# A-level
# GEOGRAPHY
# 7037/2

Paper 2 Human Geography

**Mark scheme**

June 2020

Version: 1.0 Final Mark Scheme

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 |
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| 01 | 1 | **Explain how differential access to markets can impact on economic well-being.**<br><br>Mark scheme<br>Award one mark each for points of knowledge or understanding.<br><br>Allow extra marks for developed points (d).<br><br>Notes for answers<br>Allow credit for specific knowledge and understanding of what differential access means and how it affects economic well-being. Do not double credit opposite points such as 'in a trade bloc means easier trade' and 'not being a trade bloc makes trade difficult'.<br>For full marks there should be a link to economic well-being.<br><br>• Being in a trading bloc increases the potential for trade (1), for example NAFTA means that trade is enabled between Mexico and the US (1) (d). This improves economic well-being for Mexico where thousands of jobs are generated in the car industry (1).<br>• However, being in a trading bloc can also have negative impacts such as a dependence on the economy of countries in the trading bloc (1). For example, Mexico suffered economically due to recession in the US in 2008 (1) due to its reliance on exports to the US (1) (d).<br>• Some countries do not have access to trading blocs which limits trade (1) For example, Ukraine does not have access to the single market of the EU and has to negotiate its own deal (1). This means Ukrainians are not free to move to the EU to earn higher wages reducing economic well-being (1) (d).<br>• Trade agreements can be seen as being unfair (1). Developing countries don't have access to the rich markets of the EU (1) (d). This results in them finding it harder to trade and subsequently develop (1) (d).<br>• The WTO has sought to ensure that developing countries all have preferential access to developed trade markets (1). This provision is called Special and Differential Treatment (SDT) (1) (d). The aim of this is to promote faster income and growth (1) (d).<br>• Examples of trade preference schemes include the EUs 'Everything but Arms' (1) (d) accepts goods from the least developed countries on an import tax reduced, quota-free basis (1) (d).<br>• However, some people criticise preferential trade agreements as they can cause cheap imports to flood in (1). This can result in deindustrialisation in developed countries and higher unemployment (1) (d).<br><br>The notes for answers are not exhaustive. Credit any valid points. | **4**<br>**AO1 = 4** |

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| 01 | 2 | **Analyse the data shown in Figure 1.**<br><br>**AO3** – Analysis of the graph to show relationships between attitudes towards globalisation, change in GDP, total GDP, and the percentage foreign-born population.<br><br><u>Mark scheme</u><br><br>**Level 2** (4–6 marks)<br><br>**AO3** – Clear analysis of the quantitative and qualitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data.<br><br>**Level 1** (1–3 marks)<br><br>**AO3** – Basic analysis of the quantitative and qualitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.<br><br><u>Notes for answers</u><br><br>This question requires analysis of attitudes towards globalisation in the countries shown in figure 1. They should consider the connections between attitude and change in GDP and may also consider the connections with overall GDP and / or percentage of the foreign-born population.<br><br>**AO3**<br>• Generally, there is a positive correlation between a positive attitude and greater increase in GDP, for example, more than double the percentage of people agree globalisation is positive in India than France, and India has about 26% greater change in GDP.<br>• At times the relationship is less clear, for example the UAE and Denmark have a similar % of people who agree yet Denmark's change in GDP is about 14.5% less. This is also true for Norway and Britain where again a similar % of people agree globalisation is positive, but Norway saw a -2% change compared to Britain with a +13% change.<br>• There also appears to be a connection between overall GDP and a positive attitude towards globalisation in that countries with lower GDPs tend to have a more positive attitude, for example the US has by far the largest GDP and the second lowest % of people agreeing whereas the highest % agreeing is Vietnam which has a very small GDP.<br>• It is also clear that countries with the lowest % of foreign-born populations also tend to be more positive towards globalisation. So the 6 highest countries in terms of agreeing with globalisation (above 70%) all have <10% foreign-born populations. Although Finland the only other country with <10% has only 55% of people in agreement.<br><br>Credit any other valid analysis. | **6**<br>**AO3 = 6** |

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| 01 | 3 | **Using Figure 2a, Figure 2b and your own knowledge, to what extent do you agree that tourism is a threat to Antarctica?**<br><br>**AO1** – Knowledge and understanding of the threats to Antarctica from tourism.<br><br>**AO2** – Applies knowledge and understanding to the novel situation to analyse and evaluate the extent to which tourism is a threat to Antarctica.<br><br><u>Mark scheme</u><br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change.<br><br>**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.<br><br><u>Notes for answers</u><br><br>This question requires knowledge of the threat from tourism in Antarctica. Answers should show awareness of the extent to which the pie-chart and image suggest tourism is a threat. Threats from tourism not derived from the figures can be credited as AO1 only.<br><br>**AO1**<br>• Tourism numbers in Antarctica have more than doubled in the past 20 years putting increased pressure on its fragile nature.<br>• There is a significant danger from cruise ships in terms of oil spills and introduction of invasive species such as Mediterranean mussels.<br>• However, global governance through the Antarctic Treaty system and IAATO attempts to limit the threat by preventing large cruise ships with more than 500 tourists from landing.<br>• Tourists can only reach a very small proportion of Antarctica and research suggests that only 10 out of 200 landing sites show sign of wear and tear.<br><br>**AO2**<br>• Analysis of **Figure 2a** shows that up to 53% of people may not actually be landing on Antarctica so the threat may be less direct. However, a | **6**<br>**AO1 = 2**<br>**AO2 = 4** |

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| | | third are large cruise ships which run the risk of ice-collision and subsequent oil spills. These large cruise ships could also bring in invasive species.<br>• However, this is also a sign that companies are signing up to the IAATO agreement that large cruise ships are not allowed to land.<br>• **Figure 2a** suggests that some visitors do more extreme activities such as ice-walking, swimming and kayaking. These activities will require more infrastructure and so pose a larger threat to the natural landscape and the local wildlife. As people want more adventurous holidays, demand for these activities might increase in the future.<br>• **Figure 2a** shows that 1% do extended walks which will take people further away from the landing sites. Although a small percentage it is about 4400 people, posing a threat to fragile lichen species for example, and penguin colonies.<br>• **Figure 2b** shows that tourists have landed on a penguin colony. Evidence shows that penguin breeding and feeding patterns are affected by tourism. The tourists may also pose a threat to lichens that will grow on the rocky shoreline<br>• However, in **Figure 2b** the tourists are wearing red jackets as imposed by IAATO. This makes them show up on the ice and suggests this is a reputable tourist company. The landing craft is also small. By landing in specified locations, it protects other areas of Antarctica.<br>• There may be an overall conclusion to consider the extent to which tourism is a threat. Any reasonable conclusion is valid as long it is related to evidence derived from **Figures 2a** and **2b**.<br><br>Credit any other valid approach. | |

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| 01 | 4 | **'The UN has worked tirelessly to promote growth and stability across the globe, but TNCs have been far more successful in this regard.'**<br>**To what extent do you agree with this view?**<br><br>**AO1** – Knowledge and understanding of attempts at global governance by the UN. Knowledge and understanding of TNCs and their impact on countries they work in.<br>**AO2** – Application of knowledge and understanding to analyse and evaluate the role played by the UN and TNCs in promoting growth and stability and their relative success in doing so.<br><br><u>Notes for answers</u><br>The question requires students to evaluate the comparative success of TNCs and the UN in promoting growth and stability. Responses may consider the impacts of this, for example reducing inequalities. They may answer with reference to one or more TNCs.<br><br>**AO1**<br>• Knowledge and understanding of the role of the UN in global governance. Knowledge of different organisations working under the umbrella of the UN such as the UNDP and the General Assembly.<br>• Role of UN in promoting growth and stability for example the peacekeeping forces sent to areas that have recently been in conflict.<br>• UN projects to promote growth and stability for example the Sustainable Development Goals.<br>• The causes of inequalities between and within countries as a result of globalisation. Unequal flows of people and money at different scales – global, regional and local.<br>• Unequal flows of money lead to an increasing gap in wealth. Evidence suggests that this gap is decreasing between rich and poor countries but the gap within countries is widening as the wealthier residents are able to take more advantage of changes in education, technology and labour demands.<br>• Knowledge of the nature of TNCs and their contribution to a global system. TNCs are found across all sectors of industry and many are truly global in the sense that they produce global brands which are sold across the globe for example Apple.<br>• TNCs are hierarchical and operate on a top-down basis from a HQ in a developed country. This means that branches are vulnerable to change as they are not part of the decision-making process for example there may be sudden factory closures or re-location resulting in severe job-losses.<br>• Knowledge of the nature of a specific TNC. For example, Nissan based in Tokyo employs 186 000 people worldwide in the production of vehicles. It has a revenue in excess of $88billion. It has production plants in 16 countries across the globe. | **20**<br>**AO1 = 10**<br>**AO2 = 10** |

