristics. For example, some places still have place-identities even though change has occurred eg Merthyr Tydfil as a coal-mining village. • Application of knowledge to evaluate the link between changing socio-economic factors and place-meaning in the local or distant place and ways this is represented. • Evaluation of rebranding attempts by external agencies. For example, Plymouth has been rebranded Ocean City to coincide with the 400th anniversary of the Mayflower landing. This is still connected to its identity as a naval dockyard and hence is still based on changing economic characteristics. • The challenge of satisfying as many stakeholders as possible in rebranding attempts in order to successfully rebrand a place and give it place-meaning and identity. • Relative importance of rebranding in creating place-meaning for insider and outsider perspectives. Different approaches may have different outcomes. • They may consider that successful rebranding attempts usually focus on socio-economic characteristics so therefore they are intrinsically linked. For example rebranding of Liverpool docklands simply focused on its old heritage with the 'there is life in the old docks yet' campaign. • There should be an overall conclusion considering the extent to which they agree with the statement. Any conclusion is valid as long as it is supported by evidence in the body of the response. Credit any other valid approach. Evaluation should be based upon preceding content.	

Marking grid for Question 02.4

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	**Explain why thunderstorms are common in urban areas.** Point marked Allow 1 mark per valid point with extra mark(s) for developed points (d). For full marks there must be a link between thunderstorms and urban areas. Notes for answers • Thunderstorms form in hot humid air and are characterised by heavy precipitation, thunder and lightning. They are produced by rapid convectional uplift under conditions of extreme instability (1). • Urban convection caused by the urban heat island effect (1) is most powerful in summer around late afternoon and early evening (1) (d). • Low pressure caused by convectional uplift draws in moist air from the surrounding countryside, (1) this creates tall cumulonimbus clouds (1) (d). Water vapour and condensation nuclei from industry and vehicles (1) creates intense precipitation and thunderstorms (1) (d). • The more intense the urban heating, the more violent the storm (1). The extreme temperatures cause a rapid expansion of air which develops a shock wave, creating the thunder sound (1) (d). • The tall cumulonimbus clouds create an updraught of air through the centre causing rapid cooling and condensation (1). During condensation, latent heat is released further fuelling the convectional uplift (1) (d). Raindrops are split in the uplift creating a positive electrical charge, forming lightning (1) (d). The notes for answers are not exhaustive. Credit any valid points.	**4** **AO1 = 4**
03	2	**Analyse the changes brought about by river restoration shown in Figure 5a and Figure 5b.** **AO3** – Analysis of the changes brought about by river changes shown in **Figure 5a** and **5b**. Analysis of the connections between the project and improvements in water quality. Mark scheme **Level 2 (4–6 marks)** **AO3** – Clear analysis of the qualitative and quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data.	**6** **AO3 = 6**

		Level 1 (1–3 marks) **AO3** – Basic analysis of the qualitative and 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 river restoration project shown in **Figure 5**. Connections may be made both within the data sets and between the map and the graph. **AO3** • The river restoration project has changed a straight channel into one that meanders and is also braided now covering an area that is about 30m wide rather than one narrow channel. • In between the braided channels are areas of shrubs and trees. There is also a lot of planting either side of the river extending the whole area to about 40m wide. • The river path has been diverted and now goes through wildflower meadows and planted areas, providing recreational opportunities. • The graph shows that water quality has improved since the project started as the water quality score has trebled. This links with the plan above as greater planting will have improved water quality. • The number of species has also increased as a result of the project as the braided channels and meandering river has increased the number of species by 6. • The number of species seems to mirror that of the water quality score, because as one increases so does the other, for example, in 2000 both increased and then saw a fall after November 2000. The only exception is in 2003 when the water quality score fell but the number of species stayed the same. • However, it is difficult to say with certainty that the project achieved its aim and improved water quality as the water quality score rose prior to the works. Also, although there has been an overall rise in both scores, there have also been some falls. • They may also consider that the data is historical, and we don't know what happened after 2006. Credit any other valid analysis.	

03	3	**With reference to one urban policy in Britain since 1979, evaluate its success in contributing to urban resurgence.** **AO1** – Knowledge and understanding of the process of urban resurgence. Knowledge and understanding of one urban policy in Britain. **AO2** – Application of knowledge and understanding to analyse and evaluate the extent to which the policy resulted in urban resurgence. <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 is detailed and well supported with appropriate evidence. A well-balanced and coherent argument is presented. **Level 2 (4–6 marks)** **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some 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 links two different units of the specification, namely urban policy and regeneration in Britain since 1979 and processes of urbanisation in terms of urban resurgence. Likely policies are UDCs, EXs, City Challenge, Partnership schemes and New Deal for Communities. Any policy is creditworthy as long as it is an <u>urban policy</u>. Gentrification is not acceptable unless it is being referenced as an impact of the policy. **Max L1** for generic responses with no discernible policy. If more than one policy, credit the best response.	**9** **AO1 = 4** **AO2 = 5**