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| | | **AO2**<br>• Evaluation of attempts by the UN to promote growth. For example, the FAO has negotiated fairer trade agreements between LICs and HICs promoting agricultural growth for countries such as Ghana.<br>• Attempts by the UN to reduce inequalities have had mixed success as well – the Millennium Development Goals have had mixed success. Some countries such as Brazil met all of them, others such as Benin didn't reach any – this has increased global inequalities.<br>• Evaluation of the role of the UN in promoting growth through the resolution of conflict. For example, peacekeeping forces in Africa have been able to maintain a fragile peace, resulting in development in those countries. However, they have not been able to resolve some long-standing conflict issues in places such as Somalia, resulting in further inequalities.<br>• Evaluation of the social and economic impacts of TNCs on the host country. For example, outsourcing has created considerable employment in countries like Bangladesh. However, there have also been concerns about child labour. Economically TNCs encourage FDI and this has promoted growth.<br>• Evaluation of the social and economic impacts of TNCs on country of origin. For example, the increased tax revenue for the USA and local taxes in Oregon from Nike HQ. However, there is high local unemployment due to lack of manufacturing in the US.<br>• Analysis of the role of TNCs in creating inequalities. In the host country, there is increased rural-urban migration as farm workers seek out higher wages in TNC factories or call-centres. This creates a greater level of inequality between urban centres and rural areas.<br>• Analysis of the role of TNCs in promoting economic growth. In the host country, contrary to popular beliefs TNCs often pay higher wages – average wage is 40% higher than that paid by local firms this can result in local firms having to close due to lack of workers. On the other hand, many TNCs use local firms to complete part of the production process increasing investment in the local area.<br>• They may consider that TNCs have on some occasions undermined the work of the UN. For example, despite attempts by UN to negotiate fairer trade between LICs and HICs, TNCs have frequently moved in and brought up land used by local farmers.<br>• Overall conclusion should seek to consider the extent to which the UN and TNCs are successful in creating growth. They should come to a conclusion as to whether TNCs are more successful than the UN. Any conclusion is valid as long as it is supported by the evidence in the response.<br><br>Any valid assessment will be credited. | |

**Marking grid for Question 01.4**

| Level/ Mark Range | Criteria/Descriptor |
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| **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).<br>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2).<br>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).<br>• Full and accurate knowledge and understanding of key concepts and processes throughout (AO1).<br>• 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).<br>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).<br>• Generally clear and accurate knowledge and understanding of key concepts and processes (AO1).<br>• 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).<br>• Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1).<br>• Some knowledge and understanding of key concepts, processes and interactions and change (AO1).<br>• 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).<br>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).<br>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).<br>• Isolated knowledge and understanding of key concepts and processes (AO1).<br>• 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 |
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| 02 | 1 | **Outline how geospatial data can be used to present place characteristics.**<br><br>Point marked<br><br>Award one mark each for points of knowledge or understanding.<br>Allow extra marks for developed points. Credit specific examples in terms of techniques as well as place specific knowledge.<br><br>Notes for answers<br>• Data collected in the field has location information tied to it such as latitude and longitude co-ordinates (1). This can then be used in a GIS programme to plot the location of the data (d) (1). For example, environmental quality survey results can be shown to see how it changes across a town (d) (1).<br>• GIS systems such as ArcGIS display geospatial data and can be used to show how place characteristics change across an area (1). For example, numbers of unemployed people could be presented as proportional circles on top of a base-map (1). This makes it clear to see how unemployment changes across a given area and can be related to other characteristics such as land-use (d) (1).<br>• Geotagged information such as geotagged tweets can be used to look at place characteristics (1). For example, insider and outsider perspectives on place characteristics could be gathered by using hashtags and geotags (d) (1).<br>• Quantitative data can be geo-located and then can be used to show change in place characteristics across different wards (1). For example, the Index of Multiple deprivation measures deprivation according to small areas (LSOAs) and so can be mapped to show how deprivation changes (d) (1).<br>• Geospatial data helped me to understand how ethnicity changes across Blackburn (1). I used the 2011 census data to collect ethnicity data from Super Output areas (d) (1). I then showed this as a series of choropleth maps showing concentrations of different ethnicities (d) (1).<br><br>The notes for answers are not exhaustive. Credit any valid points. | **4**<br>**AO1 = 4** |

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| 02 | 2 | **Analyse the relationship between perception and incidence of crime shown in Figure 3a and Figure 3b.**<br><br>**AO3 –** Analysis of the qualitative and quantitative data shown in **Figures 3a** and **3b** relating to the perception of safety from crime and recorded violent crime in Cardiff.<br><br>Mark scheme<br><br>**Level 2** (4–6 marks)<br>**AO3** – Clear analysis of the quantitative and qualitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data.<br><br>**Level 1** (1–3 marks)<br>**AO3** – Basic analysis of the quantitative and qualitative evidence provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.<br><br>Notes for answers<br><br>The question requires an analysis of the data sources in terms of the connection within and/or between the Figures. No credit for simple lifting of data in isolation.<br><br>**AO3**<br>• **Figure 3a** clearly shows that across Cardiff 74.4% of people perceive people in Cardiff to be safe. Only about 1 in 10 people feel that people in Cardiff are unsafe.<br>• This pattern is not consistent across Cardiff as **Figure 3a** shows that there are variations in the different areas. Cardiff West has the highest proportion of people with perceptions of safety at 77.8% and Cardiff East has the lowest percentage at 65%.<br>• The second lowest area in terms of people agreeing that people are safe in Cardiff is Cardiff South West which has a total of 71.3%. However, this has the highest percentage of all areas in terms of strongly agreeing that people are safe at 10.9% which is 2.6% higher than Cardiff West.<br>• Cardiff East has the highest number who disagree that people are safe at 18.5%. Nearly a third of these strongly disagree that people are safe.<br>• **Figure 3b** shows that violent crime clearly varies across the city. The highest category of over 25 per 1000 people is found in all six areas. The highest concentration is found in the south of the city close to the sea. The red area representing 'Over 25 violent crimes' covers most of City and Cardiff South and about 50% of Cardiff South East.<br>• The lowest areas of violent crimes are found in the northern half of the city, mainly in Cardiff North and Cardiff West.<br>• It is clear that there is some correlation with incidence of violent crime and perception of safety. West Cardiff and North Cardiff have the | **6**<br>**AO3 = 6** |

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| | | highest percentages of agreement on perception of safety and overall have the lowest incidence of violent crime.<br>• However, the areas of highest levels of crime are not the highest areas perceiving people to be unsafe. In the City and Cardiff South, the vast majority of the area has over 25 violent crimes but only 12.1% of people disagree that people in Cardiff are safe.<br><br>Credit any other valid analysis. | |

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| 02 | 3 | **Using Figure 4 and your own knowledge, evaluate attempts to influence specific place meanings.**<br><br>**AO1** – Knowledge and understanding of how external agencies, community and / or local groups create specific place meanings<br><br>**AO2** – Application of knowledge and understanding to this novel situation. Evaluation of **Figure 4** to assess how the National Park City movement is creating place-meaning.<br><br><u>Mark scheme</u><br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions, change.<br><br>**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.<br><br><u>Notes for answers</u><br><br>The question requires an understanding of how different agencies/ groups or even individuals can create new place-meanings. They may also consider how this shapes the actions of different stakeholders. There should be an attempt to evaluate. For L2 there must be reference to **Figure 4**.<br><br>**AO1**<br>• Knowledge and understanding of place-meaning. Examples of place-meaning for example Blackpool – Las Vegas of the North, Torbay – English Riviera.<br>• How place-meaning shapes the actions of people. Some people visit Blackpool for gambling. Lots of homes in Torbay grow palm trees which supports the Riviera place-meaning idea. | **6**<br>**AO1 = 2**<br>**AO2 = 4** |

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| | | • Evaluation of attempts to create place-meaning, for example promoting the Lake District as the home of Beatrix Potter has increased visits by Japanese tourists generating higher income for local businesses.<br>• Knowledge and understanding of the London National Park City not derived from **Figure 4**. For example, a map has been created through crowdfunding showing all of London's green areas.<br><br>**AO2**<br>• Interpretation of **Figure 4** to show how it is creating place-meaning. London is being branded a National Park City, celebrating its biodiversity and greenness.<br>• Interpretation of **Figure 4** to suggest how external agencies, community groups and individuals are creating place-meaning. For example, it is a community grassroots movement which has led to the branding. However, the Mayor of London has also been involved.<br>• Interpretation of **Figure 4** to suggest how the National Park City movement is shaping the actions of individuals. They are promoting outdoor activities which might encourage people to go kayaking on London's rivers.<br>• Evaluation of the success of the National Park City movement. The movement is being supported by the Mayor who has provided funding for planting, so this is likely to encourage individuals to make their own gardens greener.<br>• They may consider wider implications such as the future success of National Park City movement may encourage other cities to follow suit. People are being encouraged to enjoy the outdoors which may also boost the local economy.<br>• Evaluation of the National Park city movement may include the possibility of it not being successful and thereby failing to have any impact on the actions of people. For example, they may note that it hasn't actually been launched yet, so it is difficult to evaluate its success.<br>• There may be comparative evaluation of attempts to create place-meaning and this would be a legitimate way to tackle the question as long as there is clear reference to **Figure 4**.<br>• There may be an overall conclusion. Any reasonable conclusion is valid as long it is related to evidence derived from **Figure 4**.<br><br>Credit any other valid assessment. | |

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| 02 | 4 | **'The impact of globalisation has transformed and improved places beyond recognition.'**<br><br>**With reference to your distant place, critically assess this statement.**<br><br>**AO1** – Knowledge and understanding of the impacts of globalisation – positive and negative. Knowledge and understanding of the changing characteristics of the distant place.<br><br>**AO2** – Applies this knowledge and understanding to assess the extent to which globalisation has changed the characteristics of the distant place studied.<br><br><u>Notes for answers</u><br><br>The question links different parts of the specification namely Global Systems & Global Governance and Changing Places, specifically the impacts of globalisation and changes in the developing character of the distant place.<br>Responses will vary considerably depending very much on the nature of the distant place and the impact globalisation has had. Any impact of globalisation is creditworthy, and students may consider a wide range of impacts such as growth, development, inequalities, conflict and environmental impacts. The context should be **change** in character in the distant place. The command is 'critically assess' so there should be a discursive element present. They are asked 'with reference to distant place' but the stem refers to places so they may be in another place and as long as the focus is on the distant place then this would be acceptable.<br><br>**AO1**<br>• Knowledge and understanding of the characteristics of the distant place. This might include socio-economic characteristics, demographics, employment, built environment, land-use.<br>• Knowledge and understanding of how the place characteristics have changed over time. Change over time could be described at a variety of scales and this will very much depend on the place chosen. For example, it may include change over the past century, or it may just be recent changes due to migration or a factory closure.<br>• Knowledge of how changes over time affect the character and / or lived experience in the place chosen.<br>• Background knowledge of the place and factors affecting the nature of the place.<br>• Knowledge and understanding of the concept of globalisation<br>• Generic awareness of the impacts of globalisation. Clone towns remove place identity. Deindustrialisation due to competition from abroad causes unemployment and inner city decline. | **20**<br>**AO1 = 10**<br>**AO2 = 10** |

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| | | **AO2**<br>• Links between globalisation and the place will very much depend on the place used.<br>• Analysis of how globalisation has impacted on the distant place. A multinational company may have built a factory increasing employment and improving local infrastructure. Deindustrialisation could have caused factories to close, leaving derelict buildings making the area look neglected.<br>• Analysis of how globalisation has had a positive transformation on the place chosen. For example, in Rusholme, immigration in the 1960s means that there is a whole street dominated by Asian restaurants and shops. The 'Curry Mile' is famous and people come from a wide area, providing income for local businesses and jobs for inner-city residents.<br>• Analysis of how globalisation has had a negative transformation. For example, Princesshay in Exeter used to be a shopping area of independent shops, now Exeter is the most cloned town in the UK and looks like any other town, stripping it of its identity.<br>• Evaluation of the extent to which globalisation has had an impact on the place chosen. In Stratford, London, there has been a complete transformation; however much of this is the result of government policy and sports-led regeneration rather than globalisation.<br>• Evaluation of the role of globalisation in changing places may consider the changes in demographic and cultural characteristics or economic changes. Migration as a result of greater interdependence may have encouraged different ethnic groups to move into the area. Lived experience is dramatically changed due to the arrival of different shops, religious buildings and traditions. Economic change as a result of TNCs moving onto the high street results in homogenisation of town centres meaning the loss of independent retailers and subsequent livelihoods.<br>• There may be a comparison of the extent of the impact of globalisation in the distant place in relation to other places and the degree to which they have been transformed.<br>• A legitimate response could consider other factors that have transformed a place as long as the focus is in determining the extent to which globalisation is a factor.<br>• Overall assessment of the role of globalisation should consider the extent of change in the character and / or people's lived experience in the distant place and an evaluation of the role played in that by globalisation.<br><br>Credit any other valid approach. Evaluation should be based upon preceding content. | |

**Marking grid for Question 02.4**

| Level/ Mark Range | Criteria/Descriptor |
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| **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).<br>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2).<br>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).<br>• Full and accurate knowledge and understanding of key concepts and processes throughout (AO1).<br>• 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).<br>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).<br>• Generally clear and accurate knowledge and understanding of key concepts and processes (AO1).<br>• 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).<br>• Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1).<br>• Some knowledge and understanding of key concepts, processes and interactions and change (AO1).<br>• 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).<br>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).<br>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).<br>• Isolated knowledge and understanding of key concepts and processes (AO1).<br>• 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 |
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| 03 | 1 | **Outline how one urban pollution reduction policy has been implemented.**<br><br>Mark scheme<br><br>Award one mark each for points of knowledge or understanding.<br><br>Allow extra marks for developed points (d).<br><br>Notes for answers<br><br>Allow credit for specific knowledge of an urban pollution reduction policy and an understanding of how it has been used. Allow credit for specific urban areas. Only credit one policy but accept that the policy may encompass different strategies. More than one place may be referenced if referring to the same policy. Allow credit for any type of urban pollution reduction policy eg strategies to tackle waste, drainage or air quality would all be acceptable approaches.<br><br>• London has been declared an Air Quality Management Area (1). This was needed as in 2015 it had the highest levels of $NO_2$ in Europe (1) (d). As part of this policy they issue fines for vehicle engine idling in the Square Mile (1). London has also adopted zero-emission buses and taxis to reduce levels of pollutants (1)<br>• The National Air Pollution Control Programme is an EU policy (1) that aims to ensure that all member states meet 2020 and 2030 reduction targets (1) (d). One of the key aspects of the policy is reducing PM2.5 emissions by targeting vehicle emissions through encouraging hybrid vehicles (1) (d).<br>• In order to reduce pollution some cities have adopted congestion charging as a policy (1). These work by charging vehicles to enter the central area of a city discouraging people from using their vehicles (1) (d). The money generated can then be invested in improving public transport (1) (d). New technologies such as GPS vehicle tracking systems have made the policy much easier to police (1) (d).<br>• In 2016 Mumbai recorded PM2.5 pollution at nearly double the safe limit (1) so it has adopted a pollution reduction policy involving shutting down more than 1000 polluting industrial units (1) (d). Mumbai has also improved waste management by increasing recycling to reduce biomass burning (1)(d).<br><br>The notes for answers are not exhaustive. Credit any valid points. | **4**<br>**AO1 = 4** |

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| 03 | 2 | **Analyse the data shown in Figure 5.**<br><br>**AO3** – Analysis of the relationship between multiple deprivation and health. Interpretation of spatial patterns of economic inequality and social segregation.<br><br><u>Mark scheme</u><br><br>**Level 2** (4–6 marks)<br>**AO3** – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data.<br>**Level 1** (1–3 marks)<br>**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.<br><br><u>Notes for answers</u><br><br>The question requires analysis and interpretation of the spatial variation in life expectancy and social deprivation. They may also seek to analyse the relationship between life expectancy and deprivation shown in Sheffield.<br><br>There is no credit for explanation of relationships.<br><br>**AO3**<br>• There is clear evidence of inequality across Sheffield. The wealthiest areas are found in the South with areas of Eccleshall being in the top 10% least deprived. The poorest areas are found in more Central areas in three wards, where there are large areas in the top 5% most deprived areas.<br>• There seems to be greater inequality in more northern central areas for example Burngreave, whereas Eccleshall in the South has nearly all areas in top 20% of least deprived and none in the top 20% most deprived. This is also true for the most northerly ward of East Ecclesfield which is mainly in the middle 60%.<br>• Life expectancy also clearly changes along the bus route and decreases by 5.2 years for females and 5.0 years for males. However, the largest differences overall are between the most southerly ward of Eccleshall and the central ward of Burngreave where life expectancy for females drops by 9.4 years.<br>• There appears to be a clear link between deprivation and life expectancy. Life expectancy is higher in wards where deprivation is in the bottom 10% for example males in Eccleshall live for 8.1 years longer than those in Firth Park where large areas are in the 5% most deprived.<br>• This link is not always clear, for example male and female life expectancy is very similar in Southey and East Ecclesfield in the North of Sheffield, despite Southey having large areas in top 5% most deprived and in fact female life expectancy is higher in Southey by 0.3 years. | **6**<br>**AO3 = 6** |

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| | | • Life expectancy is higher for females in all areas on the map, but the differences are variable across the city. Eccleshall has a difference of 2.6 years and Bungreave only 0.7. There does not appear to be a link with deprivation as Firth Park has a much larger difference of 4.9 years compared to only 0.7 for Burngreave which has a similar pattern of deprivation (although arguably slightly less deprived).<br><br>Credit any other valid analysis. | |

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| 03 | 3 | **Using Figure 6 and your own knowledge, assess the importance of physical factors in affecting urban form.**<br><br>**AO1** - Knowledge and understanding of the physical and human factors in urban forms.<br>**AO2** - Application of knowledge and understanding to the novel situation to assess the factors creating the urban form of Plymouth.<br><br><u>Mark scheme</u><br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy.<br><br>**AO2** – Applies limited knowledge and understanding. Connections and relationships between different aspects of study are basic with limited | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

relevance. Analysis and evaluation basic and supported with limited appropriate evidence. A basic argument is presented.