		AO1 • Knowledge and understanding of the process of urban resurgence. The movement of people back into urban areas as a result of regeneration. • Knowledge and understanding of an urban policy since 1979. **AO2** • Evaluation of the success of the urban policy in encouraging people back into an urban area. The 12 UDCs in total built 27 000 new homes which encouraged people to move back into inner city areas such as London Docklands. However, many people were also driven out due to high property prices. • The success of an urban policy in creating economic resurgence. City Challenge created 53 000 jobs in total and many of these jobs were targeted at the local community, for example, ASDA in Hulme. • Analysis of the link between the urban policy and resurgence in the structural environment. Partnership schemes allowed private investment to improve building stock. For example, Urban Splash has built the iconic 'Chips' building in New Islington. This has attracted young professionals to move into Ancoats. • Evaluation of the policy in relation to other policies is a creditworthy approach as long as the focus is relative to the policy chosen. For example, City Challenge was more successful in creating urban resurgence than UDCs as it focused on the community needs. • The extent to which an urban policy failed to create urban resurgence. For example, partnership schemes often failed to complete their projects. In Sheffield only one section out of five has been completed at Park Hill flats in the past 10 years. • They may consider that government-led policies are integral to creating urban resurgence, but it is also driven by many other processes such as gentrification, TNC investment and in-migration of people. • They should come to an overall conclusion that evaluates the success or otherwise of the policy in creating urban resurgence. Any view is acceptable as long as it is supported by the rest of the response. Credit any other valid approach.	

03	4	**Assess the effects on the carbon cycle of incineration and landfill approaches to waste disposal in urban areas.** **AO1** – Knowledge and understanding of incineration and landfill approaches to waste disposal. Knowledge and understanding of the carbon cycle. **AO2** – Application of knowledge and understanding to analyse and evaluate the impacts of these two approaches to waste disposal on carbon cycle. <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 is detailed and well supported with appropriate evidence. A well-balanced and coherent argument is presented. **Level 2 (4–6 marks)** **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some 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 links two different units of the specification, namely Water and Carbon Cycles and Contemporary Urban Environments. Students need to link their knowledge of incineration and landfill approaches to waste disposal and apply this to their knowledge and understanding of the carbon cycle. The specification requires them to study waste disposal with reference to one urban area, so expect to see specific examples. However, there is no requirement in this question for them to use a specified urban area.	**9** **AO1 = 4** **AO2 = 5**

AO1

- Comparison of incineration and landfill approaches to waste disposal
- Urban physical waste generation: sources of waste - industrial and commercial activity, personal consumption.
- The environmental impacts of alternative approaches to waste disposal: unregulated, recycling, recovery, incineration, burial, submergence and trade.
- Knowledge and understanding of the carbon cycle
- Stores of carbon and factors driving change in the magnitude of carbon stores
- Changes in the carbon cycle over time

AO2

- Analysis of the link between incineration approaches and the carbon cycle. For example, in 2017 UK incinerators produced approximately 11m tonnes of CO_2, adding to atmospheric carbon stores as a fast carbon cycle.
- Evaluation of incineration approaches in removing atmospheric carbon. MSW is burnt and then used to generate electricity. It therefore reduces the impact on slow lithospheric carbon stores as it reduces need for fossil fuel consumption.
- Analysis of the link between landfill approaches and the carbon cycle. Methane is produced, a greenhouse gas, creating a fast carbon cycle.
- Evaluation of landfill approaches in changing the carbon cycle and carbon stores. It is a complex picture as once filled it can be re-landscaped with vegetation, removing atmospheric carbon and acting as a terrestrial store. Methane can also be vented and used as a fuel reducing removal of fossil fuel carbon stores.
- Evaluation of specific urban schemes on the carbon cycle. The AEB plant in Amsterdam saves about 438 kilotons of CO_2 per year. It generates about 1 million MWh electricity a year which reduces the need for fossil fuels, thereby not decreasing the size of lithospheric stores.
- They may take a comparative approach and assess the relative impacts. For example, whilst landfill produces more greenhouse gas emissions than incineration on the whole, plastics produce more CO_2 when burnt than buried, therefore for plastics the impact on fast carbon cycles is less for landfill.
- A comparison of waste approaches in one urban setting on the carbon cycle. For example, in London four times more waste goes to incineration plants than landfill so there is less impact on fast carbon release cycles. However, incineration approaches mean that recycling rates have fallen, resulting in more new products being made, requiring greater use of fossil fuels.
- They should come to an overall conclusion that evaluates the effects of both waste management approaches on the carbon cycle and/or size of carbon stores. Any view is acceptable as long as it is supported by the rest of the response.

Credit any other valid approach.

03	5	**How far do you agree that new urban landscapes such as fortress developments, heritage quarters and edge cities have intensified issues associated with economic inequality and social segregation?** **AO1** – Knowledge and understanding of new urban landscapes. Knowledge and understanding of issues associated with economic inequality and social inequality. **AO2** – Application of knowledge and understanding to analyse and evaluate the extent to which new urban landscapes have exacerbated issues associated with economic inequality and social segregation. <u>Notes for answers</u> The question links various aspects of the contemporary urban environments section of the specification, specifically the concepts of new urban landscapes and issues associated with economic inequality and social segregation. The question refers to new urban landscapes. However candidates do not need more than one type of new urban landscape. They can use other examples not listed in the question. Credit examples of places where appropriate. There is no need for reference to both economic inequality and social segregation – accept idea that social segregation is an issue of economic inequality. **AO1** • New urban landscapes: town centre mixed developments, cultural and heritage quarters, fortress developments, gentrified areas, edge cities. • The concept of a post-modern western city. • Issues associated with economic inequality, social segregation and cultural diversity **AO2** • Assessment of the link between new urban landscapes and economic inequality. For example, edge cities in LA mean that poorer residents with limited choice remain in inner city areas South Central where unemployment and crime rates are high. Whereas edge cities such as Anaheim characteristically have larger homes with retail opportunities. • The development of cultural and heritage quarters has encouraged regeneration and increased the reputation of the area, providing employment and financial benefits. For example, Manchester's Northern Quarter draws visitors from across the globe to view its street art and independent restaurants. • Assessment of the link between new urban landscapes and social segregation. For example, fortress developments such as spikes in shop doorways in Manchester excludes homeless people and moves them on to different areas. • Town centre mixed developments often include a variety of housing types, thereby reducing social segregation. • Evaluation of the extent to which new urban landscapes have magnified social segregation, for example, fortress developments such	**20** **AO1 = 10** **AO2 = 10**

		as gated communities in Nairobi have increased levels as the wealthier residents have 'protected' themselves from outsiders. • Evaluation of the impact of new urban landscapes on economic inequality. Gentrified areas magnify economic inequality by causing house prices to rise, thereby forcing out less wealthier residents. However, the prosperity of these areas rises as they become more attractive and this raises employment levels. • A comparison of the relative extent to which different new urban landscapes magnify issues. For example, fortress developments increase social segregation by using spikes to exclude homeless people whereas heritage quarters have very much encouraged integration by developing a variety of housing types and employment. • They may consider spatial variation for example fortress developments operate on a much smaller scale than edge cities so therefore the impact on issues of economic inequality are much less. • The extent to which new urban landscapes actually reduce issues of economic inequality and social segregation may also be considered. For example, fortress landscapes have developed strategies to reduce crime levels, improving quality of life for residents. For example, in Hulme, homes and offices were built with large windows facing Birley Fields to reduce crime levels, thereby encouraging homeowners and business into the area. • An overall judgement of the extent to which new urban landscapes magnify issues should be addressed as a final conclusion. Any conclusion is valid as long as it supports the body of the essay. Credit any other valid approach.	

Marking grid for Question 03.5

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 Malthusian perspectives on population growth.** Point marked • Allow 1 mark per valid point with extra mark(s) for developed points (d). Allow maximum of 1 mark for opposing views linked to Malthus showing awareness of the contrast. For example: Notes for answers • Malthus was an English clergyman who published an essay in the late eighteenth century. He had pessimistic views on population growth (1). • Malthus believed that power of the population is infinitely greater than the power in the earth to provide food for man (1). He believed that food could only increase arithmetically 1, 2, 3, 4, 5, whereas population increases geometrically – 2, 4, 8, 16 (1) (d). • He believed that the population would exceed carrying capacity and there will be a population crash (1), for example a famine, war or disease that act as 'checks' on population growth (1) (d). • People who support his views today are called neo-Malthusians (1), for example, the Club of Rome, a global think tank (1) (d). • Evidence to support pessimistic viewpoints can be found in the Sahel where regular famines and conflicts have occurred in Sudan and Ethiopia (1). • Easter Island supports Malthusian ideas (1) as the population was decimated as it used all its trees for firewood and building homes, meaning that soil erosion occurred and they were unable to grow enough food (1) (d). The Notes for answers are not exhaustive. Credit any valid points.	**4** **AO1 = 4**
04	2	**Analyse the data shown in Figure 6.** **AO3** – Analysis of the trends, connections and relationships between the ecological footprint, HDI and happy planet index. Mark scheme **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)**	**6** **AO3 = 6**