Notes for answers

The question requires knowledge of the concept of urban form and the factors that are responsible for creating urban form. This should then be applied to **Figure 6** to assess the degree to which physical factors are responsible for creating urban form in Plymouth.

**AO1**

- Knowledge and understanding of the concept of urban form – physical characteristics of an urban area: shape, size, density of population and configuration of a settlement. This can be at a variety of scales.
- Physical factors contributing to urban form for example wet and dry points, resources, coastlines, relief.
- Human factors contributing to urban form for example trading centres, government policies, population movement, transport and infrastructure.
- Knowledge of how physical factors have affected urban form in other places. For example, the industrial areas of Liverpool were built close to the Mersey. These areas have grid-iron road patterns due to terraces built to house workers in the dock.
- Credit knowledge of Plymouth not derived from the figures, for example, location near Dartmoor means that the city cannot grow to the North due to planning restrictions.

**AO2**

- Evaluation of the physical factors that are contributing to the size, shape and organisation of Plymouth as shown in **Figure 6.** The shape is very much determined by the coastline and rivers. The building densities appear to be denser nearer to the south along the coastline.
- Analysis of the physical factors that may have led to the different building densities shown in **Figure 6**. Building density appears lowest in areas where there are large areas of steeper relief, for example the north-eastern areas of Plymouth has a large area of higher relief. This would have made building construction difficult. There is also a very flat area at 510550 which may have posed a flood risk so again this restricts building, posing a flood risk as it is also close to the river.
- Evaluation of human factors that may contribute to the size and shape of Plymouth. Shipping trade would have led to the development of the city around the area of the harbour. This looks to be the oldest area with lots of museums. Growth of Plymouth has also occurred along the major roads for example along the A38 and the Tamar Bridge may have led to growth the other side of the river.
- Analysis of the extent to which human factors may be responsible for the urban form of Plymouth. There is a university in the centre which may increase population density in that area due to large numbers of students.
- Analysis of how the factors affecting the urban form of Plymouth may have changed over time. In **Figure 6** building density is very high in the area around Devonport and Keyham with grid iron streets indicating high density housing. Presumably these may have been built for the workers in the dockyard. Today this might not be the case

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| | | as people don't want to live close to their place of work. Areas with lots of industry are less desirable now so people have moved away.<br>• Students may consider how human processes have also led to the urban form of Plymouth. This would be a legitimate AO2 evaluation as long as they are using evidence from **Figure 6.** Suburbanisation may have caused Plymouth to grow outwards to the north. Street patterns here are far more irregular suggesting lower building densities.<br>• Overall evaluation of the extent to which physical factors are responsible for urban form in Plymouth should be considered.<br>• Any reasonable conclusion is valid as long it is related to evidence derived from **Figure 6**.<br><br>Credit any other valid approach. | |

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| 03 | 4 | **Assess the role of technological processes leading to the growing number of global megacities.**<br><br>**AO1** – Knowledge and understanding of technological processes and leading to urbanisation and urban growth. Knowledge and understanding of the emergence of megacities.<br>**AO2** - Application of knowledge and understanding to analyse and evaluate the importance of technological processes in creating megacities.<br><br><u>Mark scheme</u><br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy.<br><br>**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.<br><br><u>Notes for answers</u><br><br>The question links two different sections of the CUE specification, namely the emergence of megacities and processes associated with | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

urbanisation. Students are required to evaluate the role played by technology in the emergence of megacities.

**AO1**

- Knowledge and understanding of technological processes leading to urban growth, for example, IT, transport, engineering.
- Causes of urbanisation and other processes leading to urban growth. For example, rural-urban migration is still the dominant process leading to urban growth.
- Knowledge and understanding of other processes leading to urban growth. Demographic processes can refer to any change in population structure for example, natural change, migration, ageing populations. Economic processes such as industrial development. Social processes such as improvements in healthcare and education
- The emergence of megacities – distribution and causes. Currently there are 23 by 2025 there is predicted to be 36. Most of this growth is predicted to be in south Asia, China and Africa.

**AO2**

- Analysis of technological processes such as IT leading to increase in number of megacities. For example, growth of IT sector in south Asia has caused growth of many cities into megacities such as Mumbai. IT also enables globalisation due to submarine data transfer cables meaning that companies can operate worldwide so have chosen locations in SE Asia, where there is an educated workforce.
- Analysis of other technological processes such as transport or engineering leading to growth of cities. For example, many cities populations have grown rapidly due to construction of buildings over 500m such as Lotte World Tower in Seoul. This allows more people to live in a smaller area and promotes growth of cities into megacities.
- Evaluation of the role of technological processes in the emergence of megacities. Most new megacities likely to emerge in China and India are the result of economic factors but technological processes are at the route of this. For example, Bengaluru, a newly emergent megacity is a global IT centre and has seen its population grow by over 4 million to 12 million since 2011 due to workers migrating to work in IT industries.
- Analysis of how other processes such as demographic processes might have played a role in the growing number of megacities. For example, rural-urban migration is the leading cause of growth of megacities in developing countries. Bengaluru's population more than doubled to 10 million in 15 years creating a new megacity. This was the result of an influx of economic migrants from other parts of India. Most of the growth in megacities will be in LICs / NEEs.
- Evaluation of the importance of other factors in the emergence of megacities. All of the new megacities are expected to be in developing countries where rural-urban migration and natural increase are swelling urban populations as a result of economic processes such as industrialisation.
- The interdependence of technological, economic and demographic processes leading to growth in the number of megacities. For example, technological processes have developed as a result of increased economic growth. For example, building technology has

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| | | developed as a result of economic growth in China. IT firms developed in Bengaluru due to the large labour supply and educated workforce.<br>• Overall evaluation of the importance of the role played by technological processes should reflect whole response. They may conclude that technological processes are interlinked with other processes such as economic growth. Or they may conclude that other processes have a larger role, and this would be a valid approach as long as it is relative to technological processes.<br><br>Credit any other valid approach. | |

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| 03 | 5 | **To what extent do you agree that urban drainage presents more opportunities than challenges in developing more sustainable cities?**<br><br>**AO1** – Knowledge and understanding of urban drainage – urban precipitation, storage and catchment characteristics, urban water cycle, movement of water through urban areas. Knowledge and understanding of the challenges and opportunities in developing more sustainable cities.<br><br>**AO2** – Application of knowledge and understanding to analyse and evaluate the extent to which urban drainage presents challenges to sustainable cities. Application of knowledge and understanding to analyse and evaluate the extent to which urban drainage presents opportunities to develop more sustainable cities.<br><br><u>Notes for answers</u><br><br>The question links various aspects of the Contemporary urban environments section of the specification, specifically urban drainage and the challenges and opportunities for developing more sustainable cities. There is no requirement to include specific examples and detail could be included through concepts such as urban catchments as well as place - specific examples.<br><br>**AO1**<br>• Knowledge and understanding of urban drainage and how it is different from drainage in rural areas.<br>• Knowledge and understanding of urban precipitation and water movement through the catchment. Higher proportion of precipitation reaching urban river channels and the reduced lag time. The subsequent increase in flood risk. Lack of seasonal variations. Decrease in the base or normal flow of the river<br>• Knowledge of storm hydrographs for urban areas.<br>• Knowledge and understanding of the urban water cycle, for example interruption to the water cycle in urban areas through human activities such as uses in industry.<br>• Impacts on catchment management – flood management, water pollution, sediment accretion from erosion. | **20**<br>**AO1 = 10**<br>**AO2 = 10** |