		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 trends and relationships between the three sets of data shown in **Figure 6**. Candidates might perceive the happy planet index to be about how happy the people are, this is a creditworthy approach. If they perceive the higher numbers as being higher in the index accept as a creditworthy approach. **AO3** • There is a clear correlation between HDI and the ecological footprint – the higher the HDI the higher the ecological footprint. For example, the USA has the third highest ecological and the highest HDI, whereas Burundi has the lowest ecological footprint and an HDI around 0.4 less than half that of the USA. • Countries with an HDI below 0.6 tend to have similar footprint so the relationship for low HDI is less clear. • Countries in Africa tend to have low HDIs and low ecological footprints. The majority having ecological footprints below the 2012 world biocapacity. Whereas European countries mainly have an HDI above 0.7 and an ecological footprint above 2 and the world biocapacity. • The relationship between the happy planet index and the ecological footprint is less clear. For example, Costa Rica is number one but has a similar ecological footprint to South Africa at 128. Trinidad and Tobago is at rank 130 but has an ecological footprint more than four times higher than Guinea at 129. • On the whole countries with low happy planet ranks have a low ecological footprint. Although there are some anomalies, such as Bangladesh at 8 with an ecological footprint of less than 0.5. • The graph shows that increases in HDI have a progressively larger impact on ecological footprint, the spread gets wider with greater HDI. Credit any other valid analysis.	

04	3	**With reference to two climatic types you have studied, assess the extent to which precipitation influences human activities.** **AO1** – Knowledge and understanding of two major climatic types and the relationship with human activities. **AO2** – Application of knowledge and understanding to evaluate the role of precipitation in influencing human activities. <u>Mark scheme</u> **Level 3 (7–9 marks)**	**9** **AO1 = 4** **AO2 = 5**

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 is detailed and well supported with appropriate evidence. A well-balanced and coherent argument is presented.

Level 2 (4–6 marks)
AO1 – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.
AO2 – Applies some 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.

Notes for answers

The question requires an understanding of the link between precipitation and human activities. Candidates should consider the extent to which precipitation influences human activities in two climatic types. Answers will vary according to the climatic types studied. Likely types are monsoon, polar tundra, semi-arid and Mediterranean climates.
If only one climate type considered max L2. If no climate types stated or inferred max L1.

AO1
- Knowledge and understanding of the characteristics and distribution of climate types
- The relationship between climate type and population numbers. For example, polar climates only have an average population density of 4 people per km^2.
- The relationship between climate type and human activities – permafrost in the Tundra prevents arable farming unless there is some form of artificial surface used.
- Knowledge of agricultural systems and productivity.

AO2
- Analysis of the role played by precipitation in human activities. Rice farming needs intense amounts of rainfall so relies on the monsoon rains and the intense convection caused by hot land surface of India

		and relief rainfall rising over the Western Ghats and Himalayan Foothills. • In polar climates precipitation levels are relatively low and not important in human activities. Inuit agriculture is based on hunting animals such as reindeer or caribou and precipitation lacks an important role. • Evaluation of the extent to which precipitation is a controlling factor in human activities. In India, agricultural (dominated by rice) accounts for 18% of GDP. The monsoon rains are essential for this. • In polar climates agriculture is not a major human activity. Fishing, tourism and mineral exploration contribute more to GDP and are not dependent on precipitation levels. • Evaluation of other climatic factors that play a role in human activities may be considered. For example, in polar climates, temperature is far more a control on human activities than precipitation. In the autumn Inuit groups such as the Gwitch'in traditionally move south to hunt caribou moving north into the breeding grounds in the Spring. • The contrast in the role of precipitation in the two climatic types may be considered. • A legitimate approach would be to consider how human intervention reduces the role of precipitation in human activities, for example, artificial greenhouses and hydroponics / aeroponic farming in Almeria in the Mediterranean mean precipitation is now less of an influence. • Alternative possible futures may also be considered by looking at the impact of climate change on agriculture and human activities. For example, in the Sahel semi-arid climate, rainfall levels are less reliable, and this is making agriculture increasingly challenging. • There may be an overall conclusion considering the extent to which precipitation is important in controlling human activities. This will depend on the climate types and should be supported by evidence in the response. Credit any other valid approach.	

04	4	**To what extent do you agree that global governance is necessary to ensure food security?** **AO1** – Knowledge and understanding of strategies to ensure food security. Knowledge and understanding of global governance. **AO2** – Applies knowledge and understanding to analyse and evaluate the extent to which global governance is necessary to ensure food security. <u>Mark scheme</u> **Level 3 (7–9 marks)**	**9** **AO1 = 4** **AO2 = 5**

		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 is detailed and well supported with appropriate evidence. A well-balanced and coherent argument is presented. **Level 2 (4–6 marks)** **AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy. **AO2** – Applies some 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 makes connections across two different units, namely 'Population and the Environment' and 'Global Systems and Global Governance'. Links should be made between strategies to ensure food security and the role played by global governance. Expect to see reference to the work of the UN but this is not necessary to answer the question. **AO1** • Global and regional patterns of food production and consumption • Knowledge and understanding of strategies to ensure food security • Issues associated with attempts at global governance, including how the UN in the post-1945 era, can work to promote growth and stability but may also exacerbate inequalities and injustices • An understanding of how Interactions between the local, regional, national, international and global scales are fundamental to understanding global governance. **AO2** • Evaluation of strategies to ensure food security on a global scale. For example, the green revolution has been successful in producing rice and wheat varieties that are high yielding, increasing agricultural productivity. Rice yields have more than quadrupled since 1960s.	