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| | | • Knowledge and understanding on the challenges and opportunities for developing sustainable cities. They may consider economic, social and environmental challenges / opportunities in developing sustainable cities.<br>• Case-study knowledge of the challenges and opportunities in developing sustainable cities for example Copenhagen, Curitiba or Freiburg.<br>**AO2**<br>• Assessment of the link between urban drainage and sustainability on an economic, social or environmental level.<br>• Evaluation of the link between urban drainage and the challenges in developing sustainable cities, for example increased flood risk, diverts money from sustainable strategies and frequently means that large-scale flood management schemes have to be employed that significantly impact on environmental sustainability. The impact of flood risk on the concept of liveability.<br>• Evaluation of the impact of urban catchment and storage on sustainability. Construction of channelised rivers reduces the flood risk but also has a significant impact on natural habitats. For example, the Los Angeles River is almost entirely concreted with very few natural areas.<br>• The extent to which past urban processes such as industrialisation have impacted on urban drainage may be considered and the resulting challenges. For example, the Sheffield and Tinsley canal fell into disuse following construction of the railway and then even more so following deindustrialisation. This resulted in water contamination and is a challenge to sustainability.<br>• The extent to which issues associated with urban drainage can be managed through strategies to such as SuDS. For example the lag time can be increased by construction of green roofs and the creation of detention basins.<br>• Evaluation of schemes such as SuDs in creating opportunities for sustainable urban areas. For example, at Lamb Drove biodiversity and ecology has increased as a result of SuDS and this has also reduced flood risk improving quality of life and social sustainability.<br>• Evaluation of how attempts to improve urban drainage through schemes such as river restoration might create opportunities for sustainability. For example, the River Don in Sheffield has been restored creating the Blue Loop, this has rejuvenated the area for cyclists and runners increasing liveability and it has also encouraged biodiversity by restoring natural ecosystems. Thereby providing opportunities for both social and environmental sustainability.<br>• Some students may assess the role of sustainable cities in managing urban drainage. This would be a legitimate response as long as it is linked to the question ie that actually it is the need for sustainable strategies that is impacting on urban drainage. For example Freiburg's sustainability drive has resulted in much of the River Dreisam being unmanaged and subsequent water movement is more natural. Rainwater harvesting is widely employed to protect ground water storage supplies in the city.<br>• They may also consider alternative futures. Increased precipitation and storm events may make managing urban drainage increasingly challenging. This will have significant impacts on developing more sustainable cities. However, pressure from urban dwellers demanding | |

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| | | sustainable strategies may increase the spending on flood risk and recreational areas so improving management of urban drainage.<br>• An overall judgement of the extent to which urban drainage provides more opportunities than challenges should be addressed. Any conclusion is valid as long as it is supported by the evidence in the response.<br><br>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).<br>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2).<br>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).<br>• Full and accurate knowledge and understanding of key concepts and processes throughout (AO1).<br>• 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).<br>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).<br>• Generally clear and accurate knowledge and understanding of key concepts and processes (AO1).<br>• 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).<br>• Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1).<br>• Some knowledge and understanding of key concepts, processes and interactions and change (AO1).<br>• 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).<br>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).<br>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).<br>• Isolated knowledge and understanding of key concepts and processes (AO1).<br>• 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 |
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| 04 | 1 | **Outline the relationship between the physical environment and health in a local area you have studied.**<br><br>Mark scheme<br><br>Award one mark each for points of knowledge or understanding.<br><br>Allow extra marks for developed points (d).<br><br>Notes for answers<br><br>Allow credit for specific knowledge and understanding of health in a local area and how this relates to the physical environment. The physical environment can relate to both the natural and built environment.<br><br>Max 3 marks if no clearly identifiable local area.<br><br>• Torquay is on the coast and people used to come to 'take in the sea air' during Victorian times (1) as people believed that the sea-air could cure and treat many respiratory diseases (1) (d). This resulted in many convalescent homes which today are frequently hotels and care-homes (1) (d). These care-homes mean that Torquay has a much higher proportion of elderly people with greater health problems (1) (d).<br>• The built environment of inner-cities means that air pollution levels are frequently higher due to urban heat island effect (1). This results in increased levels of asthma and respiratory diseases (1) (d). This can lower life expectancy in inner-city areas compared to the suburbs (1) (d).<br>• Barnsley was a coal mining community and although the mines have shut down, health is still affected (1). For example, there are higher rates of arthritis and back problems amongst former coal-miners (1) (d). The number of respiratory deaths is 10.3 per 100 000 people higher than the England average (1) (d). This means that there is more stress placed on GP services in the town (1) (d).<br>• In Ambleside, there is lower than average rates of obesity and this may relate to its physical environment (1). The mountainous environment encourages physical activity so reducing obesity (1) (d).<br><br>The notes for answers are not exhaustive. Credit any valid points. | **4**<br>**AO1 = 4** |

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| 04 | 2 | **Analyse the data shown in Figure 7a and Figure 7b.**<br><br>**AO3** – Analysis of the trends in the deaths attributable to air pollution according to country income groups and the global pattern of $PM_{2.5}$ air pollution<br><br>Mark scheme<br><br>**Level 2** (4–6 marks)<br><br>**AO3** – Clear analysis of the quantitative evidence provided which makes appropriate use of data to support. Clear connections between different aspects of the data.<br><br>**Level 1** (1–3 marks)<br><br>**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.<br><br>Notes for answers<br><br>The question requires analysis of both the graph and choropleth map. Students should look for the variations of deaths attributable to air pollution. They should also consider the global pattern of PM2.5 pollution. Connections can be sought both within each figure and between the figures. For example, they may consider the relationship between type of pollution causing deaths and overall totals in **Figure 7a**. They may also seek connections between the data in **7a** and **7b**.<br><br>**AO3**<br>• The percentage of deaths attributable decreases with increasing income, for example low income countries have 10.6% more deaths than high income countries. However, low income countries have about 2.8% less deaths than low-middle income countries.<br>• The percentage of deaths from household air pollutions decreases with each income group, the low-income countries have the highest at 8.5%, whereas high income countries have 0.1% deaths as a result.<br>• The relationship between PM2.5 and income is less clear. High income countries have the lowest amount, but low-income countries record the second lowest percentage.<br>• The relative contribution of the two types of pollution to the total also varies with income group. With the exception of low-income countries, PM2.5 always make the biggest contribution, for example in high middle-income countries it is responsible for seven times the percentage of deaths and in high income it accounts for nearly all deaths attributable to air pollution.<br>• Figure 7b shows that highest concentrations of $PM_{2.5}$ occur in the northern hemisphere, in a band across northern Africa and southern Asia. Lowest levels are found in higher latitudes of Asia and northern Europe and nearly all of North America.<br>• South America sees huge fluctuations in $PM_{2.5}$ with all categories occurring across the continent. | **6**<br>**AO3 = 6** |

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| | | • The links between **7a** and **7b** are less clear as there is little variation in the percentage deaths from $PM_{2.5}$ across low-middle, middle and high-middle income countries, yet **7b** shows that there are large variations in the levels of $PM_{2.5}$. For example, middle income countries in northern Africa have >35 $PM_{2.5}$, more than 3 times higher than that of eastern Brazil, also a middle income country.<br>• Overall though the high income countries with the lowest percentage of deaths attributable to $PM_{2.5}$ have the lowest $PM_{2.5}$ pollution levels.<br><br>Credit any other valid analysis. | |

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| 04 | 3 | **Using Figures 8a, 8b, 8c and your own knowledge, discuss the political implications of international migration.**<br><br>**AO1** – Knowledge and understanding of the political implications of international migration.<br><br>**AO2** – Application of knowledge and understanding to discuss the political implications of international migration in relation to the novel situation in **Figures 8a**, **8b** and **8c**.<br><br><u>Mark scheme</u><br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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. | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

**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 political implications of migration. Students then need to apply this knowledge to discuss the political implications of immigration in Europe.

**AO1**

- Knowledge and understanding of international migration – patterns, causes and impacts.
- Examples of international migration. For example, movement of people from Eastern Europe to eastern areas of the UK to work in agriculture.
- Knowledge and understanding of the political implications of migration in the country of origin. For example, political policies to discourage migration and to encourage natural increase.
- Political implications for the host country, for example, the rise of right-wing extremism such as Forza Nuova in Italy.

**AO2**

- Analysis of **Figure 8a** to discuss the political implications. It is clear that the distribution of refugees is not even across Europe. This might lead to political tensions within Europe, with some countries accusing others of not taking their fair share. Germany for example, has accepted more than double the number than any other country.
- The UK has accepted 10 times fewer refugees than Germany, but in the UK, perception of high levels of immigration has contributed to the EU referendum and Brexit. There have been large demonstrations against immigration and pro-Brexit marches. This has led to the government having to make decisions about levels of policing.
- Analysis of **Figure 8b** to interpret the political implications may suggest that immigration can cause a rise in support for far-right parties and success for anti-immigration parties in elections. Certainly, Hungary has seen a rise of 9% in support, however this is a relatively small figure compared to Poland which has risen by 25%. Poland has very low rates of immigration from refugees, so it may be that the rise of the far-right is not just due to immigration and perhaps linked to economic factors such as high unemployment.
- Analysis of **Figure 8c** suggests that international migration can lead to political upheaval and unrest causing protests. This protest was obviously in support of refugees and shows that many people embrace and welcome international migration. This could put pressure on the government to change its immigration policies.
- There may be an overall conclusion which considers the degree to which political implications are important or the balance between

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| | | political opportunities and the political challenges of international migration. Any reasonable conclusion is valid as long it is related to evidence derived from **Figures 8a**, **8b** ,**8c**.<br><br>Credit any other valid approach. | |

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| 04 | 4 | **Assess the relative importance of two zonal soils you have studied in determining human activity such as agriculture.**<br><br>**AO1** – Knowledge and understanding of two key zonal soils. Knowledge and understanding of the relationship between climate, soils and human activities.<br><br>**AO2** – Applies knowledge and understanding to evaluate the relative importance of two key zonal soils in determining human activities.<br><br><u>Mark scheme</u><br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates some appropriate knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic/limited knowledge and understanding of concepts, processes, interactions and change. These offer limited relevance with inaccuracy.<br><br>**AO2** – Applies limited knowledge and understanding.<br>Connections and relationships between different aspects of study are basic with limited relevance. Analysis and evaluation basic and | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

supported with limited appropriate evidence. A basic argument is presented.

Notes for answers

This question requires links between two different aspects of population and environment, namely the study of two key zonal soils and their relationship with human activities. Human activities could include agriculture and industry but may also include population densities, distribution or change. They may also consider alternative futures as a result of environmental change and technological advances.

Responses will vary according to the key zonal soils studied. Likely soils are chernozems, latosols and podsols.

**Max L1** for generic responses with no identifiable soil types. If more than two soils included, credit best two responses.

**AO1**

- Distribution of the two key zonal soils.
- Characteristics of the two soils, for example, acidity, drainage, fertility and related climate types.
- Knowledge and understanding of the link between soil type and agricultural. For example, chernozems have high natural fertility so favour modern farming practices such as cattle ranching and arable cropping.
- Global patterns of population density and factors affecting change.
- Global patterns of agriculture.

**AO2**

- Analysis of the link between the distribution of the two soil types and human activities in those areas. For example, Chernozems occur across the continental interiors of North America and Russia. In these areas there are low population densities but wide agricultural uses. Latosols are found across tropical areas associated with tropical rainforests and shifting cultivation has traditionally been practiced in these areas.
- Evaluation of the importance of the role played by soil type in determining human activity. For example, chernozems are very fertile, allowing greater agricultural productivity. However, this also means they tend to have lower population densities as the land is used for agriculture and therefore is not urbanised.
- Analysis of the factors that determine human activities, related to soil types. For example, podsols are found where climate types are not favourable for human occupation as winter temperatures are frequently below freezing. In the UK podsols are associated with upland areas of Scotland, making building construction difficult.
- The relative importance of the soil in determining human activities. For example, Podsols are unsuitable for arable farming due to their acidity. However, they also occur in cold environments which are not conducive to fast crop growth so it could be considered that climate is more important.

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| | | • Ferrasols are very important in determining human agriculture types. Typically, they would have had shifting cultivation practices taking place due to low nutrient levels. They need high fertiliser use for any commercial agriculture use, also relying on a permanent vegetation cover, as most of the nutrient occur in the biomass, meaning that plantation farming tends to be the most successful.<br>• Analysis of other factors that may be more important than soil type in determining human activities. Latosols are found across SE Asia, where rapid industrialisation has taken place, this has happened as a result of cheap labour supplies and other factors and is not related to soil type.<br>• Analysis of alternative futures may be considered, for example food demand increases commercial agriculture in latosol areas, resulting in forest clearance. The soil type becomes less important as new technologies allow us to overcome some of the problems of such soils.<br>• Students may come to an overall conclusion as to relative importance of the two key zonal soils and this should be based on the evidence presented.<br><br>Credit any other valid approach. | |

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| 04 | 5 | **'Non-communicable diseases are much harder to manage than biologically transmitted diseases.'**<br><br>**With reference to one or more places you have studied, assess the extent to which you agree with this statement.**<br><br>**AO1** – Knowledge and understanding of a specified biologically-transmitted disease. Knowledge and understanding of a specified non-communicable disease. Knowledge and understanding of managements and mitigation strategies<br><br>**AO2** – Application of knowledge and understanding to evaluate the comparative effectiveness of management and mitigation of infectious and non-communicable diseases in one or more locations.<br><br><u>Notes for answers</u><br><br>The question requires links between different aspects of the Population and the Environment section of the specification, specifically the study of a biologically-transmitted disease and a non-communicable disease. Students are required to evaluate and compare the effectiveness of strategies to manage and control diseases. They may also consider the role of different agencies in managing and controlling disease. The management of the disease should be linked to specified places. These places can be at any scale, for example, local or continental. They may also take a comparative approach between LICs and HICs. | **20**<br>**AO1 = 10**<br>**AO2 = 10** |

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| | | **AO1**<br>• Knowledge and understanding of the prevalence and characteristics of one non-communicable disease. Likely choices are coronary heart disease (CHD), asthma and lung cancer.<br>• Knowledge and understanding of the prevalence and characteristics of one biologically transmitted disease. Likely choices are malaria and HIV/AIDS.<br>• Socio-economic and physical environment links to diseases.<br>• Impacts of diseases on lifestyles, health and well-being.<br>• Management and mitigation strategies for a non-communicable disease and a biologically transmitted disease<br>• Role of international agencies and NGOs in combatting disease.<br><br>**AO2**<br>• Evaluation of the effectiveness of management and mitigation strategies in controlling a non-communicable disease. For example, the global reach of World Asthma Day and its ability to promote awareness of the disease across the globe.<br>• Evaluation of the effectiveness of management and mitigation strategies in controlling a biologically transmitted disease. For example, use of range of strategies such as mosquito nets and insecticides in LICs has reduced malaria deaths by about a third over past 15 years.<br>• Analysis of the contrasts in the geographical distribution of the diseases and the impact of this in our ability to manage and control the diseases. For example, malaria is much more prevalent in LICs whereas CHD tends to be a disease of affluence.<br>• Analysis of the contrasts in impacts on lifestyles, health and well-being. For example, malaria impacts on all age-groups, but CHD tends to affect older populations. This in turn impacts on management strategies. For example, Public Health England's campaign 'What's your heart's age?' aimed to encourage healthier lifestyles amongst middle-aged people.<br>• Analysis of a range of factors that may affect the management and control of disease such as socio-economic factors, physical environment, values and attitudes or age-gender related factors.<br>• Evaluation of the role of international agencies in managing and controlling diseases such as malaria and asthma. For example, the WHO has set out a strategy to reduce malaria by 90% by 2030. This is probably an unrealistic target, especially considering climate change is likely to increase areas affected by malaria. For example, it may occur in Southern Europe.<br>• The extent to which NGOs are able to manage and control disease. They may consider this has more impact in local areas rather than on a global scale. In Mali, WaterAid installed solar-powered borehole pumps to bring clean water to villages in order to reduce diseases such as Cholera.<br>• Analysis of temporal change in managing and controlling disease may also be considered. For example, recent technological advances mean that lung cancer is becoming much easier to manage through MRI scanning and in the UK lung cancer mortality has reduced by 55% over | |

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| | | past 45 years. However, such technological advances have not had such an impact on management of disease in LICs.<br>• They may also consider the relative importance of prevention / mitigation and management in controlling disease. For example, incidence of CHD has been successfully reduced by education awareness programmes in Finland. Malaria is successfully reduced by use of nets – a relatively low-cost strategy. However, it also requires careful management in terms of global strategy.<br>• Evaluation of the extent to which socio-economic factors impact on management of disease. For example, Malaria and CHD are both difficult to control due to economic factors. Control of CHD very much depends on education and expensive medical intervention both of which prove difficult in less-affluent societies.<br>• The extent to which the statement applies in different countries/regions may also be considered. This may be the result of differing values and attitudes, for example recent news stories about measles indicate that in the US many parents have refused to inoculate their children reducing control of the disease. In Ethiopia malaria is harder to control because of migrant farm workers who move from the highlands and the lowlands.<br>• Some may conclude that there are far too many factors that affect management of disease that it is impossible to say that it is just the nature of the disease. This would be an appropriate conclusion.<br>• Students should come to an overall conclusion as to whether they agree that non-communicable diseases are harder to manage and control. Any viewpoint is valid as long as it is supported by the evidence presented in the response.<br><br>Credit any other valid approach. | |