		• Evaluation of strategies used on local or national scales. For example, Niger's initiative of 3N led to use of improved seed varieties and transfer of surplus milk resulting in decreased food insecurity and a GDP rise of 3% in one year. • The role of global governance in increasing food security might consider role of organisations such as GAFSP and World Bank in increasing agricultural productivity. Between 2010 and 2014 they improved food security in 31 of the poorest nations. • Evaluation of the role of global governance in improving post-harvest practices. For example, the World Food Programme invested in research into improving post-harvest practices by training local farmers in Uganda and Burkino Faso. • The extent to which NGOs can also be a global force in improving food security, for example, the Hunger Project aims to increase food productivity in 11 countries across the globe. They focus on community-led projects letting farmers take control of their own production. • The relative importance of global governance and globalisation might be considered. For example, globalisation may be responsible for the persistence of food insecurity making need for global governance essential. Role of TNCs in creating food insecurity. • Different attitudes and values towards food security may be considered. For example, global governance is essential as there is enough food to feed 7 billion people, but it is not distributed fairly so organisations such as the UN need to be involved. Others believe that no amount of global governance will ensure food security as we simply can't produce enough food. • Alternative possible futures such as climate change increasing food insecurity making global governance more necessary. Technological advancements mean that more food can be grown per hectare making global governance less important. • Students should come to a conclusion as to importance of global governance in reducing food insecurity. Any conclusion is valid as long as it supports the content of the response. Credit any other valid approach.	

04	5	**Assess the relative importance of human and physical factors in creating global patterns of health and morbidity.** **AO1** – Knowledge and understanding of global patterns of health and morbidity. Knowledge and understanding of biologically-transmitted and non-communicable diseases. **AO2** – Application of knowledge and understanding to assess the relative importance of physical and human factors in creating patterns of health and morbidity. <u>Notes for answers</u>	**20** **AO1 = 10** **AO2 = 10**

		The question requires links between several aspects of the Population and the Environment section of the specification, including global patterns of health and morbidity, the relationship between environmental variables and disease, global prevalence of biologically transmitted and non-communicable diseases and key population parameters. It is a very open-ended question with a variety of routes to success. **AO1** • Knowledge and understanding of global patterns of health and morbidity. • The relationship between environment variables eg climate, topography (drainage) and incidence of disease. Air quality and health. Water quality and health. • The global prevalence, distribution, seasonal incidence of one specified biologically transmitted disease, eg malaria; its links to physical and socio-economic environments including impacts of environmental variables on transmission vectors. • The global prevalence and distribution of one specified non-communicable disease, eg a specific type of cancer, coronary heart disease, asthma; its links to physical and socio-economic environment including impacts of lifestyles • Knowledge and understanding of key population parameters such as population density, natural change, migration. • Economic and social development and the epidemiological transition. • Role of international agencies and NGOs in promoting health and combating disease at the global scale. • Case-study knowledge and understanding of patterns of health and morbidity related to physical and socio-economic characteristics at a local-scale. **AO2** • Analysis of the role of physical factors in creating patterns of health and morbidity. Probability of occurrence of infectious disease is much higher in countries at tropical latitudes due to high temperatures. Skin cancer rates are much higher in SW England due to longer sunshine hours. • Analysis of the role of human factors in creating patterns of health and morbidity. Life expectancy increases with GNI – higher GNI leads to better healthcare. Highest prevalence of cancers found in HICs largely due to lifestyle choices such as smoking. • Role of physical factors in causing patterns of biologically transmitted disease. Malaria transmission is year-round in Uganda due to high levels of rainfall and high temperatures and large lakes such as Victoria also encourage mosquitos. • Role of human factors in causing patterns of biologically transmitted disease. Malaria cases occur in areas without malarial mosquitos due to migration and tourism – migrants and tourists have low immunity due to lack of exposure.	