**Marking grid for Question 04.5**

| Level/ Mark Range | Criteria/Descriptor |
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| **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).<br>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2).<br>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).<br>• Full and accurate knowledge and understanding of key concepts and processes throughout (AO1).<br>• 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).<br>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).<br>• Generally clear and accurate knowledge and understanding of key concepts and processes (AO1).<br>• 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).<br>• Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1).<br>• Some knowledge and understanding of key concepts, processes and interactions and change (AO1).<br>• 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).<br>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).<br>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).<br>• Isolated knowledge and understanding of key concepts and processes (AO1).<br>• 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 |
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| 05 | 1 | **Outline how an Environmental Impact Assessment (EIA) can be used to encourage sustainable resource development.**<br><br>Mark scheme<br><br>Award one mark each for points of knowledge or understanding.<br><br>Allow extra marks for developed points (d).<br><br>Notes for answers<br><br>Allow credit for specific knowledge and understanding of what an EIA is and how it is used in resource development projects to encourage sustainability. Allow credit for specific examples.<br><br>• An EIA is the assessment of the environmental consequences, positive and negative, usually completed for a planned resource development project (1). It aims to ensure that decision-makers use the EIA to consider whether the project should go ahead or not, so as not to cause long-term negative environmental consequences (1) (d). In the EU EIAs have been enshrined in law since 1999 (1).<br>• There are several different aspects to the EIA which attempt to consider not only the impacts but also mitigation strategies in place (1). A final decision states whether the project is sustainable, both in economic and environmental terms, attempting to put both of these on an equal footing (1) (d).<br>• Assessments of the likely impacts are recorded using the Leopold Matrix (1). For example, a new copper mine would consider the aesthetic problem of degradation of the landscape and also air and noise pollution from blasting and distribution networks (1) (d). The EIA would consider the scale of these impacts and suggest mitigation strategies to reduce these (1) (d).<br>• The EIA also consider what will happen after the project, for example it will only be given the go-ahead if they have suggested how it will be restored after an open-pit coal mine is no longer viable (1) (d). This might be a plan to revegetate the land and use it for agricultural purposes, ensuring long-term sustainability (1) (d).<br><br>The notes for answers are not exhaustive. Credit any valid points. | **4**<br>**AO1 = 4** |

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| 05 | 2 | **Analyse the relationship between mineral mining sites and rock types shown in Figure 9.**<br><br>**AO3** - Analysis of the distribution of minerals and geology in the Lake District.<br><br><u>Mark scheme</u><br><br>**Level 2** (4–6 marks)<br>**AO3** – Clear analysis and interpretation of the qualitative evidence provided, which makes appropriate use of data in support. Clear connection(s) between different aspects of the data and evidence.<br>**Level 1** (1–3 marks)<br>**AO3** – Basic analysis and interpretation of the qualitative evidence provided, which makes limited use of data and evidence in support. Basic connection(s) between different aspects of the data and evidence.<br><br><u>Notes for answers</u><br><br>The question requires analysis of the relationship between the distribution of minerals and the geology of the Lake District.<br><br>**AO3**<br>• **Figure 9** shows that minerals are not evenly distributed across the Lake District. Minerals are found much more commonly in the north, with the majority being found in a band 25km north of Seathwaite.<br>• There is also variation in the amounts of minerals. Lead and zinc is the most common with 19 locations, followed by copper with 14 locations. Some minerals, such as graphite are only found in a single location.<br>• **Figure 9** shows that the geology also clearly varies with a central area of igneous and metamorphic rocks about 1750km$^2$, surrounded by sedimentary rocks.<br>• There is an obvious association with rock type and mineral locations. Minerals occur much more frequently in metamorphic and volcanic rocks. For example, there are more than 5 times the amount of mineral locations in the Borrowdale Volcanics than in the Carboniferous rocks. In total there are only 6 mineral locations in the sedimentary rocks, compared to 43 in the metamorphic and igneous rocks.<br>• The rock type also seems to affect diversity of minerals with the metamorphic Skiddaw Group having the most variety – it contains 6 out of the 7 mineral types found in the Lake District, with graphite being the only mineral not found. The sedimentary rocks only have 2 different minerals found in them – Baryte and Haematite.<br>• Haematite is the only mineral found in four out of the six rock groups. Some minerals such as Tungsten, Graphite and Antimony are only found in one rock type, and in a single location. Lead and Zinc, despite being the most prolific mineral is only found in two rock groups, the Borrowdale Volcanics and the Skiddaw Group.<br><br>Credit any other valid analysis. | **6**<br>**AO3 = 6** |

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| 05 | 3 | **Using Figure 10a, Figure 10b and your own knowledge, how far do you agree that geopolitics are important in ensuring energy security in Europe?**<br><br>**AO1** – Knowledge and understanding of the geopolitics of energy. Knowledge of patterns and consumptions and production of energy in Europe.<br><br>**AO2** – Applies knowledge and understanding to assess the extent that geopolitics is important in ensuring energy security in Europe with reference to the trade of gas between Russia and Europe and other nations.<br><br>Mark scheme<br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy.<br><br>**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.<br><br>Notes for answers<br><br>The question requires understanding of how geopolitics is involved in energy security. Students should apply this knowledge to the map of gas pipelines in **Figure 10a** and use **Figure 10b** to assess dependency on Russia and the extent of the need for geopolitics. | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

**AO1**

- Knowledge and understanding of the term geopolitics.
- An understanding of how geopolitics affects energy security. For example, how changing power relationships can affect the trade and movement of energy.
- Knowledge and understanding of types of energy, production and supply.
- Patterns of energy consumption and production in Europe. For example, Norway harnesses 95% of its energy needs from HEP, whereas Germany still uses fossil fuels for 60% of its energy needs.
- Knowledge and understanding of the patterns of consumption and production and the reasons for energy insecurity. For example, Switzerland has had to become more reliant on renewable sources to avoid energy insecurity as it is landlocked and has few fossil fuel reserves.
- Knowledge and understanding of geopolitical decisions and / or conflicts arising from energy security not evidenced in figure 10a and 10b. For example, Middle East conflicts resulting from issues surrounding energy security.

**AO2**

- Analysis of **Figure 10a** to apply knowledge of how natural gas is being traded and moved across Europe. It is dominated by pipelines originating in Russia, suggesting that the EU is very reliant on Russia. The map also suggests that there is considerable future demand for natural gas as more pipelines are planned.
- They may note the importance of the fact that nearly all the gas from Russia is currently transported through Ukraine, highlighting the dependency of Russia on Ukraine. This could lead to tensions for example, the Russia-Ukraine pipeline disputes in 2007–2008 when Russia accused Ukraine of diverting supplies intended for the EU.
- Analysis of **Figure 10b** suggests that clearly the EU consumes more gas than it produces as 25% of its gas comes from Russia alone. It is the former communist countries of Eastern Europe that depend the most and this may be the result of their historical links and power of the former Soviet Union. For example, Belarus, Latvia and Estonia are 100% dependent although their total consumption is fairly small. This means that they are very reliant on good relations with Russia and this could result in their own government making decisions that favour Russia.
- **Figure 10a** and **Figure 10b** shows that Western Europe is less reliant on Russia's gas. Great Britain consumes about 100 billion cubic meters but receives no gas from Russia; however, this could change in the future as North Sea reserves are depleted. It also has several LNG terminals which may allow the UK to import gas from other sources.
- Analysis of other factors that may affect energy security in Europe. For example, they may consider that countries such as Great Britain and Germany consume large amounts of natural gas compared to other countries such as Sweden and the biggest threat to energy security therefore comes from depletion of non-renewable fossil fuels.
- Evaluation of alternatives to dependency on gas. For example, a move to nuclear means less need for fossil fuels. Slovakia is 100%

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| | | dependent on Russian gas but only consumes a small amount and most of its energy must be derived from other sources.<br>• Evaluation of the extent to which dependency on Russia is important. For example, geopolitics is likely to increasingly focus on climate change management and the need to reduce carbon emissions. They may consider whether the new pipelines should be built at all, given that it will increase dependency on natural gas.<br>• They may consider alternative futures. For example, geopolitics could become less important with a greater dependency on renewable energy meaning less need for energy trade. Fracking may allow some countries in Europe to be more self-sufficient.<br>• Evaluation of the implications of energy reliance on Russia. Russia could dictate political decisions in the EU as it is aware of the need for its gas. This could result in conflicts of interest. They may also consider the need for global governance to deal with any disputes.<br>• Overall conclusion should state the extent to which they agree that geopolitics is important. Any reasonable conclusion is valid as long it is related to evidence derived from **Figures 10a** and **10b**.<br><br>Credit any other valid assessment. | |

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| 05 | 4 | **Assess the relative importance of climate and geology in the supply of water.**<br><br>**AO1** – Knowledge and understanding of the relationship of water supply to key aspects of physical geography.<br><br>**AO2** – Application of knowledge and understanding to evaluate the relative importance of climate and geology in ensuring availability and quality of water<br><br><u>Mark scheme</u><br><br>**Level 3** (7–9 marks)<br><br>**AO1** – Demonstrates detailed knowledge and understanding of concepts, processes, interactions and change. These underpin the response throughout.<br><br>**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.<br><br>**Level 2** (4–6 marks)<br><br>**AO1** – Demonstrates clear knowledge and understanding of concepts, processes, interactions and change. These are mostly relevant though there may be some minor inaccuracy.<br><br>**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.<br><br>**Level 1** (1–3 marks)<br><br>**AO1** – Demonstrates basic knowledge and understanding of concepts, processes, interactions and change. This offers limited relevance with inaccuracy.<br><br>**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.<br><br><u>Notes for answers</u><br><br>The question requires evaluation of the roles played by climate and geology in producing a water supply. Students may consider both volume and quality in their response. They may consider other factors that affect water availability and quality but only as a comparison to the importance of climate and geology. | **9**<br>**AO1 = 4**<br>**AO2 = 5** |

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| | | **AO1**<br>• Knowledge and understanding of the relationship between climate and water supply. High annual rainfall obviously increases water volume. However, temperatures are also significant as high temperatures can cause high evaporation rates.<br>• Climate can also affect water quality as high temperatures can encourage algal growth and reduced levels of dissolved oxygen affecting aquatic ecosystems.<br>• Knowledge and understanding of how geology affects water supply. For example, impermeable rocks such as clay will act as water-shedding surfaces, whereas permeable rocks such as chalk can encourage groundwater storage.<br>• The link between geology and water quality – ground water storage tends to lead to higher water quality as less chance of contamination.<br>• Case-study knowledge of a specified place and the relationship between physical geography and water supply and quality.<br><br>**AO2**<br>• Awareness of the significance of climate in determining water supply and quality. For example, intense low pressure systems in tropical areas, whilst supplying large amounts of water, result in much overland flow rather than infiltration.<br>• Evaluation of the role climate plays in water supply in specific areas. For example, the south-east of England is one of the driest regions of the UK with average annual rainfalls below 700 mm. About two-thirds of this is lost to evaporation.<br>• Analysis of the significance of geology in determining water supply and quality. The rock type is important but if the structure is also correct this allows for natural ground water storage in artesian basins. These are vital in some areas for supplying large areas. For example, the Great Artesian Basin in Australia covers an area of 1.7million square kilometres.<br>• Evaluation of the role played by geology in supplying water in specific areas. For example, Mexico City is reliant on the aquifer to supply most of its water. Without this aquifer, it is unlikely Mexico City would have been able to support such a large population.<br>• Evaluation of the relative importance of climate and geology in determining the supply of water. For example, in Australia, rainfall is extremely variable due to its climate and also El Nino events. However, the Great Artesian Basin means that water is stored, providing a constant supply of water. It is the only source of water in inland Australia.<br>• Evaluation of the relative importance of climate and geology in determining water quality. Ground water storage due to geology generally means that water quality is more assured. Climate plays a bigger role in variations of quality. Increased temperatures can cause algal blooms and affect dissolved oxygen levels which decreases water quality.<br>• Other factors impacting on water supply and quality may be considered in relation to climate and geology. For example, groundwater supplies controlled by geology are increasingly being depleted due to human | |

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| | | extraction. For example, the aquifer supplies 73% of water for Mexico City but it is being depleted faster than it can be recharged by rainfall.<br>• Alternative futures may also be considered for example, climate change is likely to have a big impact on water volume and quality and therefore it could be argued will become more important than geology. Some areas rely on spring snowmelt for water surface supply and without accumulation of winter snow this could lead to water stress.<br>• They may also consider interdependence of climate and geology. For example, geology is important for groundwater storage, however it has to be recharged by rainfall, if it is extracted and used by people.<br>• Students should come to a conclusion as to the relative importance of climate and geology. Any conclusion is valid as long as it supports the content of the response.<br><br>Credit any other valid approach. | |

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| 05 | 5 | **'The environmental impacts of ore extraction will always be greater than that of water supply schemes.'**<br><br>**With reference to a major ore extraction scheme and a major water supply scheme, assess the extent to which you agree with this statement.**<br><br>**AO1** – Knowledge and understanding of the environmental impacts of a major ore extraction scheme. Knowledge and understanding of the environmental impacts of a major water supply scheme.<br><br>**AO2** – Application of knowledge and understanding to assess the significance of environmental impacts of ore extraction and water supply schemes at a variety of scales.<br>Application of knowledge and understanding to evaluate the extent to which the environmental impacts of ore extraction are greater than those of water supply schemes.<br><br><u>Notes for answers</u><br><br>The question links different parts of the Resource security section, specifically ore extraction and water supply scheme. They are required to have studied one ore extraction scheme and one water supply scheme (barrage and / or dam). Credit can be given for more than one ore extraction scheme and / or more than one water supply scheme. Students may also consider future possibilities for water supply schemes and ore extraction.<br><br>**AO1**<br>• Components of demand for water and mineral resources.<br>• Environmental impacts of ore-extraction at a variety of scales from local to global.<br>• Case-study knowledge of an ore extraction scheme and its environmental impacts. Likely examples are Caracas, Brazil iron-ore mine, Chuquicamata, Chile copper mine and Kennecott Bingham copper mine in the US.<br>• Environmental impacts of water supply schemes at a variety of scales.<br>• Case-study knowledge of a major water supply scheme and its environmental impacts. Likely examples are the Lesotho Highlands water project (LHWP), Koka reservoir in Ethiopia and the Aswan Dam.<br>• Knowledge and understanding of the sustainability issues of ore extraction and major water schemes.<br>• Alternative resource futures for water supply schemes and ore extraction.<br>**AO2**<br>• Analysis of the significance and scale of the environmental impacts of ore extraction. For example, mining such as the Carajas mine accounts for 10% of Amazon deforestation. The supply networks such as the railway also increase this figure. This has a global impact due to the loss of pristine forest and carbon storage. | **20**<br>**AO1 = 10**<br>**AO2 = 10** |

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| | | • Analysis of changing impacts of ore extraction over time, for example, increased demand means that lower grades of ore are now being mined resulting in increased tailings and overburden.<br>• Evaluation of the extent to which the impacts of water and ore extraction can be managed and controlled. For example, at the Utah copper mine, tailings are impounded in dams, covered in clay and topsoil and eventually re-vegetated.<br>• Analysis of the significance and scale of the environmental impacts of a water supply scheme. For example, the Aswan Dam impacts the entire drainage basin of the Nile and even the Mediterranean, where marine productivity has decreased due to nutrients in the Nile being trapped behind the dam.<br>• Analysis of the changing impacts of a water supply scheme over time. The LHWP began in 1986 and no EIA were completed and hence there was much damage. Recently EIAs have been implemented and less damage has resulted, although much of the original damage cannot be changed.<br>• Evaluation of sustainability issues surrounding ore extraction and water supply schemes. The degree of challenge in managing and mitigating the environmental impacts. Water pollution at the Carajas mine is difficult to clean up and prevent as toxins seep into the ground. At Aswan coastal erosion is a major problem due to the reduced sediment load. Expensive coastal management strategies have been unsuccessful.<br>• Analysis of future possibilities in terms of the increased demand for mineral ores and water. They may consider that non-renewable ores will make demand increase and extraction in environmentally sensitive areas will increase whereas water is renewable, and it is only population pressures which will increase demand.<br>• Evaluation of alternative futures in terms of technological advancements may also be considered. Future environmental impacts may be difficult to assess as we may be able to mitigate and manage them more successfully in the future.<br>• Answers should evaluate the relative significance of environmental impacts for ore extraction and water supply schemes. There should therefore be a comparative focus. They may consider the idea that ore extraction frequently requires dams so therefore ore extraction also faces the environmental impacts of major water supply schemes.<br>• There should be an overall conclusion as to the extent with which they agree with the statement. It will be very much dependant on the impacts discussed and the evidence used.<br><br>Credit any other valid approach. | |

**Marking grid for question 05.5**

| Level/ Mark Range | Criteria/Descriptor |
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| **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).<br>• Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout (AO2).<br>• Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout (AO1).<br>• Full and accurate knowledge and understanding of key concepts and processes throughout (AO1).<br>• 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).<br>• Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Generally clear and relevant knowledge and understanding of place(s) and environments (AO1).<br>• Generally clear and accurate knowledge and understanding of key concepts and processes (AO1).<br>• 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).<br>• Some partially relevant analysis and evaluation in the application of knowledge and understanding (AO2).<br>• Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Some relevant knowledge and understanding of place(s) and environments which is partially relevant (AO1).<br>• Some knowledge and understanding of key concepts, processes and interactions and change (AO1).<br>• 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).<br>• Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence (AO2).<br>• Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts (AO2).<br>• Very limited relevant knowledge and understanding of place(s) and environments (AO1).<br>• Isolated knowledge and understanding of key concepts and processes (AO1).<br>• 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. |