		• Role of physical factors in causing patterns of non-communicable disease. CHD is thought to occur more widely in areas with low levels of sunshine and lower temperatures. • The link between human factors and patterns of non-communicable diseases. CHD is much more common globally in countries of affluence where obesity is a big contributor. However, CHD is also prevalent in sub-Saharan Africa where it is thought to be linked to low intake of fruit and vegetables. • Analysis of the link between key population parameters and patterns of health. For example, biologically transmitted diseases are more prevalent in areas of high population densities as transmission is easier. Migration also encourages transmission of disease, for example the link between Zika virus and the Rio Olympics. • Evaluation of the importance of agencies such as NGOs or UN in combatting disease and changing patterns of health and morbidity. • Evaluation of the effectiveness of disease control linked to human and physical factors. Control may be contrasted with elimination or eradication of the disease which in most cases is not feasible. The impact of changing disease / distribution of disease in controlling and management. • Analysis of the change in future patterns of health and morbidity in the light of environmental change. Evaluation of the changing map of temperature and moisture which may lead to latitudinal and altitudinal shifts in the distribution of certain vectors, potentially exposing local populations to new diseases. • Analysis of the relationship between future patterns of health and morbidity in the light of development. Already seeing an increase in CHD in LICs as a result of increased levels of affluence. • Evaluation of different health risks contributing to patterns of health, some more difficult to control and treat eg skin cancer and others relatively easily with finances available eg malaria. The role of new technologies and access to such technology in managing disease. • Evaluation of the relative importance of physical and human factors in causing patterns of health and morbidity and the interactions between them. Patterns of malaria are related to tropical areas; however it is human factors such as poor housing and infrastructure which determine levels of morbidity. • There should be a conclusion based on the body of the essay. Any conclusion is valid – and it will very much depend on the content preceding it. Credit any other valid approach.	

Marking grid for Question 04.5

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 the difference between indicated and inferred resources.** Point marked Allow 1 mark per valid point with extra mark(s) for developed points (d). Maximum 3 marks if no comparative element. Credit reference to both 'resource' and 'reserve' terms. Do not credit opposites. For example: Notes for answers • An indicated resource suggests that there are resources that can be extracted (1). An inferred resource suggests there might be a resources but it is not certain (1). • The terms suggest that there is a graduation in the degree of certainty of resources being present and the potential to be exploited (1). • An indicated reserve is where the quality and quantity of a resource can be estimated (1) with a sufficient level of confidence to allow further evaluation of the economic viability (1) (d). Sufficient sample tests, for example, seismic exploration allow the geological grade to be assumed (1) (d). • An inferred resource is where quality and quantity can only be assessed through limited information (1). Estimates are often based on assumed continuation in areas beyond those which have been measured (1) (d). • An indicated resource usually has a 50% chance that the mineral resource is there (1) whereas an inferred resource generally has above a 10% chance (1) (d). • With an inferred resource there is generally insufficient data to justify expenditure on planning exploitation, whereas with an indicated resource, generally planning will take place to ascertain exploitation viability (1). • An indicated reserve estimate usually leads to a feasibility study to look at economic viability (1) which allows conversion to a probable reserve and justification for major expenditure on developing the resource (1) (d). The notes for answers are not exhaustive. Credit any valid points.	**4** **AO1 = 4**
05	2	**Analyse the data shown in Figure 7a and Figure 7b.** **AO3** – Analysis of the distribution of nuclear waste in the USA, nuclear energy use and waste fund collection. Mark scheme	**6** **AO3 = 6**

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.

Notes for answers
The question requires analysis of the distribution of nuclear waste across the USA and nuclear energy use and the corresponding waste fund collection data. Students should seek connections between and within the data sets. For example, they may consider the relationship between the amount of waste and the amount of nuclear energy generated or they may consider the connections between the waste fund and amount of nuclear energy generated.

AO3

- **Figure 7a** shows that more nuclear waste is stored in the east USA, with only 2 states in the eastern half having over 500 tonnes of waste stored. Whereas in western USA just under half of the states have no waste stored at all.
- The highest amount of waste is found in Illinois, nearly 9000 times higher than the smallest amount found in Utah. Only 2 states exceed 5000. Over 14 have less than 1000 tonnes. This leaves around 50% with between 1000 and 5000 tonnes.
- **Figure 7b** shows that the amount of energy varies across the selected states, with Vermont generating nearly three-quarters of its electricity from nuclear power, whereas Maine doesn't generate any.
- The amount of money collected through the waste fund also varies with Illinois collecting the highest amount – $5019.8 more than the lowest Maine.
- There doesn't seem to be a clear relationship between the amount of waste fund collected and the percentage of nuclear energy generated. For example Vermont only collected $371.8 compared to New York at $2428.4 yet generates more than double its electricity by nuclear. Although Maine collected the least amount and also didn't generate any electricity from nuclear.
- There does seem to be a clear connection between the amount of money collected and amount of waste as Illinois collected the most money and has the largest amount of waste stored. Similarly, Pennsylvania collected the second highest amount of money and has the second highest amount of waste stored. Maine, Vermont and New Hampshire all collected similar amounts, and all have around 500 tonnes of waste.
- There doesn't seem to be a clear relationship between the amount of waste and the percentage of electricity generated. For example, Vermont generates 72.3% of its electricity from nuclear waste but only

		has around 500 tonnes of waste, yet California, which only generates 8.6% from nuclear, has about 5 times as much waste. • They may consider that it is difficult to analyse the relationship between amount of waste stored and percentage of nuclear energy as we don't know the absolute figure for nuclear power generation. It is only a percentage of the amount of electricity generated so therefore if the total amount of electricity in Vermont is low then this will make the amount of nuclear power used also low. This would be a legitimate point. Credit any other valid analysis.	

05	3	**To what extent does the role of one specified mineral ore in global commerce and industry lead to sustainability issues?** **AO1** – Knowledge and understanding of the role of a specified mineral in global commerce and industry. Knowledge and understanding of the sustainability issues associated with ore extraction, trade and processing. **AO2** – Applies knowledge and understanding to assess the extent to which the role in global commerce and industry leads to sustainability issues. <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.	**9** **AO1 = 4** **AO2 = 5**

Notes for answers

The question requires knowledge of a specified ore and the extent to which its role in global commerce and industry leads to sustainability issues. The specification requires the study of iron ore or a non-ferrous metal and the question asks them to refer to 'a' mineral ore, however referring to more than one would be an acceptable response.

AO1

- Knowledge and understanding of a specified globally traded mineral ore. Eg Copper, tin or manganese
- Sources of the specified ore and distribution of reserves/resources. 65% of copper is used as an electrical conductor but construction is a growing use of copper.
- End uses of the ore and components of demand for ore.
- Role of specified ore in global commerce and industry. Global copper consumption has doubled since 1990 and much of this is accounted by growing demand in the Chinese construction industry, where rapid urbanisation has led to a huge rise in demand.
- Sustainability issues with ore extraction, production and trade.
- Alternative mineral ore futures and their relationship with a range of technological, economic, environmental and political developments.

AO2

- Analysis of the link between global demand and sustainability issues. For example the increased demand for copper has resulted in declining quality of ore-grades and subsequently more waste per tonnage.
- Evaluation of the extent to which global demand is causing sustainability issues, for example although there is increased demand for copper, 35% is produced from recycled copper and estimates suggest there is at least 200 years left of known reserves.
- Analysis of the link between the role of the mineral ore in global commerce / industry and subsequent sustainability issues. Chile produces over 3 times as much copper as the next largest producer (China), and exports 89% of its copper production. This results in sustainability issues, for example sea-contamination from heavy metal compounds and hydrocarbons from the sea-tankers.
- Evaluation of the extent to which global commerce / industry lead to sustainability issues. Global commerce can lead to co-operation and trade alliances. For example, proposals to develop a Green Trade Alliance which would include a mixture of developed and developing countries, proposes an environmental standard which countries belonging to the GTA would then adhere to giving them favourable trade deals.
- Evaluation of other factors that lead to sustainability issues not related to the role in global commerce and industry. For example political decisions can restrict the exploitation of a reserve, for example in Peru, indigenous people are being protected by designating large areas of tropical rainforest as protected areas where no mineral exploitation can take place.

		• Evaluation of the extent to which global commerce can play a role in improving sustainability through trade agreements and pressure to adopt environmental standards. • They may consider that the role of global commerce is the dominating force in exploitation of mineral ores as globalisation means that all minerals are traded globally so therefore sustainability issues are intrinsically linked with this. • Alternative futures may also be considered, for example location of indicated reserves and sustainability issues surrounding this. For example iron-ore deposits in Antarctica could place large pressures on the landscape. Recycling rates for copper may increase reducing sustainability issues around extraction of copper but creating new ones in the area of production. • Students should come to a conclusion as to the extent to which the role of global commerce / industry creates sustainability issues. Any conclusion is valid as long as it supports the content of the response. Credit any other valid assessment.	

05	4	**Assess the extent to which changes in the carbon cycle can lead to water stress.** **AO1** – Knowledge and understanding of the concept of water stress and components of demand for water. Knowledge and understanding of carbon cycles. **AO2** – Application of knowledge and understanding to evaluate the extent to which changes in the carbon cycle can lead to water stress. Mark scheme **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. Notes for answers The question requires links to be made between two different units namely resource security and water and carbon cycles. The question requires evaluation of the roles played by changes in the carbon cycle in causing water stress. They may consider the importance of other factors that cause water stress. Note that the question is about water stress, not water scarcity. **AO1** • Knowledge and understanding of carbon cycles. • The key role of the carbon and water stores and cycles in supporting life on Earth with particular reference to climate. • The relationship between the water cycle and carbon cycle in the atmosphere.	**9** **AO1 = 4** **AO2 = 5**

		• The role of feedbacks within and between cycles and their link to climate change and implications for life on Earth. • Knowledge and understanding of global patterns of water availability and demand. • Sources of water – components of demand, water stress • Relationship of water supply (volume and quality) to key aspects of physical geography – climate, geology and drainage. **AO2** • Analysis of the link between areas suffering water stress and the changes in the carbon cycle. Increased global temperatures as a result of increased atmospheric carbon, can lead to less plant growth in arid areas which causes lower levels of evapotranspiration, leading to lower levels of cloud formation and less rainfall, therefore leading to water stress. • Increased atmospheric carbon may lead to climate change which might make rainfall less predictable meaning that water stress increases, particularly in marginal semi-arid areas. • Evaluation of the role of the carbon cycle in causing water stress. Deforestation in the Amazon is causing increased carbon to be released through burning, resulting in increased temperatures but reduced evapotranspiration resulting in less cloud cover and therefore less rainfall, leading to water stress in areas adjacent to the Amazon. • Evaluation of other factors that lead to water stress. For example, many areas suffer economic water scarcity, not because there is a physical water scarcity due to lack of rainfall but as a result of rising demand for water from agriculture eg rice cropping in SE Asia. • They may consider that water stress leads to changes in the carbon cycle. For example lower rainfall levels in California have increased irrigation demands from major rivers and groundwater stores, reducing water levels, leading to less natural vegetation growth and therefore reduced carbon stores. • Alternative futures may also be considered, for example impact of climate change in different areas. Some areas rely on spring snowmelt for water surface supply and without accumulation of winter snow this could lead to water stress. • Students should come to a conclusion as to the extent to which changes in the carbon cycle can lead to water stress. Any conclusion is valid as long as it supports the content of the response. Credit any other valid approach.	

05	5	**'Transnational corporations (TNCs) care far more about their own profits than the environmental impacts of their activities.'** **With reference to energy production and distribution, how far do you agree with this statement?** **AO1** – Knowledge and understanding of competing national interests and TNCs in energy production and distribution. Knowledge and understanding of the environmental impacts of a major energy resource. **AO2** – Application of knowledge and understanding to evaluate the extent to which TNCs involved in energy production cause environmental damage. <u>Notes for answers</u> The question links different parts of the Resource Security section, specifically the role played by TNCs in energy production and distribution and the environmental impacts of a major energy resource development. They may consider one type of energy or a combination, however the focus must be on energy not on water or mineral ores. **AO1** • Knowledge and understanding of the sources of energy. Components of demand and energy mixes. • Energy supplies in a globalising world: competing national interests and the role of transnational corporations in energy production, processing and distribution. For example, 7 of worlds 10 largest TNCs are involved in energy production. BP operates on every continent except Antarctica. • Environmental impacts of a major energy resource development such as an oil, coal or gas field and associated distribution networks. • Sustainability issues associated with energy production, trade and consumption: acid rain, the enhanced greenhouse effect, nuclear waste and energy conservation. • The geopolitics of energy **AO2** • Analysis of the links between TNCs and environmental impacts of energy production. For example TNCs operating in Canada tar sands have caused deforestation on such a large scale that it is second only to Amazon destruction. • Analysis of the link between TNCs and environmental issues related to distribution. The UN found that Shell has caused pollution of the Niger Delta through oil leaks from poorly maintained pipelines over 50 years. Shell had to compensate the Ogoni people £55 million but the environmental problems persist. • Evaluation of the role TNCs play in causing environmental damage through energy production. For example the largest oil spill was Deepwater Horizon which was operated by BP. This resulted in 3.2 m barrels of oil discharging into the Gulf of Mexico. However, although it was operated by BP it was accidental.	**20** **AO1 = 10** **AO2 = 10**

		• Evaluation of the role played by national governments in encouraging TNCs may be considered. The Canadian government has approved projects extracting 3 billion barrels of tar sand oil to date and this has resulted in water over-abstraction, all of which has been permitted. • Analysis of the scale of environmental impacts such as global climate change and local landscape damage. • Evaluation of the role played by national governments in causing environmental damage through energy production. For example the lasting legacy of Soviet Union oil production and distribution in Azerbaijan of a heavily polluted Caspian Sea and a wasteland of toxic waste and rusting drilling equipment. • Evaluation of the extent to which TNCs have attempted to compensate for environmental damage. For example BP £44 billion leaning up the Gulf of Mexico and as a result the area has regenerated, although some problems persist such as coral reef damage. • Attempts by TNCs to mitigate against environmental damage. In Alaska oil pipelines in Prudhoe Bay are built on stilts to prevent melting of the permafrost and allow caribou migration. • Alternative futures may also be considered. Political developments and environmental pressure groups might make TNCs more responsible for both cleaning up environmental damage and mitigating against possible issues. Increased demand may result in TNCs producing energy in more environmentally sensitive areas. As profits become squeezed this could be a further cost to the environment. • Students should come to a conclusion as to how far they agree with the statement. Any conclusion is valid as long as it is supported by the preceding content. Credit any other valid approach.	

Marking grid for question 05.5

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.